

2025

Pinellas County Multi-jurisdictional

LOCAL MITIGATION STRATEGY

Pinellas County

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EXECUTIVE SUMMARY

Introduction

Under Section 322 of the Robert T. Stafford Disaster Relief and Emergency Assistance Act (Stafford Act) enacted under the Disaster Mitigation Act of 2000 (DMA2K), Pinellas County is required to have a Federal Emergency Management Agency (FEMA)-approved hazard mitigation plan in order to be eligible for federal hazard mitigation funding. The purpose of the Hazard Mitigation Plan, more commonly called the Local Mitigation Strategy (LMS) in Florida communities, is to reduce death, injuries, and property losses caused by natural hazards in Pinellas County. The 2025 Plan identifies hazards based on the history of disasters within the county and lists goals, objectives, strategies, and actions for reducing future losses. Implementation of planned, pre-identified, and cost-effective mitigation measures not only helps to reduce losses to lives, property, and the environment but it also streamlines the disaster recovery process. This is a 5-year update of the countywide LMS that was last approved in May of 2020. While the document may refer to specific historical events for context, the plan update focuses on changes to the communities and their vulnerabilities over the last 5 years and provides an update to capabilities, programs, and actions that the participants intend to utilize to reduce exposure or consequences from the identified hazards. Hazard mitigation is most effective when based on an inclusive, comprehensive, long-term plan that is developed before a disaster occurs.

The LMS serves several purposes; including providing an explanation of how Pinellas County and its 24 municipalities identify strategies to implement an effective, comprehensive countywide Local Mitigation Strategy. The local jurisdictions participating in this plan include the Unincorporated County and all its municipalities:

- Pinellas, Unincorporated
- Belleair, Town of
- Belleair Beach, City of
- Belleair Bluffs, City of
- Belleair Shore, Town of
- Clearwater, City of
- Dunedin, City of
- Gulfport, City of
- Indian Rocks Beach, City of
- Indian Shores, Town of
- Kenneth City, City of
- Largo, City of
- Madeira Beach, City of
- North Redington Beach, Town of
- Oldsmar, City of
- Pinellas Park, City of
- Redington Beach, Town of
- Redington Shores, Town of
- Safety Harbor, City of
- St. Pete Beach, City of
- St. Petersburg, City of
- Seminole, City of
- South Pasadena, City of
- Tarpon Springs, City of
- Treasure Island, City of

Additionally, special districts that participate in the plan are eligible for funding provided that they comply with procedures of the working group and supply a letter from their organization in lieu of the formal adoption process used by local government participants. The full list of participating entities is documented within Table 2.2 of the plan.

The 2025 Plan is coordinated through appropriate state, local, and regional agencies, as well as non-governmental interest groups. This plan, and its future revisions, will provide guidance in merging the planning efforts of all local governments, the private sector, and non-profit organizations within Pinellas County into one viable, comprehensive, mitigation program.

The scope of the LMS is broad. The plan explains the way in which the communities implement mitigation activities within the county in coordination with local agencies. Additionally, as required by statute, the Risk Assessment portion of the LMS identifies natural hazards, as well as technological and human-caused hazards. The Risk Assessment portion analyzes vulnerability of the County in countywide terms as well as results and capabilities at the municipal level.

The purpose of the 2025 LMS is to:

- Reduce risk to people, property, and the critical infrastructure.
- Increase public awareness and education about the plan and planning process.
- Maintain grant eligibility for participating jurisdictions.
- Update the plan in accordance with Community Rating System (CRS) requirements.
- Maintain compliance with state and federal legislative requirements for local hazard mitigation plans.
- Complete an update of information in the plan to demonstrate progress and reflect current conditions.

Pinellas County is vulnerable to both natural hazards and technological and human-caused hazards, with hurricanes historically inflicting the most catastrophic destruction.

Planning Process and Maintenance Section

There are 10 primary steps that comprise the LMS planning process. The process defines not only who should be involved, but how the process is going to work, and an understanding of how the process facilitates the production of the final product.

- Step 1: The Planning Organization – The development of a mitigation strategy requires the involvement of representatives from the public, private, and governmental sectors.
- Step 2: Involving the Public – An important component of the mitigation planning process involves public participation.
- Step 3: Coordination – Coordinate activities within the County and to bring back perspectives of their constituency.
- Step 4: Assessing the Hazard – Conduct and maintain a hazard identification and vulnerability assessment.
- Step 5: Assessing the Problem – Quantify the impact of the hazards identified in the previous step on the community.
- Step 6: Goals and Objectives – Revisit goals and objectives and make adjustments as appropriate.
- Step 7: Possible Activities: Mitigation Opportunities and Initiatives – Identification of potential mitigation opportunities and initiatives.

- Step 8: An Action Plan – Objectives were identified for each goal to specifically identity action items and are reflected in six categories of mitigation activities.
- Step 9: Adoption of the Strategy – Officially adopt the LMS.
- Step 10: Implementation, Evaluation, and Revision – The LMS is intended to be a dynamic document that will be updated regularly.

There are two main working groups responsible for the LMS planning process. The LMS Working Group (WG) consists of representatives of the jurisdictions, private sector, and non-profits as well as any members of the public as all meetings are advertised on the County's website. The Flood Risk and Mitigation Public Information Working Group (FRMPIWG) is a group of public and private stakeholders formed to supplement input into the planning process.

The County's first LMS began its planning process in March of 1998 and took approximately 15 months to complete. The plan was then updated again in 2004, 2009, 2015, and 2020. This is the fifth update of the plan, and the focus of the update was on adding new risk assessments, refining objectives, and refreshing the project list.

The 2025 LMS update began in the spring of 2024 when the County assessed its current plan and assessed it for improvement opportunities. When the plan update began, the LMS WG was presented with results of the assessment for concurrence on a path forward.

During the timeline of the plan update, the County and its jurisdictions included several other groups to supplement input into the planning process. Pinellas is a strong advocate of the National Flood Insurance Program's Community Rating System (CRS) and had a few outreach groups in place to support those activities. A countywide Program for Public Information (PPI) is maintained and updated annually to facilitate consistent messaging across communities and provide tools for jurisdictions with limited resources. This is maintained by a group of public and private stakeholders that is collectively known as the Flood Risk and Mitigation Public Information Working Group (FRMPIWG). The FRMPIWG uses the following mission statement:

- Increase disaster resiliency across the county through the development and dissemination of public information and educational outreach about identified flood risks, minimization of those risks through mitigation and the efficacy of obtaining appropriate flood insurance coverage.
- Ensure attainment of flood insurance savings for residents and businesses within the incorporated and unincorporated areas of the county through effective participation in the Community Rating System.
- Engage and educate community stakeholders to enhance planning efforts by ensuring diverse representation and to provide stakeholders the opportunity to become more knowledgeable in the subject of mitigation and to expand reach while improving their ability to provide improved customer service.
- Develop strategies, concepts, and projects for reducing flooding impacts that can become part of the county Local Mitigation Strategy plan.

The FRMPIWG group (typically over 70 participants with representatives from all municipalities) aims to meet at least three times a year (in person or virtually per availability of participants) and communicates

via email messaging between meetings. During the 5-year LMS Update process, the progress of the plan update is communicated to FRMPIWG members for comment. Feedback from the FRMPIWG was provided to the LMS WG to be evaluated and included in the LMS update process and the most current PPI is included as an appendix to this plan update.

After the 2025 LMS Plan Update underwent final revisions, and the plan was completed to the satisfaction of the State Hazard Mitigation Office (SHMO), which reviews the Plan for compliance on behalf of the Federal Emergency Management Agency, the plan was officially adopted by Pinellas County Board of County Commissioners by adoption of a resolution. The 2025 LMS update was approved by the Board of County Commissioners on Month ##, 2025. The plan will be in effect from May 6, 2025, until May 5, 2030. Each jurisdiction within Pinellas County, has also approved and adopted the Plan within their community as identified in Appendix F. (**Will be updated at adoption in May 2025**)

Risk Assessment Section

It should be noted that the 2025 LMS Update was drafted prior to the devastating and historic flooding and wind damages associated with Hurricanes Helene and Milton that occurred September 26, 2024, and October 9, 2024, respectively. Their impacts to the communities of Pinellas County will be part of future updates to the Plan.

The risk assessment for Pinellas County was intentionally structured to align with the State of Florida Enhanced State Hazard Mitigation Plan (SHMP) and provides the factual basis for developing a mitigation strategy for the county. This section profiles the natural, human-caused, and technological hazards that could possibly affect Pinellas communities. This risk assessment is used not only for the LMS, but also supports the County's Comprehensive Emergency Management Plan (CEMP). Each natural hazard profile includes a discussion of the geographic areas affected, the historical occurrences in the county, an impact analysis, the probability, and the vulnerability and loss estimation by county critical facilities, and a discussion of overall vulnerability. Alternatively, the human-caused and technological hazards include similar topics of discussion, but not all aspects are able to be quantified. This is because of the limited data available and the imprecise nature of the human-caused and technological hazards.

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The risk assessment identifies 22 hazards based on an examination of past disasters, probability of occurrence, possible impacts, and vulnerability. The hazards include:

Natural Hazards

- Flood
- Tropical Cyclones
- Severe Storms
- Wildfire
- Erosion
- Drought
- Extreme Heat
- Geological
- Winter Storm
- Seismic
- Tsunami
- Red Tide

Technological Hazards

- Transportation Incident
- Cyber Incident
- Hazardous Materials Incident
- Space Weather Incident
- Radiological Incident
- Terrorism
- Agricultural Disruption
- Biological Incident
- Mass Migration Incident
- Civil Disturbance Incident

Mitigation Strategy Section

The LMS details goals and objectives for achieving loss reduction in Pinellas County. The six goals are listed below.

1. Become a More Disaster Resilient Community.
2. Minimize Coastal Flooding Losses in the CHHA, Coastal Storm Area and Hurricane Vulnerability Zone.
3. Minimize Riverine or Inland Flooding Losses in the 25, 50, and 100-year Flood Zone.
4. Minimize Storm Wind Losses in the County.
5. Minimize Losses from Hazardous Material Incidents.
6. Minimize Vulnerability to Technological Hazards.

Additional information on the LMS goals and objectives can be found in the mitigation strategy section of the document.

Pinellas County has policies, programs, and capabilities designed to help mitigate the impacts of hazard events. Each community has its own policies, programs, and capabilities that are catalogued within this section of the plan to identify current capacity to implement mitigation functions. These depend on factors such as the size of the geographic area, its population, or the amount of funding available through local resources. Regardless of size or wealth, each community has a unique core set of policies, programs, and capabilities at its disposal related to hazard reduction and mitigation including building codes, land use plans, and regulations, which are discussed in this section. This section also covers items related to participation in the NFIP and the CRS program which incentivizes communities that go beyond minimum floodplain management standards to better protect life and property.

During the 5-year period since the last plan, five of the Pinellas jurisdictions have improved their score such that additional flood insurance premium discounts are available to policyholders. Unincorporated

County became a Class 2 community resulting in 40% flood insurance premium reductions for its policyholders. This is the only Class 2 (and highest scoring) community within Florida and one of only eleven communities nationwide to reach this achievement.

Potential Funding Sources Section

The county uses a variety of programs and funds to achieve its mitigation goals, including federal grant programs such as the Hazard Mitigation Grant Program (HMGP), Building Resilient Infrastructure and Communities (BRIC) grant program, Flood Mitigation Assistance (FMA), and the state grant Hurricane Loss Mitigation Program (HLMP). Various grants and funding programs are discussed throughout this section.

Appendices

Many documents are included with the LMS as appendices. These appendices are referenced throughout the plan and support the plan.

- Appendix A: Planning Process Documentation
- Appendix B: Floodplain Management
- Appendix C: CRS 610
- Appendix D: Mitigation Initiatives
- Appendix E: FL Review Tool
- Appendix F: Plan Adoption
- Appendix G: Plan Maintenance
- Appendix H: Program for Public Information
- Appendix I: Repetitive Loss Area Analysis
- Appendix J: LMS Procedures
- Appendix K: Vulnerability Assessment

INTRODUCTION

Local Hazard Mitigation Plan Update Requirements
**U1 corresponds to FL Crosswalk tool. Items in parentheses corresponds to FEMA Review.*
U1 (E1-a) The plan must describe changes in development that have occurred in hazard-prone areas and how they have increased or decreased the vulnerability of each jurisdiction since the previous plan was approved.

Purpose

Under Section 322 of the Robert T. Stafford Disaster Relief and Emergency Assistance Act (Stafford Act) enacted under the Disaster Mitigation Act of 2000 (DMA2K), the County (and its municipalities) is required to have a Federal Emergency Management Agency (FEMA)-approved hazard mitigation plan in order to be eligible for federal hazard mitigation funding. In Florida, the hazard mitigation plan is known as a Local Mitigation Strategy, or LMS. The purpose of the LMS is to establish an ongoing process that will make hazard mitigation an integral part of the daily functioning of the entire community, including both public and private sectors and our residents themselves. The LMS serves as a bridge between local governments' comprehensive growth management plans, the county's comprehensive emergency management plan, land development regulations, and relevant ordinances and codes such as those used for floodplain management. It may also fulfill some of the requirements of Florida Statutes Chapter 163, "Comprehensive Growth Management Plan." This strategy integrates mitigation initiatives established through various policies, programs, and regulations into a single stand-alone working document. The 2025 Plan identifies hazards based on the history of disasters within the community and lists goals, objectives, strategies, and actions for reducing future losses. Implementation of planned, pre-identified, and cost-effective mitigation measures not only helps to reduce losses to lives, property, and the environment but also streamlines the disaster recovery process. Hazard mitigation is most effective when based on an inclusive, comprehensive, long-term plan that is developed before a disaster occurs.

Section 322, along with other sections of DMA2K, provides an opportunity to reduce the nation's disaster losses through hazard mitigation. The Stafford Act authorizes funding to be made available to states through the Hazard Mitigation Grant Program (HMGP) after presidentially declared disasters. In addition, the Stafford Act sets the requirements for state hazard mitigation plans and requires local jurisdictions to develop and adopt a local mitigation plan to receive federal funding for hazard mitigation. The DMA2K is implemented by the FEMA and requires that all mitigation plans, at both at the state and local level, be maintained and updated periodically.

According to the federal regulations outlined in DMA2K, state and local hazard mitigation plans are required to be updated and re-approved by FEMA every five years. The county's planning process for its first LMS plan began in March of 1998 and took approximately 15 months to complete. The plan was then updated again in 2004, 2009, 2015, and 2020. This is the fifth update of the plan, and the focus of this update was on adding new risk assessments, refining objectives, and refreshing the project list.

The purpose of the 2025 LMS is to:

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- Maintain compliance with state and federal legislative requirements for local hazard mitigation plans.
- Complete an update of information in the plan to demonstrate progress and reflect current conditions.

What is Hazard Mitigation?

Hazard mitigation is defined as any action taken to reduce or eliminate the long-term risk to human life and property from manmade or natural hazards. A hazard is any event or condition with the potential to cause fatalities, injuries, property damage, infrastructure damage, agricultural loss, environmental damage, business interruption, or other structural or financial loss.

The purpose of hazard mitigation is to make human development as well as the natural environment safer and more resilient. Hazard mitigation generally involves enhancing the built environment to significantly reduce risks and vulnerability to hazards. Mitigation can also include removing the built environment from disaster prone areas and maintaining natural mitigation features, such as wetlands or floodplains. Hazard mitigation makes it easier and less expensive to respond to and recover from disasters by breaking the damage and repair cycle.

Examples of hazard mitigation measures include, but are not limited to, the following:

- Development of mitigation standards, regulations, policies, and programs;
- Land use/zoning policies;
- Strong statewide building codes and floodplain management regulations;
- Dam safety programs, seawalls, and levee systems;
- Acquisition of flood prone and environmentally sensitive lands;
- Retrofitting/hardening/elevating structures and critical facilities;
- Relocation of structures, infrastructure, and facilities out of vulnerable areas;
- Public awareness/education campaigns; and
- Improvement of warning and evacuation systems.

Benefits of hazard mitigation include, but are not limited to the following:

- Saving lives and protecting public health;
- Preventing or minimizing property damage;
- Minimizing social dislocation and stress;
- Reducing economic losses;
- Protecting and preserving infrastructure;
- Reducing the legal liability of government and public officials; and
- Fewer expenditures on response and recovery efforts.

In 2005, a study by the National Institute of Building Sciences reported to Congress that, on average, every dollar spent on mitigation yields four dollars in future benefits. In December 2019, the Institute issued the *Natural Hazard Mitigation Saves: 2019 Report*. The 2019 Report highlights the significant savings that result from implementing mitigation strategies in terms of safety, and the prevention of property loss and disruption of day-to-day life. The report is a compilation of the project team's results to this point and includes the findings from the:

- Natural Hazard Mitigation Saves: 2017 Interim Report,
- Natural Hazard Mitigation Saves: Utilities and Transportation Infrastructure, and
- Natural Hazard Mitigation Saves: 2018 Interim Report.

For this part of the ongoing study, the Institute's project team looked at the benefits of designing buildings to meet the 2018 International Residential Code (IRC) and 2018 International Building Code (IBC) — the model building codes developed by the International Code Council (ICC) — versus the prior generation of codes represented by 1990-era design and National Flood Insurance Program (NFIP) requirements. **The project team found a national benefit of $11 for every $1 invested.**[1]

Regulations

The Disaster Mitigation Act of 2000 (DMA2K) became law on October 30, 2000. The act amends the Robert T. Stafford Disaster Relief and Emergency Assistance Act (Stafford Act) (Public Law 93-288, as amended).

Federal statutes and regulations applicable to State and Local Mitigation Planning include the following:

- Disaster Mitigation Act of 2000 (42 U.S. Code 5121)
- Stafford Act
    - Title III – Major Disaster and Emergency Assistance Administration
        - Section 322 – Mitigation Planning (42 U.S. Code 5165)
            - (a) Requirement of Mitigation Plan
            - (c) State Plans
            - (e) Increased Federal Share for Hazard Mitigation Measures
- Stafford Act
    - Title IV – Major Disaster Assistance Programs
        - Section 404 – Hazard Mitigation (42 U.S. Code 5170(c))
            - (c) Program Administration by States
- 44 Code of Federal Regulations 201 – Mitigation Planning
    - §201.6 Local Mitigation Plans
- 44 Code of Federal Regulations 13 – Uniform Administrative Requirements for Grants and Cooperative Agreements to State and Local Governments
    - Subpart B – Pre-Award Requirements
        - §13.10 Forms for Applying for Grants

[1] https://www.nibs.org/files/pdfs/NIBS_MMC_MitigationSaves_2019.pdf

Florida statutes and regulations applicable to State and county Mitigation Planning include the following:

- Florida Statute 252
    - Florida Administrative Code 27P-22
- Florida Statute 252.3655

Other applicable standards include the Emergency Management Accreditation Program (EMAP) Standards. Pinellas County is not EMAP Accredited yet but is considering the process. This LMS update is designed for compliance with the EMAP Standards. The applicable standards include:

- 4.1: Hazard Identification, Risk Assessment and Consequence Analysis
- 4.2: Hazard Mitigation

Assurances

Pinellas County does comply, and assures it will continue to comply, with all applicable federal statutes and regulations in effect with respect to the periods for which it receives grant funding in compliance with 44 CFR 13.11(c). This includes managing and administering FEMA funding in accordance with applicable Federal statutes and regulations.

The county also assures it will amend the Local Mitigation Strategy in accordance with 44 CFR 13.11 (d). This includes amending the plan whenever necessary to reflect changes in state or federal laws and statutes.

Outline of LMS

The 2025 LMS update included re-organization to better align with the Florida State Hazard Mitigation Plan. The outline of the plan is shown in the table below.

Table 1.1: Outline of 2025 LMS

Section	Description
Executive Summary and Introduction	The Executive Summary is a quick overview of the entire LMS. The Introduction includes the purpose of the LMS as well as elements that are required by statute, such as Regulations and Assurances. The section also includes the definition of hazard mitigation and the Pinellas County profile.
Planning Process and Plan Maintenance Section	The Planning Process and Plan Maintenance Section includes a brief history of the Pinellas County LMS as well as a narrative regarding the 2025 LMS Update. Adoption and Approval process descriptions and documentation are also in this section. Finally, there is a section regarding annual reviews and updates as well as the five-year cycle plan updates.

Section	Description
Risk Assessment Section	The Risk Assessment Section includes the hazard profiles as well as the vulnerability and loss estimations for each of the twelve natural hazards: • Flood • Tropical Cyclone • Severe Storm • Extreme Heat • Drought • Wildfire • Erosion • Geological • Seismic • Tsunami • Winter Storm • Red Tide The LMS Risk Assessment also includes ten technological and human-caused hazard profiles because the LMS Risk Assessment serves as the primary risk assessment for Pinellas County. The technological and human-caused hazards profiled include: • Agricultural Disruption • Biological Incident • Civil Disturbance • Cyber Incident • Mass Migration • Hazardous Materials Incident • Radiological Incident • Space Weather Incident • Terrorism • Transportation Disruption
Mitigation Strategy Section	The Mitigation Strategy Section discusses the goals, objectives, and mitigation capabilities of the county.
Potential Funding Sources Section	The Potential Funding Sources Section discusses federal, state, and local funding sources available for mitigation.

Section	Description
Appendices	The Appendices are documents that are referenced throughout the LMS and include: • Appendix A: Planning Process Documentation • Appendix B: Floodplain Management • Appendix C: CRS 610 • Appendix D: Mitigation Initiatives • Appendix E: FL Review Tool • Appendix F: Plan Adoption • Appendix G: Plan Maintenance • Appendix H: Program for Public Information • Appendix I: Repetitive Loss Area Analysis • Appendix J: LMS Procedures • Appendix K: Vulnerability Assessment

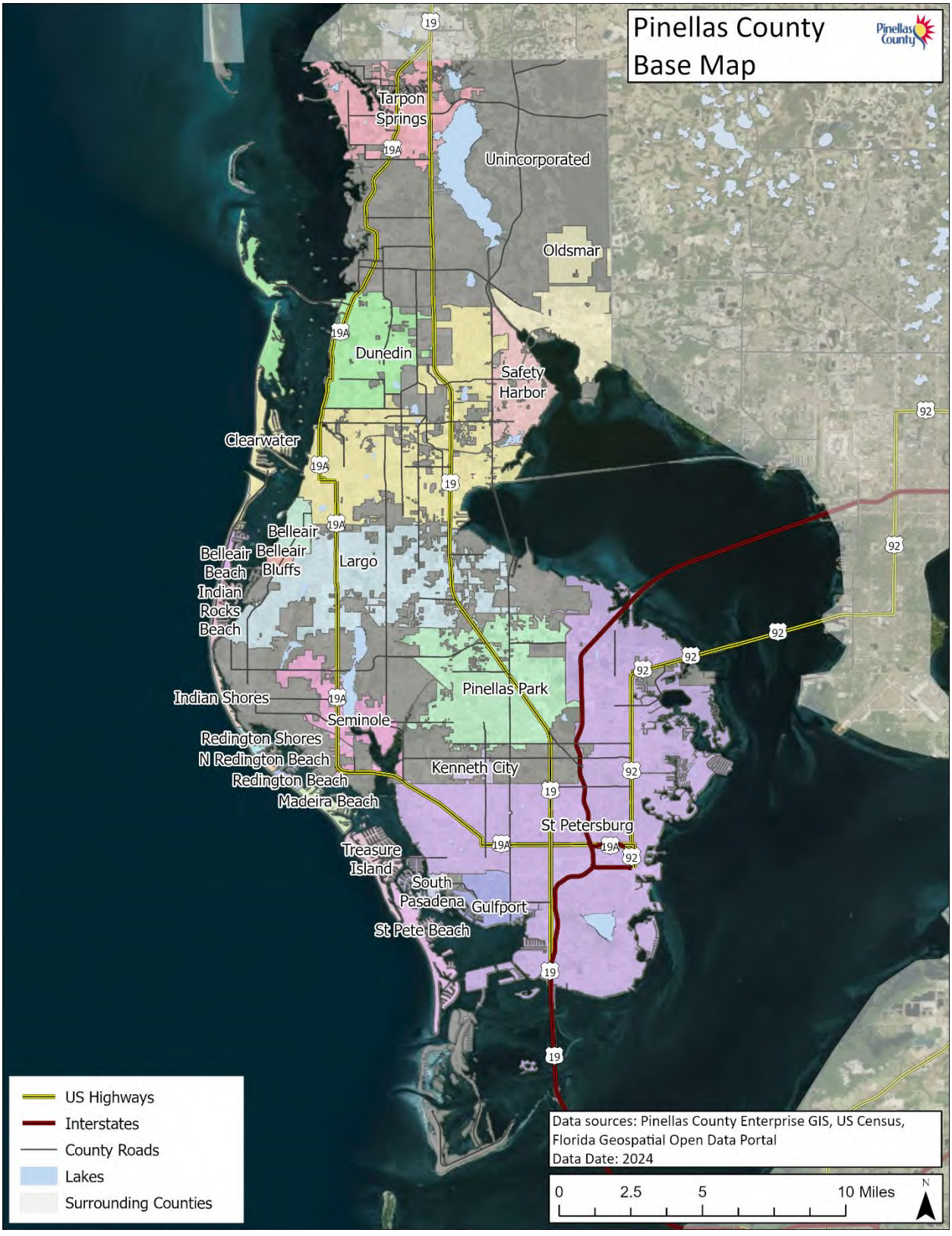
Pinellas County Profile

Attracted by the mild, sub-tropical climate and miles of white sand beaches nearly one million people have made Pinellas County their home. With an average 360 days of sunshine each year and beaches ranked among the best in the U.S., the county is also the most popular tourist destination on the Gulf of Mexico. In 2023 alone, Pinellas County received about 16 million visitors according to Visit St. Pete/Clearwater. Pinellas' diverse communities range in population and nearly all capitalize on living in a waterfront paradise. As an established county, the significant infrastructure – including schools, utilities, and roadways – is already in place. Pinellas is also well connected with regional access provided via Interstate-275, two international airports, and the largest port in Florida.[2]

Pinellas lies at the center of the robust Tampa Bay market, which is expected to grow from its current population of 4 million to 6 million by 2030. The market's significant economic clout is also evidenced by more than $70 billion in consumer spending and a labor force 2 million strong. The region is ranked number 20 in the U.S. for job growth and carries the country's 13th largest media market.[3]

[2] https://www.pced.org
[3] https://www.lincs-chamber.co.uk/international-trade/exploring-new-markets/pinellas-florida/

Figure 1.1: Base Map of Pinellas County, 2024



Population

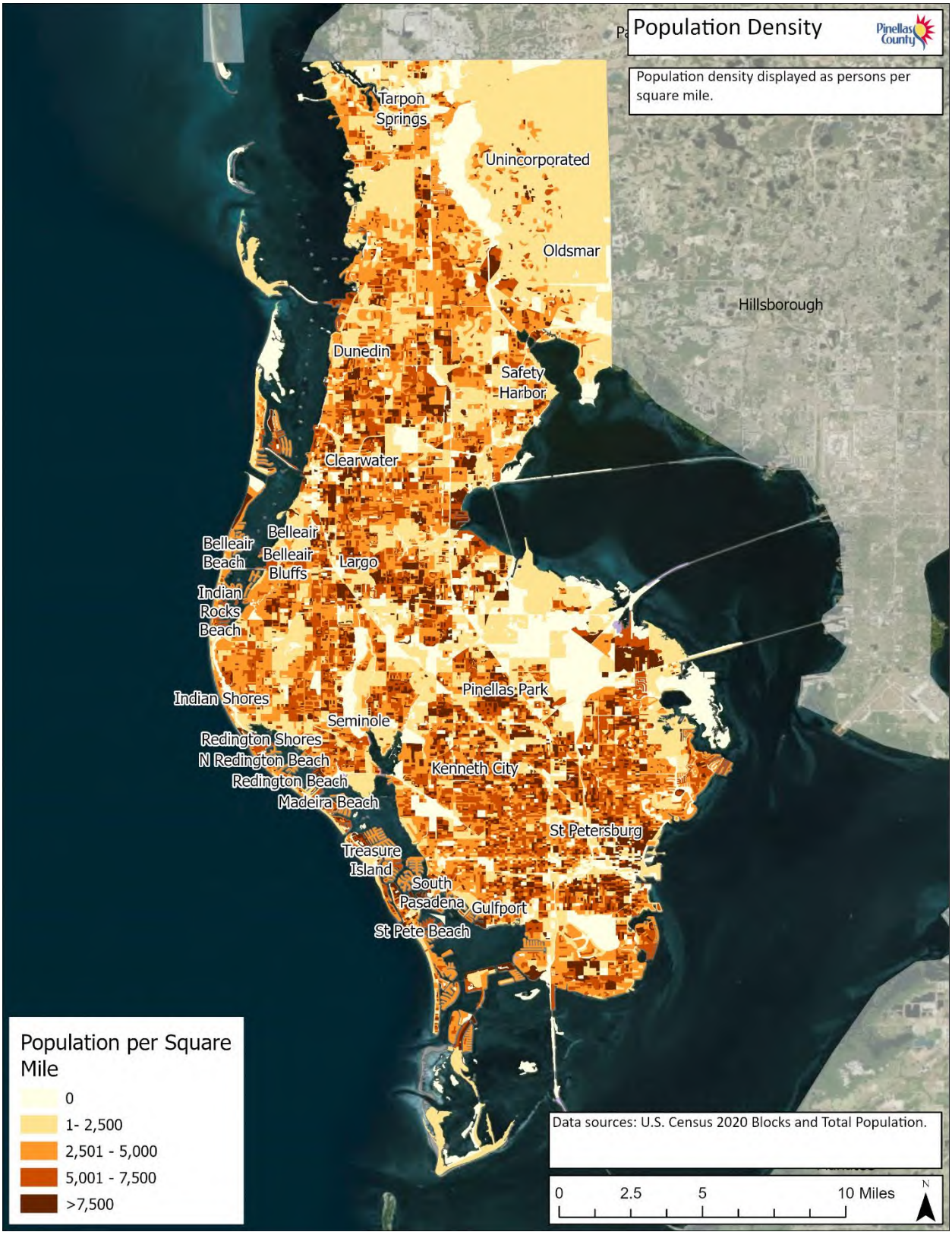
Pinellas County is the seventh most populous county in Florida, with approximately 961,739 permanent residents (U.S. Census ACS 2022 Estimate). Pinellas County's population grew by 7.4% between 2010 and 2020. The county's population is projected to grow to around 1,033,000 by 2050.[4] There are 24 incorporated municipalities in Pinellas County, ranging from the largest, St. Petersburg, with a population of 259,343, to the smallest, the Town of Belleair Shore, with a population of 67 (U.S. Census ACS 2022 5 Year Estimate).

One vulnerability for Pinellas is the concentration of its population. In 2020 Pinellas County had the most densely populated county in Florida with 3,504.2 people per square mile. This is more than double the value of the next closest county, which is Broward with 1,616.6 people per square mile.

The county's population density is shown in Figure 1.2.

[4] https://www.bebr.ufl.edu/population

Figure 1.2: Population Density, 2020



Below are Pinellas County demographics from the US Census Bureau.

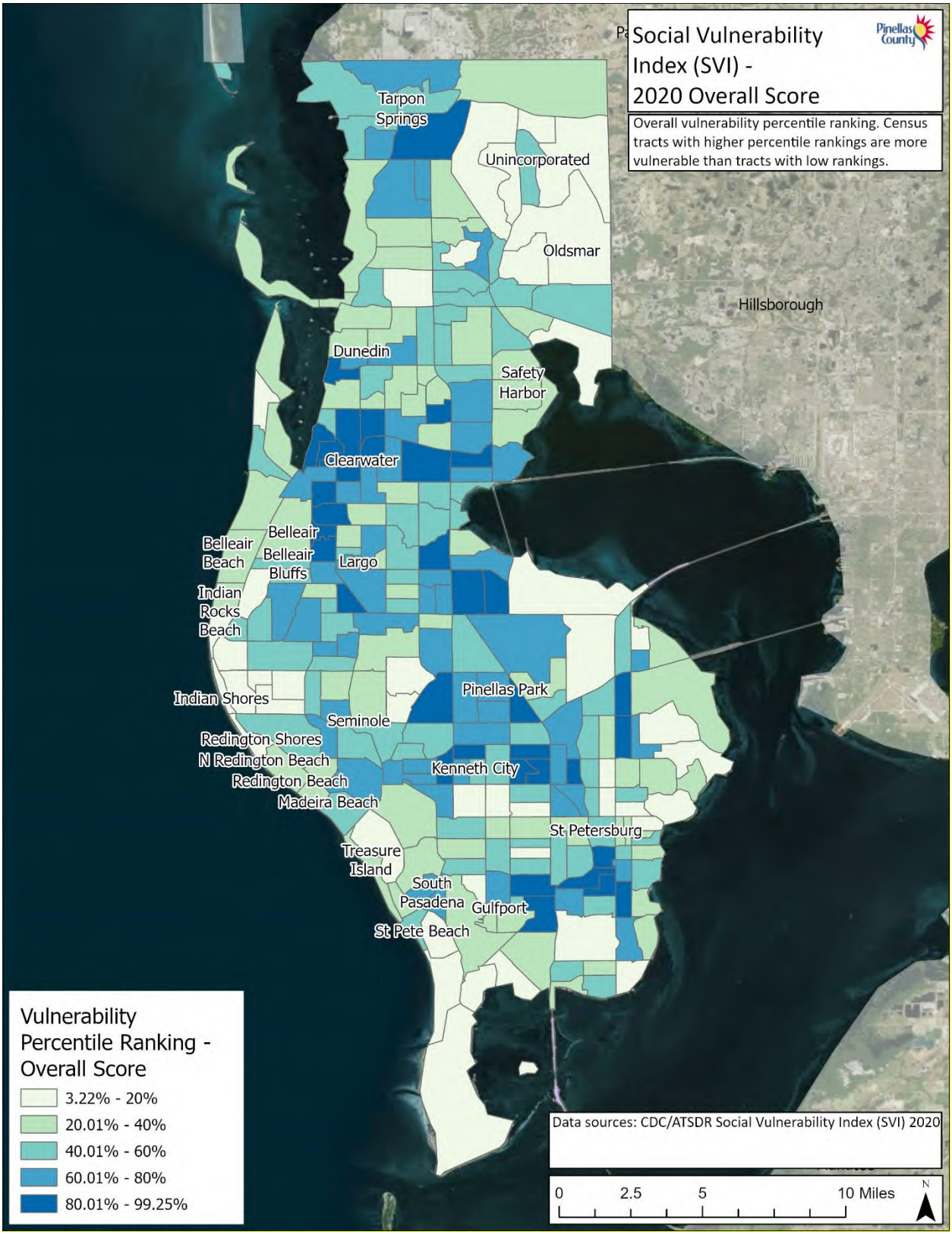
Table 1.2: Pinellas Demographics, 2020[5]

Category	Data
2010 US Census population	916,804
2022 US Census population estimates	961,739
Age	**Percentage**
2022 Persons under 5 years	3.8%
2022 Persons under 18 years	15.2%
2022 Persons 65 years and over	26.6%
Gender	**Percentage**
2022 Female persons	51.7%
2022 Male persons	48.3%
Race	**Percentage**
2022 White, alone	73.8%
2022 Black or African American, alone	9.5%
2022 American Indian and Alaska Native, alone	0.2%
2022 Asian, alone	3.5%
2022 Native Hawaiian and Other Pacific Islander alone	0.1%
2022 Two or More Races	10.1%
Hispanic Origin	**Percentage**
2022 Hispanic or Latino	10.9%
2022 Not Hispanic or Latino	89.1%
Characteristics	**Data**
2022 Veterans	63,959
2022 Foreign born persons	119,436
Families and Living Arrangements	**Data**
2022 Households	425,255
2022 Persons per household	2.21
2022 Language other than English spoken at home by persons age 5 years and over	15.2%
Education	**Percentage**
2022 High school graduate or higher	93.2%
2022 Bachelor's degree or higher	37.3%
Health	**Percentage**
2022 Persons with a disability, under age 65 years	15.7%

Pinellas' population is particularly vulnerable because 41.9% of the population is composed of children (18 years or younger) and seniors (65 years or older). This is shown in Figure 1.3.

[5] https://data.census.gov/

Figure 1.3: Social Vulnerability Map of Pinellas County, 2020



Geography

Pinellas County is a peninsula located on the west central coast of Florida, bordered on the north by Pasco County, on the south by Tampa Bay, on the east by Tampa Bay and Hillsborough County, and on the west by the Gulf of Mexico. Pinellas County has the second-smallest land area of Florida's 67 counties, with 280 square miles in addition to another 334 square miles of water surface area. The county has a total of 588 miles of coastline.

Topographic features

The elevation of Pinellas County ranges from mean sea level (msl) to 110 feet. The county is divided into five subsections based on topography: the ridge, which generally runs in a north-south orientation through the county with elevations between 40 and 110 feet; a sloping transition area, with elevations between 10 and 40 feet; the flood plain, with elevations between zero and ten feet; the barrier beach islands, with elevations between zero and ten feet; and the coastal filled areas, that have elevations between zero and five feet.

Most of Pinellas County may be characterized as relatively flat, with five small areas that are identified as having short, steep slopes. These areas are generally along creek banks (parts of Possum, Bishop, and Curlew creeks in the northern part of the county and part of Booker Creek in St. Petersburg), in addition to the western mainland shore from Clearwater Harbor to Belleair.[6]

Surface hydrology: rivers, streams, and lakes

The Anclote River is the only river that flows through Pinellas County. With headwaters in adjacent Pasco County, the Anclote River crosses into Pinellas County along its northern border and runs only a few miles before emptying into the Gulf of Mexico at Tarpon Springs. Along with its importance as a natural resource, the Anclote River is also significant for tourism, as it runs through the famed Tarpon Springs sponge docks.

There are numerous streams, creeks and drainage channels that run through Pinellas County. Of these, the county has identified 25 creeks and canals that serve as major drainage features. The National Inventory of Dams, a congressionally authorized database maintained by USACE, documents dams in the United States. In the National Inventory of Dams, there are 10 dams identified in Pinellas County. The Sawgrass Lake structure and Structure 551 on Lake Tarpon Canal (Lake Tarpon Control Structure (S-551) are owned by the SWFWMD. Pinellas County owns the Walsingham Reservoir, Feather Sound Structure, Alligator Lake Weir, Lake Seminole Dam, and Taylor Lake structures. Lake Maggiore Operable Structure is owned by the City of St. Petersburg. And there is one privately owned dam in the county. There is an Emergency Action Plan for Structure 551 on Lake Tarpon Canal (USACE, 2012).

Prior to the urbanization, there were hundreds of lakes in Pinellas County, many that were indistinguishable from marshes and swamps. To accommodate development, many of the lakes in the urbanized areas of the county were landscaped, deepened, dredged, drained, or filled. Today, there are still numerous lakes and ponds located throughout Pinellas County. Some of the larger lakes include:

[6] Source: Conservation and Coastal Zone Management Element, Countywide Comprehensive Plan for Pinellas County, PPC

- Lake Tarpon: Covering 2,534 acres in the northern part of the county, Lake Tarpon is the county's largest lake. Lake Tarpon is fed by groundwater and at the surface by Brooker Creek. Until 1967, the lake had a hydrological connection to Spring Bayou (eventually flowing into the Anclote River) but was subsequently damned off by the US Army Corps of Engineers in order to control saltwater intrusion into the lake. A controlled height canal is an outfall for the lake into Tampa Bay near the City of Safety Harbor, which is used to periodically lower the water level of the lake.
- Lake Seminole: Formerly an estuary at the north end of Long Bayou in west-central Pinellas County, Lake Seminole has a surface area of 980 acres. The lake level is typically between 4 to 5 feet above mean sea level.
- Lake Maggiore: Located in the southern part of the City of St. Petersburg, Lake Maggiore covers 380 acres in size. Runoff from surrounding developed areas adds silt and organics to the lake, making the lake bottom a loose murky layer of mud and decomposing organics up to six feet thick.
- Other large lakes in the county include: Salt Lake, 220 acres; Lake Del Oro, 75 acres; Alligator Lake, 77 acres; Lake St. George and Lake Chautaugua, each about 50 acres.

Pinellas County proactively develops Watershed Management Plans (WMP) through funding from the County's Surface Water Assessment Fee, cooperative funding from SWFWMD and in some cases, other municipalities within the County. These plans, in most cases, develop an existing conditions stormwater model that delineates drainage patterns in the watershed under certain storm events. These analyses also develop boundaries of floodplains at a more detailed level than currently available floodplain boundaries and are more representative of current conditions. The drainage patterns are then further analyzed, with the help of historical information, to develop conceptual projects that could reduce the flooding conditions within the watershed.

In addition to analyzing drainage patterns, these plans also evaluate the potential sources of pollutants in the watershed and develop recommended projects and strategies to help reduce or treat some of the pollutants. These WMPs are also utilized during the development of other projects since the preliminary drainage analysis has already been completed in the particular watershed.

Pinellas County currently has WMPs for the following watersheds:

- Allens Creek
- Alligator Creek
- Anclote River
- Bee Branch/Smith Creek
- Bishop Creek
- Bonn Creek
- Briar Creek
- Brooker Creek
- Cedar Creek
- Church Creek
- Cow Branch
- Cross Bayou
- Curlew Creek
- Hollin Creek
- Joe's Creek

- Klosterman Bayou
- Lake Chautauqua
- Lake Seminole
- Lake Tarpon
- Long Branch
- McKay Creek
- Moccasin Creek
- Mullet Creek
- Pinellas Park Ditch #1
- Pinellas Park Ditch #5
- Possum Branch
- Rattlesnake Creek
- Roosevelt Creek
- Seminole Bypass Canal
- Spring Branch
- Starkey Road
- Stevenson Creek
- Tarpon Outfall Canal

Islands and significant habitats

There are a series of barrier islands in close proximity to the mainland coast. These islands extend about 34 miles along the western coastline of the county. With a few exceptions (notably, Caladesi Island and Anclote Key), all barrier islands are connected to the mainland by a series of 14 causeways and bridges. A few of the islands are publicly owned and managed, such as Honeymoon and Caladesi Islands, Mullet Key/Fort DeSoto Park, Anclote Key, and others. However, most of the barrier islands are densely populated and completely built out. The barrier islands contain miles of light sandy beaches, which are a key element in Pinellas County's thriving tourist industry, and a major contributor to the overall economy of the county. In addition to the barrier islands, Pinellas County has invested in the mitigation and acquisition of large portions of environmentally sensitive lands to protect these valuable resources.

The wetland resources of Pinellas County provide a number of benefits. Freshwater and tidal wetlands provide habitats for wildlife such as birds, mammals and reptiles, including some endangered species. Because of their important function as a source of organic matter which functions as the base of the detrital food chain, tidal wetlands provide habitat, breeding areas and nurseries for commercial and recreational marine fisheries. Freshwater wetlands attenuate the damaging effects of storm and flood waters during peak runoff by slowing and storing those waters, then releasing them gradually. Coastal shorelines and uplands are buffered from the severity of tidal surge during a storm by the adjacent coastal wetlands. (Natural Resource Conservation and Management Element of the Pinellas County Comprehensive Plan, Adopted March 2008 and Amended 2012)

Wetlands also function as a natural filtration system, cleansing storm water runoff before it enters Tampa Bay, the Gulf of Mexico or other surface water bodies. Sedimentation of the downstream waters is reduced by slowing the water velocity, allowing sediments to drop out of the water column while in the wetland. Subsequently, pollutants that are attached to the sediments are buried in the wetland soil. Excess nutrients and other chemicals may be filtered out of the water and soil by the wetland vegetation, stored in their biomass (leaves, stems and roots), and buried in the organic soil when the plants die. The

associated birdlife and open vistas of wetlands provide aesthetic beauty and visual relief from the urbanized landscape of Pinellas County. (Natural Resource Conservation and Management Element of the Pinellas County Comprehensive Plan, Adopted March 2008 and Amended 2012).

Climate

The climate in Pinellas County is humid subtropical (Köeppen climate classification: Cfa), characterized by warm, humid summers and mild winters. There is a definite rainy season which generally lasts from June through September. During these four months, the county receives, on average, about 60% of its average annual rainfall. "Dry" season, is a relative term, since the county average rainfall for the October-May period is about 20 inches. However, rain events are much less frequent in the dry season and rainfall intensity generally lower than in the rainy season. Snow events are very rare in Pinellas County, though a dusting of snow was recorded on January 19, 1977, and small amounts of sleet and snow fell on December 23, 1989.

The 30-year (1891-2010) mean annual temperature for the weather station at Albert Whitted Airport, located on the waterfront near downtown St. Petersburg, is 74.2 degrees Fahrenheit (°F). The normal daily maximum temperature ranges from 65.9°F in January to 90.9°F in July. The normal daily minimum temperature ranges from 53.7°F in January to 77.0°F in August. The highest daily maximum temperature recorded at St. Petersburg is 100°F (most recently on July 15, 2011). The lowest daily minimum temperature recorded at St. Petersburg is 22°F on December 13, 1962. Because it is located nearly entirely on a peninsula, Pinellas County has the relatively warmer waters of Tampa Bay and the Gulf of Mexico help to moderate cold temperatures in winter. Therefore, freezes are rare, especially hard freezes or freezes of duration greater than a couple of hours.

Thunderstorms affect Pinellas County on a frequent basis, especially in the rainy summer months (June through September). Pinellas lies at the western edge of an area that runs along Interstate 4 through Tampa, Lakeland, and Orlando where thunderstorms occur an average of 85 to 100 days per year. These thunderstorms are significant because they often produce frequent lightning and intense rainfall. On occasion, Pinellas County experiences damaging thunderstorm winds in excess of 60 miles per hour and/or small hail, though these more intense events are not frequent.

Land Use

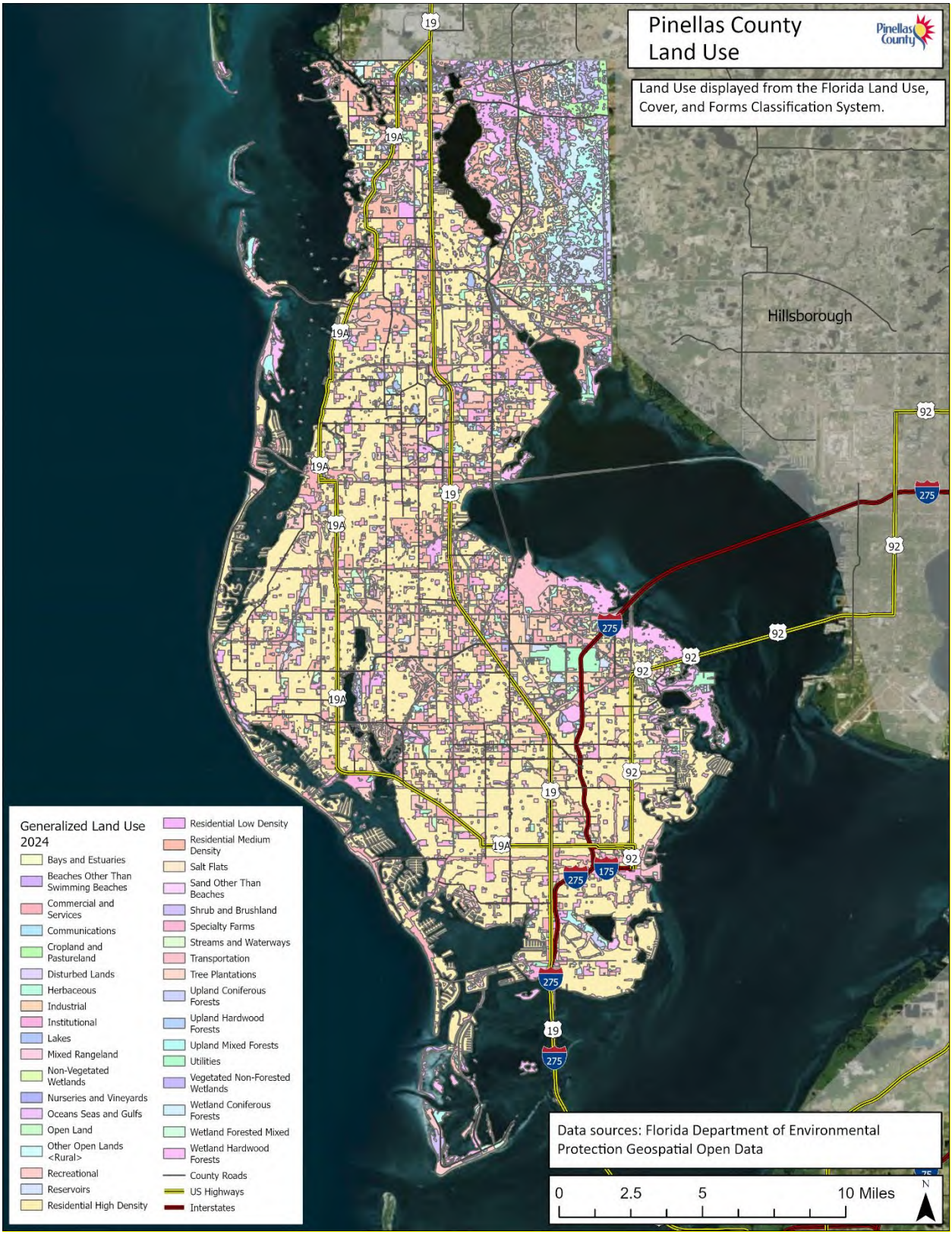
Land use for the unincorporated areas within Pinellas County is defined by the county's Comprehensive Plan. Land use for the rest of Pinellas County is dictated by the Comprehensive Plan policies of the individual cities and towns. Additionally, Forward Pinellas serves as the county's overarching transportation and land use planning agency. It ensures countywide consistency in land use planning by establishing policies to which each of the municipalities and the unincorporated area must align their individual comprehensive plans.

Land use policies within a Comprehensive Plan cater to a variety of needs including employment, housing, conservation, recreation, as well as safety and protection from hazards. Pinellas County maintains over 20,000 acres of parks and preserves that are not only incredibly rich in biodiversity but also provide recreational opportunities to its residents. The county has approximately 588 miles of coastline along the Gulf of Mexico. It also includes a total of four preserves totaling about 12,000 acres. These preserves play a critical role in conserving land area, protecting the floodplain, safeguarding natural resources, and

helping maintain the potable water supply. Pinellas County's most recent Comprehensive Plan (Plan Pinellas) was adopted in October 2022 and became effective on January 1st, 2023. The current Comprehensive Plan is governed by eight Guiding Principles. These principles build on the guidance and findings of several resources including: the County's 2008 Comprehensive Plan's 47 governing principles and Strategic Plan; Forward Pinellas' Countywide Plan and Pinellas by Design (2005) – a countywide visioning effort that focused on how redevelopment could support economic growth; results of citizen surveys; and the 2017 Economic Symposium.

For more information on policies and programs please refer to the Local Capability Assessment in Section 3. The figure below shows the current land use in the county.

Figure 1.4: Pinellas County Land Use, 2024



Economy

Below are basic demographics of the Pinellas economy from the US Census Bureau. It is important to note that roughly 12.7% of Florida's population is in poverty. In Pinellas County, this is slightly lower at 12.4%. Consequently, this is another vulnerability for the county.

Table 1.3: Pinellas County Economic Demographics[7]

Category	Data
2022 Median household income	$66,406
2022 Persons in poverty	12.4%
2022 In civilian labor force, total, of population age 16 years and over	58.5%
2022 In civilian labor force, female, of population age 16 years and over	55.2%
2017 Total accommodation and food service sales ($1000)	$3,056,617
2017 Total retail sales ($1000)	$16,891,083
2022 Total employer establishments	31,897
2022 Total employment	415,198

Anchored by the urban markets of Clearwater and St. Petersburg, Pinellas has the second largest base of manufacturing employment in Florida. Fortune 500 technology manufacturers Jabil Circuit and Tech Data are headquartered here. Pinellas has diverse, yet symbiotic, industry clusters, including aviation/aerospace; defense/national security; medical technologies; business and financial services; and information technology. An extensive network of suppliers, service-providers and business associations support operations in these sectors. Relocating businesses can move to Pinellas and expect to begin growing immediately. Pinellas encourages innovation, and with industry giants HSN, Nielsen, ValPak and Catalina Marketing, it is rapidly becoming Florida's hub for big data. Through relationships with major universities and high-tech institutes, Pinellas has become a center for research and development in marine science, electronic instruments, medical devices, sensors, nanotechnology and health care. The county is home to numerous business accelerators, like the Tampa Bay Innovation Center and Gazelle Lab, which are committed to nurturing and building new ventures. Notable Employers: Home Shopping Network, Nielsen Media Research, Jabil Circuit, Raymond James Financial, Tech Data, SRI International, Draper Labs, Honeywell, Raytheon, Lockheed-Martin, ConMed Linvatec, TransAmerica and Baxter.[8]

Infrastructure

Pinellas has an extensive infrastructure system. There are about 4,500 miles of paved roads in the county, and more than 400 bridges. The first bridge to span Tampa Bay was the Gandy Causeway in 1924 and shortened the traveling distance between St. Petersburg and Tampa from 43 to 19 miles. Pinellas connected with Manatee County when the Sunshine Skyway bridge opened in 1954. Pinellas County is serviced by five major highways: I-275, US Highway 19, US 19A, US 92, and State Road 60. Other major transportation routes are Tarpon Avenue/SR582, Tampa Road/752-SR584, Curlew Road/SR586, East Bay/SR686, Ulmerton Road/SR688, Park Boulevard/Gandy Boulevard, CR611, SR580, SR 693 and Gulf Boulevard/SR699.

[7] https://www.census.gov/quickfacts/pinellascountyflorida
[8] https://business.tampabaybeaches.com/list/member/pinellas-county-economic-development-854

Airports

There are three airports located in Pinellas County. St. Pete-Clearwater International Airport (PIE) is a full-service airport with commercial passenger service, cargo, military, and general aviation operations. PIE accommodates virtually any size aircraft, from jumbo jets to charter planes to private aircraft. FAA-operated Air Traffic Control and an Automated Flight Service Station are located on site. Also, the largest Coast Guard Air Station in the U.S. is located at PIE. Albert Whitted Airport (KSPG) in downtown St. Petersburg is classified as a Regional General Aviation Airport by the FAA. Albert Whitted Airport is owned and operated by the City of St. Petersburg. Clearwater Airpark (KCLW), a general aviation facility owned by the City of Clearwater in central Pinellas County, has a 4108-foot runway at a ground elevation of 71 feet. Additionally, Tampa International Airport, the region's largest commercial/passenger air facility, is located nearby in neighboring Hillsborough County.

Bus

The Pinellas Suncoast Transit Authority (PSTA) provides countywide public bus transit service, along with several routes to/from Hillsborough County. PSTA has a fleet of 206 vehicles, with a total of 46 bus routes. Greyhound Lines, Inc. provides regularly scheduled bus service to out-of-county and out-of-state locations from the Greyhound Bus Station in Downtown St. Petersburg. Additionally, the Pinellas County School Board operates a fleet of approximately 750 buses for the transport of students.

Railroad

CSX operates a single line freight rail service through Pinellas County. Most of the railway in Pinellas County has been converted into the Pinellas Trail, a recreational thoroughfare that traverses the county.

Waterways

Pinellas County is a peninsula bounded by Tampa Bay on the east and south, and the Gulf of Mexico on the west. The Intracoastal Waterway runs the length of the county on its western side, between the mainland and the barrier islands. Pinellas County has one port, the Port of St. Petersburg, which is located on Bayboro Harbor in Downtown St. Petersburg and can accommodate shallow draft ships. Deep draft ships must use Port Tampa Bay in Hillsborough County or Port Manatee in Manatee County. Port Tampa Bay is the largest port in Florida in terms of physical area and annual cargo tonnage.

Critical infrastructure is essential to the County's ability to provide assistance to its people and infrastructure. Transportation routes, utilities, government facilities, schools, and hospitals provide the local communities with the capacity to respond to disasters.

Growth and Changes in Development

Pinellas County is a major urban county with close to a million permanent residents. In addition, there is an influx of approximately 16 million visitors every year. This massive population is accommodated all within just 280 square miles of land located on a peninsula. In terms of land area, the county represents only 11 percent of the total land in Tampa-St. Petersburg-Clearwater Metropolitan area. However, despite its small geographical size, Pinellas County is the seventh most populous as well as the densest county within the State of Florida.

Pinellas County saw most of its growth in the decades that followed Word War II. After seeing a period of phenomenal growth and urban expansion, today the county is mostly built out. Comprised of 24 municipalities, several old and newly established neighborhoods, and characterized by a diversity of urban and suburban environments, the county has limited vacant land for new growth. The majority of the vacant land that is currently available for development are smaller, irregular tracts of land under separate ownership that are distributed throughout its urban environment. This has created considerable challenges for accommodating new growth or providing new housing and employment opportunities within the county. This has also inevitably resulted in a shift in focus towards redevelopment and infill-development in recent years. While some areas, such as the Gateway Area and Lealman, continue to show great potential for new growth or redevelopment, as highlighted ahead in the Risk Assessment Section (Development Trends and Changes in Vulnerability), overall there has been a low rate of residential development in the county since 2015.

Despite this slow down, the county's population has been slowly yet steadily increasing. According to the American Community Survey (ACS) estimates, since 2015, the county has added approximately 11,912 residents, reaching a population of 961,739 in 2022. In another 30 years, the population is expected to grow to over a million. Today there are more than 418,000 households in Pinellas County. It is evident that Pinellas County continues to attract new residents and remains a desirable location to live and work in. However, this growth could impact the county's vulnerability.

Studies indicate that population growth or increase in density and urbanization can impact the vulnerability of a place. In addition, the geographic distribution of this population growth and the demographic characteristics, can help determine the different level of risks and vulnerability experienced by different population groups.

An increase in population increases the demand on services. Considering the small size of the county, its location on a peninsula with limited room to expand, older housing stock and infrastructure, and a high susceptibility to flooding and other hazards, an increase in population creates considerable challenge for addressing not just emergency operations (such as evacuation and sheltering) but also for long-term mitigation and resiliency.

As discussed in the Risk Assessment Section (Development Trends and Changes in Vulnerability), since 2020, Pinellas County has experienced a relatively small increase in population. However, this population growth and increase in structures has resulted in a moderate increase in vulnerability for the whole county and a relatively higher increase in vulnerability for certain areas within the county. For increase in building counts or population specific to each jurisdiction, please refer Table 4.6 and Table 4.7 (Risk Assessment Section/Development Trends and Changes in Vulnerability).

While the increase in number of both structures and population has increased the county's vulnerability, the age and condition of the built environment are other contributing factors. The coastal environment and the high susceptibility to both inland and coastal flooding further exacerbates this. Approximately 82,817 structures in Pinellas County and its municipalities are within the Special Flood Hazard Area. Approximately 39,888 of these structures were built prior to 1975, when federal floodplain regulations had not yet been adopted in most jurisdictions. Some of the older buildings that were built prior to the adoption of the new stricter construction codes could be at a greater risk to flood or wind events. While these factors increase our risks and vulnerability, Pinellas County's numerous parks and ecological preserves act as a natural buffer and play a critical role in reducing its vulnerability. As stated within

Pinellas County's Comprehensive Plan, these environmental areas form approximately one-fifth of the land area within the county.

Change in Demographic Characteristics

In addition to population growth since 2015, Pinellas County has also seen a change in its demographic profile, which could have significant impacts on its vulnerability. Some of these trends were visible since 2010 but have become more pronounced in recent years.

Pinellas County's population is aging, and the county continues to attract more retirees. Therefore, in the past decade, we have seen an overall increase in median age. In 2015, 39 percent of the population was 55 years of age or above and 23 percent was 65 years of age or above. This is a trend with significant implications in terms of vulnerability and is expected to continue. By 2022, nearly 43 percent of Pinellas County's population will be 55 years of age or above with nearly 27 percent of the age 65 years or above.

Today in Pinellas County, 207,068 households (nearly half of the total households) have a resident age 60 year or above. Elderly people are more likely to have disabilities, chronic illnesses or mobility issues which could impede their ability to evacuate. Physical conditions, and limited income and access to resources, can limit their ability to recover following a major disaster.

Approximately 49,403 people in Pinellas County are foreign born non-citizens. This is roughly five percent of the population in the county. Additionally, 3.3 percent of Pinellas County's households have limited English-speaking proficiencies. People with limited English-speaking abilities could find it difficult to understand emergency warnings, severely limiting their ability to quickly respond to them in an effective and timely manner. These groups also most likely have limited knowledge of the available programs that they could be eligible for. In addition, people with language-limitations are also likely to have inadequate access to health care and other resources as compared to regular citizens, which can drastically impair their recovery following a major disaster.

Poverty and income levels are other factors that determine one's vulnerability and capacity to recover from a major catastrophic event. More than 115,000 people (7.7% of families) in Pinellas County are at or below the poverty level. According to the U.S. Department of Housing and Urban Development, cost-burdened families are defined as those "who pay more than 30 percent of their income for housing" and "may have difficulty affording necessities such as food, clothing, transportation, and medical care." Severe rent burden is defined as paying more than 50 percent of one's income on rent. According to the 2022 ACS estimates, over 37% of Pinellas County's households earn less than $50,000 and are cost-burdened or severely cost-burdened. Studies indicate that areas that are economically distressed prior to a disaster, take longer to recover from the aftermath of a disaster. Economically disadvantaged groups most likely occupy lower quality housing, have limited means to pay for flood insurance, and have limited access to warning information, which severely impairs their ability to recover.

According to the Centers for Disease Control and Prevention, certain factors such as sex, age, or income can influence one's health and risk to diseases and also the risk to get seriously affected by public health emergencies. This is a critical concern knowing that Pinellas County is highly susceptible to floods and everyone is located in some (high, moderate or low risk) flood zone. Flooding is one of the most common natural hazard in Pinellas County. Flooding poses a serious threat not just in terms of loss of life, personal property, businesses, transportation and utilities, but also to public health. If flooding causes conditions where floodwaters inundate drinking water facilities, wastewater treatment plants, and waste storage

facilities or waste disposal sites, it could eventually lead to severe public health emergencies. A good proportion of our population is either old, has limited income or both, which disproportionately increases their risks to such impacts of flooding. Additionally, due to limited means and inadequate access to resources, such population groups would also have limited capacity to deal with the effects of a disaster. This highlights how critical it is to identify these at-risk groups well in advance, devise targeted mitigation efforts that cater to the needs of these specific groups and help plan for potential impacts of a disaster. Some of this research and identification of relevant mitigation actions, will be accomplished as a part of the Post-Disaster Redevelopment Planning process.

Maps given below indicate specific areas that might have high vulnerability within the county owing to different socio-economic factors.

Figure 1.5: Distribution of Population Living Below the Poverty Line, 2022

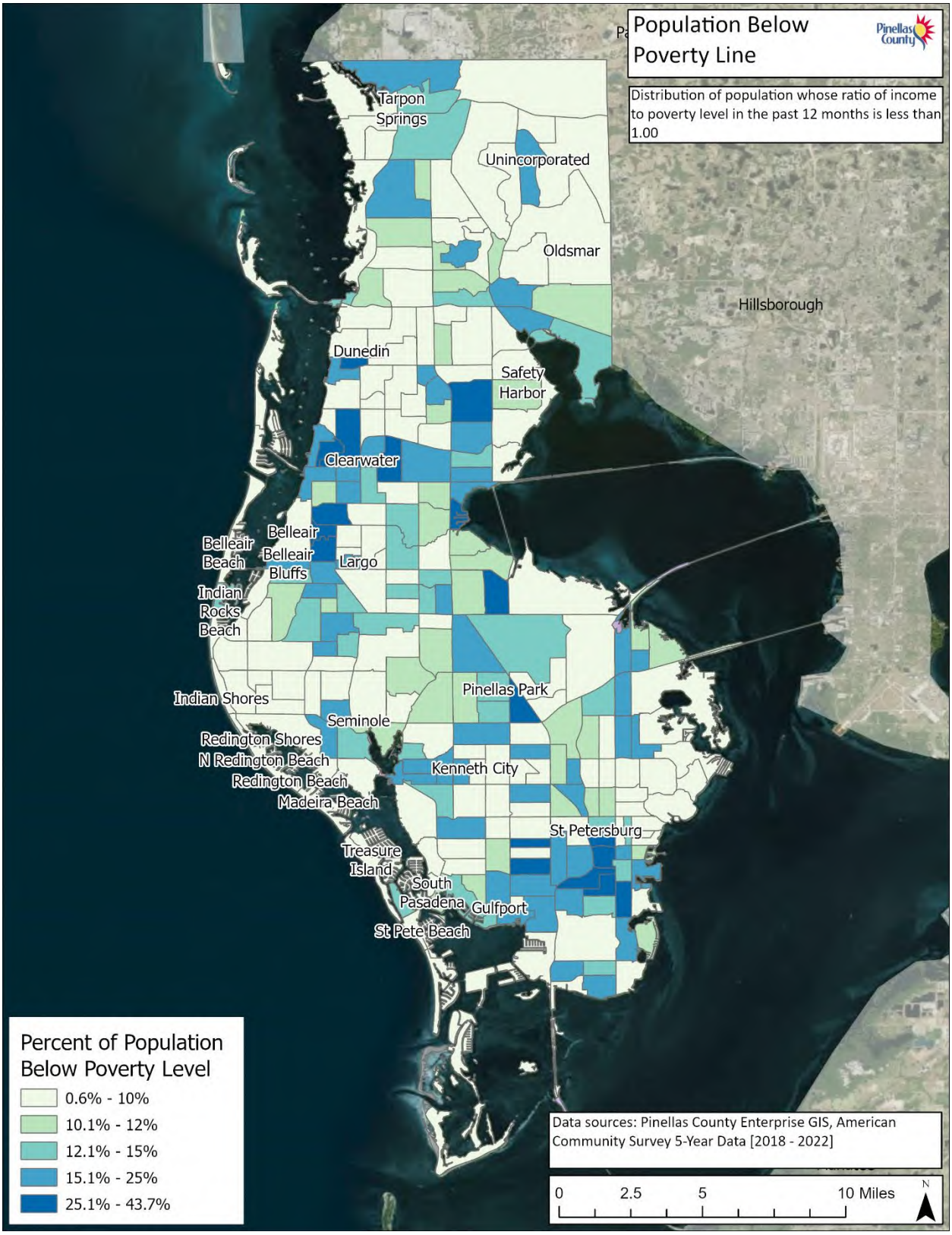
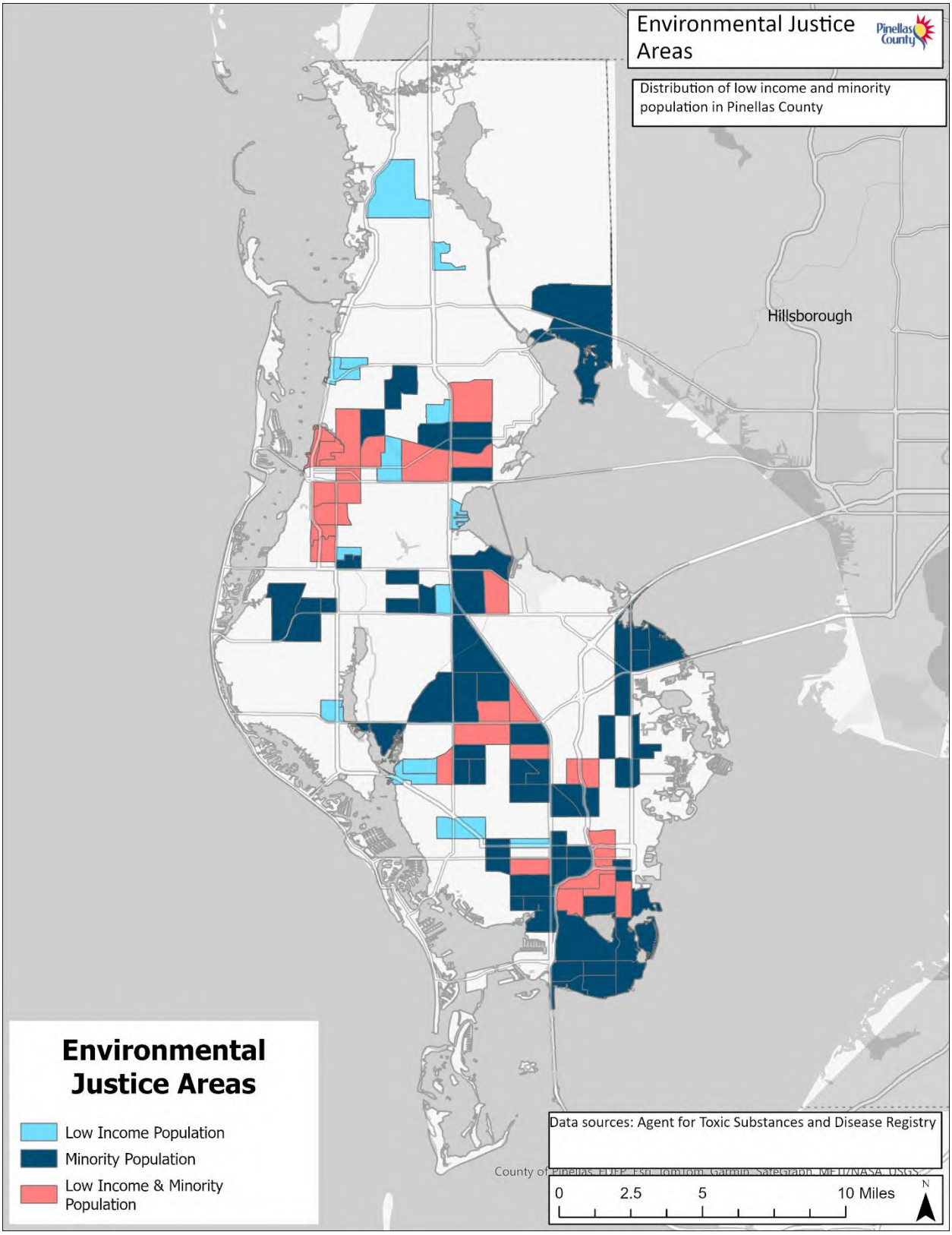


Figure 1.6: Concentration of Low Income and Minority Population in Pinellas County, 2020



Social and Health Vulnerability

The data, analysis and the description provided in this section, were developed as a part of the Resilience Planning effort that Pinellas County undertook, with the help of various county departments, Pinellas County's municipalities, and the Local Mitigation Strategy Working Group. This effort was funded through the State of Florida, Department of Environmental Protection's Resilient Coastlines Program and was completed in 2021. A part of this effort helped address, the need to update Pinellas County's Comprehensive Plan and bring it in compliance with the Peril of Flood statute requirements. The other part of this effort helped update the Vulnerability Analysis section, within Pinellas County's Post-Disaster Redevelopment Plan (PDRP). This subsequently helped expand the recommendations for post-disaster redevelopment. Both efforts are intricately tied to the LMS. It has expanded the Plan's risk assessment to include social and health factors that affect our risks and therefore, helped advance the LMS goals and objectives.

Most of this analysis is critical to understanding the overall status of Pinellas County, in terms of its demographics and associated risks. The Social and Health Vulnerability Section is new to this 5-year LMS update for Pinellas County, although it has been incorporated into previous annual updates, and serves to provide a detailed discussion on the social and health vulnerabilities of the population in Pinellas County The data and analysis provided here will be reviewed and updated in collaboration with various county departments, other entities, and the LMS Working Group, as the need arises.

Social Vulnerability

Social Vulnerability is defined as the vulnerability of a population, based on certain characteristics of our communities, that make them more sensitive to the impacts of a disaster and reduces their ability to prepare for, respond to or recover from it. These factors could include age, financial limitations, language barriers, disability, or others. Every type of vulnerability could present a unique set of challenges when it comes to preparedness, evacuation, post-disaster recovery or redevelopment. However, sometimes certain groups might be more vulnerable than the others due to a combination of factors that either make them more sensitive to the impacts or significantly diminishes their capability to cope with and recover from those impacts.

Why is Social Vulnerability Critical for Pinellas County?

The main reason for understanding social vulnerability in advance of a disaster, is to identify appropriate strategies that can help address the challenges and stresses faced during response, recovery, or long-term redevelopment, in case of a major disaster event. It is critical to develop a better understanding of our social vulnerability, because a successful redevelopment following a major disaster will be extremely difficult if a large part of the population is struggling to recover. High social vulnerability of a population poses a severe strain on medical, health and social services resources; impact the post-disaster rebuilding and reconstruction efforts; slow down the economic recovery; and potentially stretch out the recovery and long-redevelopment process to many years, following a disaster. This is especially critical for Pinellas County as a significant percentage of our population is extremely vulnerable due to several reasons. In this section there will be numerous references to statistical data regarding Pinellas County and all data references is from the 2018-2022 American Community Survey (ACS) 5-Year Estimates unless otherwise

noted. This is especially critical for Pinellas County as a significant percentage of the population is extremely vulnerable due to several reasons. Pinellas County is an aging community with 33.7% of residents 60 years and over. The median age for Pinellas County residents is 48.8 and this has been increasing over time. As discussed earlier in this section, there is a large percentage of the population that is severely cost-burdened and/or lives below the poverty line (refer to Figure 1.5). Pinellas County has some pre-existing trends such as a severe shortage of affordable housing, homelessness, unemployment, etc., that can worsen following a major disaster event and result in higher percentage of homelessness, and displacement, which can lead to residents moving away from the county. Some of the factors related to social vulnerability that are relevant to Pinellas County, are described within this section.

Challenges

Addressing social vulnerability can be challenging because some of these factors are long-standing and require a concerted, consistent, and collaborative approach, over many years to assess and address. A review of case studies and past projects indicates that, despite consistent efforts, some of these inequities related to income and access to resources, have deteriorated with time, in response to the economic downturns, impacts of disasters, and other personal factors. It is important to note that many of these factors are also inter-related. This makes it even more challenging to address them, especially for service providers or planning agencies, that may be traditionally skilled and equipped to deal with certain specific needs.

Key Factors

Some of the key social vulnerability factors highlighted through stakeholder meetings, case study research, the Community Vulnerability/Disaster Risk Survey, and review of the PDRP (completed in 2012) are discussed in detail in this section. The vulnerability analysis conducted as a part of the Resilient Planning Grant Project (FY 20-21) included identifying and mapping these socio-economic variables to improve the understanding of their geographic distribution. Some of their implications, potential risks, or impacts identified using this analysis are described below. This will be further detailed through future post-disaster redevelopment planning efforts.

The initial list of factors identified were related to the following 6 categories:

- Socioeconomics
- Demographics
- Environmental Factors
- Exposure to Hazards
- Infrastructure Factors
- Pre-Existing Health Conditions

The list of socio-economic community vulnerability indicators specifically analyzed and discussed are as follows:

- Households at or below poverty

- Household with foreign born citizens
- Households with limited English-speaking ability
- Vulnerable age
    - Population under 5 years of age
    - Households with people over 65 years of age
- Single-parent households
- Owner-Occupied and Renter-Occupied housing

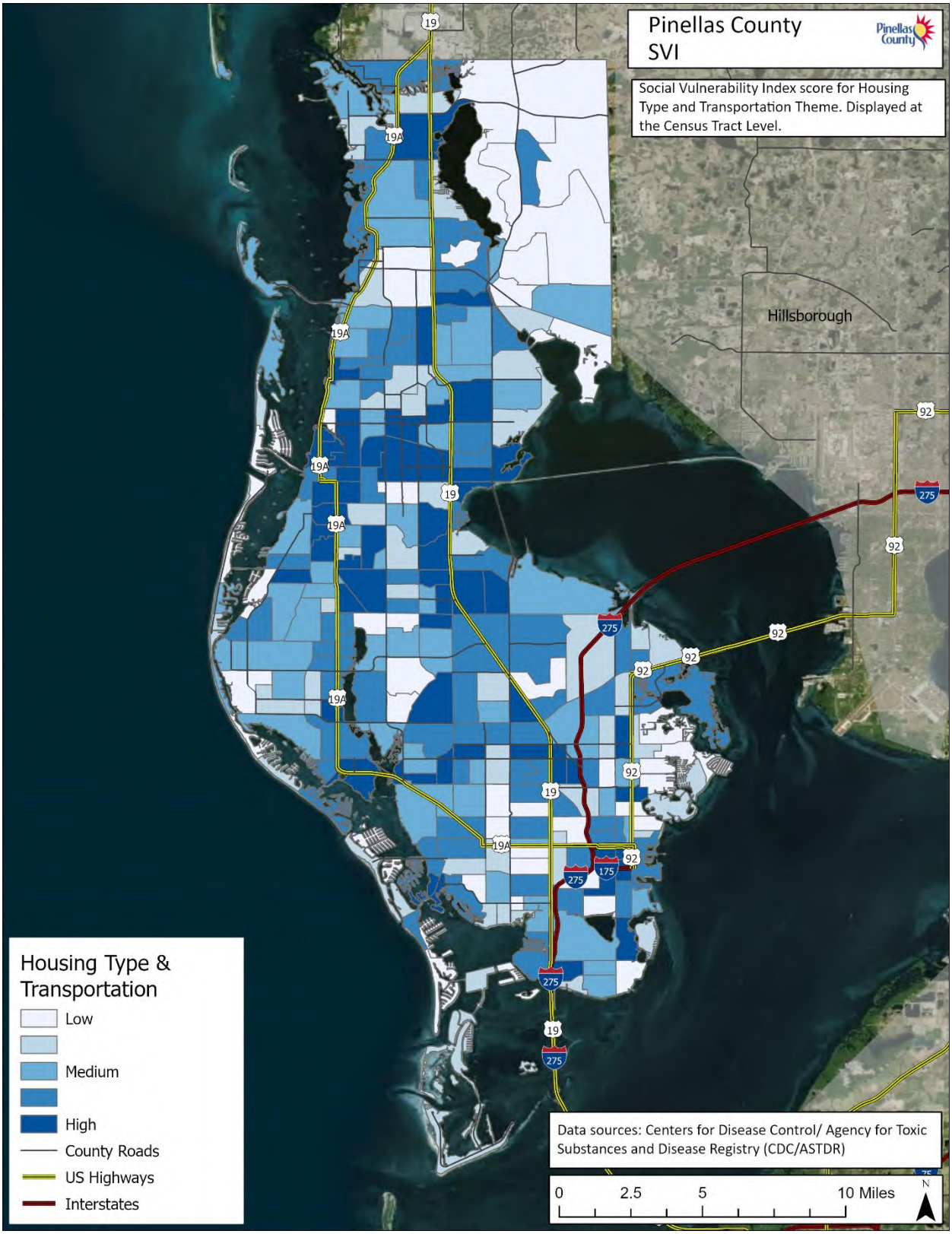
Potential Impacts on Redevelopment

A speedy and successful post-disaster redevelopment is heavily dependent on the recovery of communities after an event. Some of the factors analyzed here, would have critical impacts on the ability to quickly recover and redevelop following a major disaster. These factors can disproportionately impact the recovery of certain population groups, that have social, financial, language and/or health constraints. These factors are intricately linked together and can impede the restoration of critical services, rebuilding of damaged infrastructure and supply of basic commodities. If a large proportion of a population or even if some areas within Pinellas County are struggling to recover from the impacts of a major disaster, then as a ripple effect, it would impact the overall speed of redevelopment and economic recovery for the whole county. In the sections below, social vulnerability factors are discussed in relation to how they may potentially impact redevelopment.

Low Income

Approximately 11.5% of the populations in Pinellas County are at or below the poverty level. Approximately 6.9% of the county's households have no access to vehicles, and 216,281 (51.7%) households within Pinellas County either have no access to vehicles or only one vehicle available. Lack of access to resources such as food, transportation, affordable housing, etc. is an indicator of a household's capacity to cope with and survive a major disaster, which could severely impact an already unstable financial situation. The post-disaster phase is typically marked by extreme shortage of resources and large-scale damage to structures that can further limit the available housing stock, exacerbating this situation. The financial constraints of such families can severely delay their ability to re-connect to needed resources such as food, shelter, childcare, and mental or physical health care; and therefore, impair their capacity to resume jobs or reopen businesses, which can eventually delay the overall economic recovery.

Figure 1.7: Housing Type and Transportation Theme Social Vulnerability Score, 2020



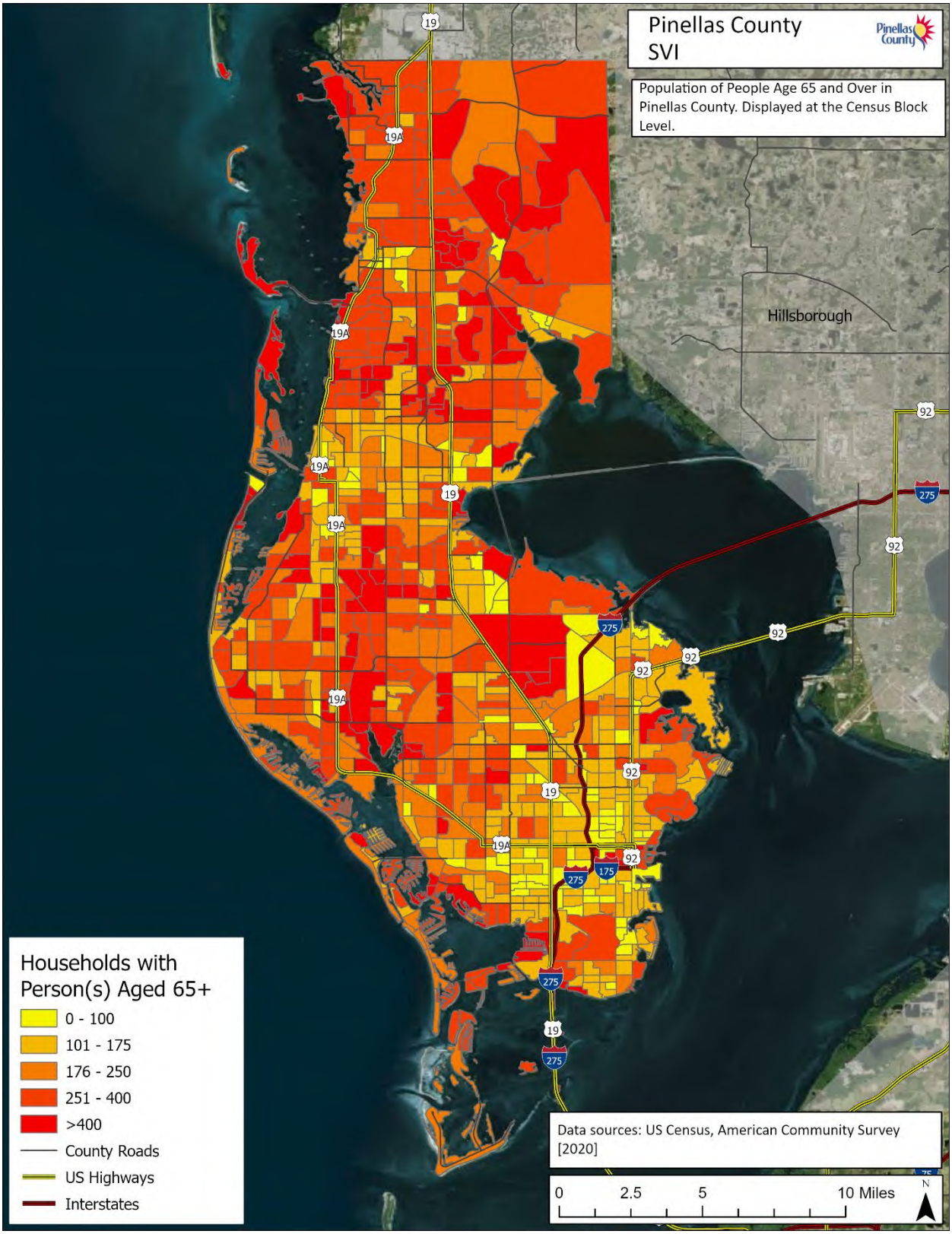
Language limitation

Approximately 52,267 households in Pinellas County are comprised of people who are foreign born (2022 ACS 1-Year Estimates). This is roughly 12% of the total households within the County. Additionally, 346 people responded that they speak English less than "very well" (ACS 2021 ACS 1-Year Estimate). Language barriers can contribute to the delay in responding to emergency response instructions; limit awareness of available help; and reduce the ability to apply for funding or access health, medical or other resources in the post-disaster recovery and redevelopment phase. In some areas within Pinellas County, there are low-income communities who also have limited English-speaking ability. Combination of such factors could create situations where there is a significantly high need for resources; but a limited ability to access them or gain critical information regarding these much-needed resources. Therefore, it is essential to reach out to these population groups prior to a disaster; assesses their needs and post-disaster concerns; and collaboratively establish communication strategies that not only helps imparts necessary information and education, but also enables them to reach out for help in the post-disaster phase.

Vulnerable Age and Disability

There are approximately 255,971 people in Pinellas County aged 65 years or above (2022 ACS 1-Year Estimates). This is more than a quarter of the population in Pinellas County. Additionally, there are 36,744 people in Pinellas County under the age of 5 years (2022 ACS 1-Year Estimates). Young children and older people are more susceptible to major disasters due to their age. They are more vulnerable to mental and physical health conditions than others, which becomes even more critical in the post-disaster environment, marked by massive scale debris, heightened pollution levels and an increased possibility of water pollution and food borne illnesses. Exposure to such high stress levels and that too for a prolonged period, due to damage, displacement, change in regular daily schedules, etc. can significantly impact younger children and older people, more than others. Older people, people with disability and people with pre-existing health conditions are most likely to need special assistance during evacuation, and a continual access to medical help and medication.

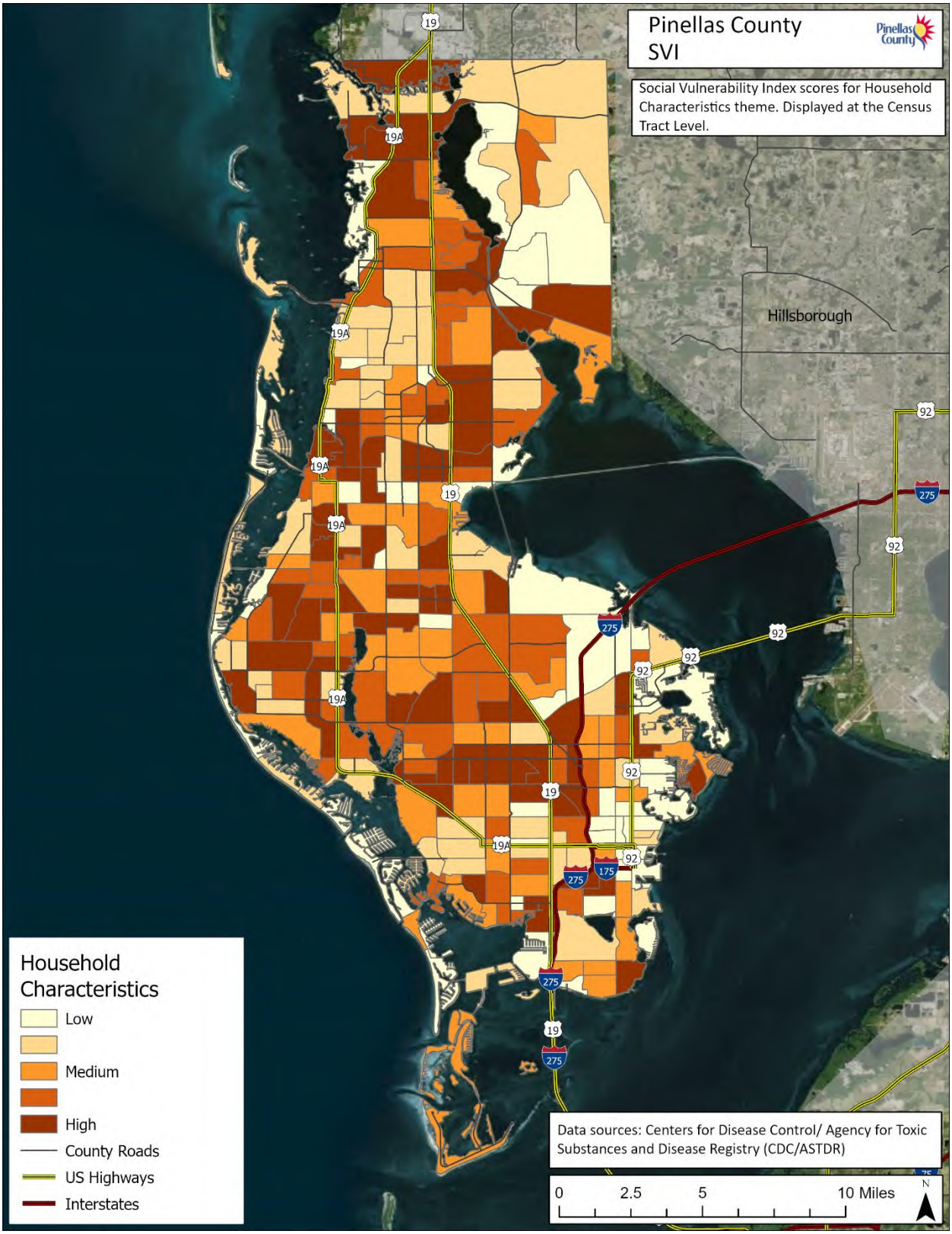
Figure 1.8: Population of People Age 65 and Over in Pinellas County, 2020



Social Isolation

According to the 2022 ACS 1-Year Estimates, the average household size in Pinellas County is the smallest within the Tampa Metropolitan Statistical Area (MSA). It has an average household size of 2.21 as compared to Hernando (2.55), Pasco (2.50) or Hillsborough Counties (2.54). One or two-person households form 55 percent of the total households in Pinellas County. This could be indicative of small families (which may or may not be single-parent households), young couples or empty nesters. Approximately 4.5 percent of the households in Pinellas County are family households that are led by a single parent. Lack of access to a social network can severely limit one's ability to access critical information or instructions related to evacuation, preparedness, or access to resources in the post-disaster environment. Inability to find help in taking care of children can severely impair a household and a person's ability to resume jobs, which could result in many months of economic turmoil, job displacement. This could subsequently lead to the need for additional financial or health assistance, as a resultant of the post-disaster stress. Providing such groups assistance in terms of food, childcare services, medical help and providing them necessary support and counseling that enables them to get back to normalcy, would be critical.

Figure 1.9: Household Characteristics Social Vulnerability Index, 2020



Pre-Existing Trends

Major disasters are also known to accelerate the pre-existing trends of unemployment and homelessness. In the post-disaster redevelopment phase, these could become major impediments to economic redevelopment. The affordable housing shortage that we face in Pinellas County today, can become even more severe following a major disaster which can render many more people homeless. According to the 2022 ACS 1-Year Estimates, a vast majority (68.3 percent) of the occupied housing units in Pinellas County is Owner-Occupied housing - which hasn't changed much since the last decade. Renter Housing units form 31.7 percent of the total housing units within the County. In comparison, Hernando County has 81.9 percent Owner-Occupied housing units and 18.1 percent Renter-Occupied housing units; Hillsborough County has 61.2 percent Owner-Occupied housing units and 38.8 percent Renter-Occupied housing units; and Pasco County has 73.8 percent Owner-Occupied housing units and 26.2 percent Renter-Occupied housing units. While access to affordable rental housing remains a major challenge today even prior to a disaster, homeowners who have limited income or financial constraints, might not have the capacity to cope with the post-disaster rebuilding process or the financial ability to seek new housing, unless post-disaster redevelopment efforts, specifically focus on providing affordable housing options. Older houses which are currently in poor conditions and/or are already susceptible to floods, most likely would not survive the impacts of a major disaster. Renters who are displaced and rendered homeless due to a major disaster might permanently relocate and choose not to come back.

Each of these impacts of a major disaster can trigger secondary and tertiary effects and therefore, it is critical to be watchful of some of these pre-existing conditions and develop actions that can help address them.

The entire panel of maps that were created to analyze socio-economic vulnerability factor variables as a part of PDRP's Vulnerability Analysis (Resilience Planning Grant project), are included in Pinellas County's PDRP.

Health-Related Vulnerability

In Pinellas County, 18.2% of adults reported their overall health as "fair" or "poor", compared to 19.7% in Florida. Additionally, 13.6% reported poor physical health and 12.7% reported poor mental health on 14 or more of the past 30 days (Table 1.4). Table 1.4 also shows the percentage of Pinellas County adults who have certain chronic diseases, disabilities, mental health issues, or health behaviors.

Table 1.4: Health Statistics Pinellas County

2017-2019 Pinellas County and 2019 State	Pinellas County	Florida
Overall Health		
Adults who said their overall health was "fair" or "poor"	18.2%	19.7%
Adults who had poor physical health on 14 or more of the past 30 days	13.6%	13.8%
Adults who had poor mental health on 14 or more of the past 30 days	12.7%	13.8%
Chronic Disease		
Adults who have ever had angina or coronary heart disease	4.9%	4.7%
Adults with diagnosed diabetes	10.7%	11.7%
Adults who currently have asthma	10.6%	7.4%

2017-2019 Pinellas County and 2019 State	Pinellas County	Florida
Adults who have had any other type of cancer except skin cancer	10.5%	8.0%
Adults who have ever had kidney disease	3.1%	4.0%
Disability		
Adults who have any disability	29.7%	30.0%
Average number of days where poor mental or physical health interfered with activities of daily living in the past 30 days (among adults who have had at least one day of poor mental or physical health)	5.9%	5.6%
Mental Health		
Adults who have ever had a depressive disorder	17.2%	17.7%
Health Behaviors		
Adults who are sedentary	22.0%	26.5%
Adults who are current smokers	19.7%	14.8%*
Adults who engage in heavy or binge drinking	24.2%	18.0%*

* Indicates that the difference observed between the 2017-2019 county and 2019 state measure is statistically significant.
Source: Florida Department of Health. 2017-2019 Florida Behavioral Risk Factor Surveillance System (BRFSS) Pinellas Data Report.

Mental / Behavioral Health

Disasters – both natural and human-made – are stressful and shocking events that may result in PSTD, anxiety, depression, sleep disorders, substance abuse, etc. These mental health effects may be more severe among children, people with a history of mental illness, women, and the dependent elderly population.[9] [10] First responders and recovery workers are also at risk for emotional distress.[11] "Two post-disaster factors are key predictors of the development and course of disaster-related mental illness: post-disaster life stressors and social support. Ongoing stressors such as job loss, property damage, marital stress, physical health conditions related to the disaster, and displacement are often experienced by those affected by a disaster and can increase vulnerability to post-disaster mental health conditions, including PTSD (23) and depression (40, 49, 50)."[12] In order to better respond to and recover from disasters, we must understand the current mental health status of our population.

It is estimated that there were 9,717 hospitalizations from mental disorders in adults in Pinellas County in 2022. According to the Florida Department of Health, "Serious mental illness among people ages 18 and older is defined as having, at any time during the past year, a diagnosable mental, behavior, or emotional disorder that causes serious functional impairment that substantially interferes with or limits one or more

[9] Makwana, N. (2019). Disaster and its impact on mental health: A narrative review. *J Family Med Prim Care*, 3090–3095.
[10] Goldmann, E., & Galea, S. (2014). Mental Health Consequences of Disasters. *Annual Review of Public Health*, 169-183.
[11] https://www.samhsa.gov/find-help/disaster-distress-helpline/disaster-types/hurricanes-tropical-storms
[12] Goldmann, E., & Galea, S. (2014). Mental Health Consequences of Disasters. *Annual Review of Public Health*, 169-183.

major life activities."[13] Pinellas County has consistently had a higher rate of hospitalizations for mental disorders than the state average for more than a decade.

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[13] FLHealthCharts.com. Provided by the Florida Department of Health, Division of Public Health Statistics & Performance Management.

Figure 1.10: Distribution of Mental Health conditions within Pinellas County, 2020

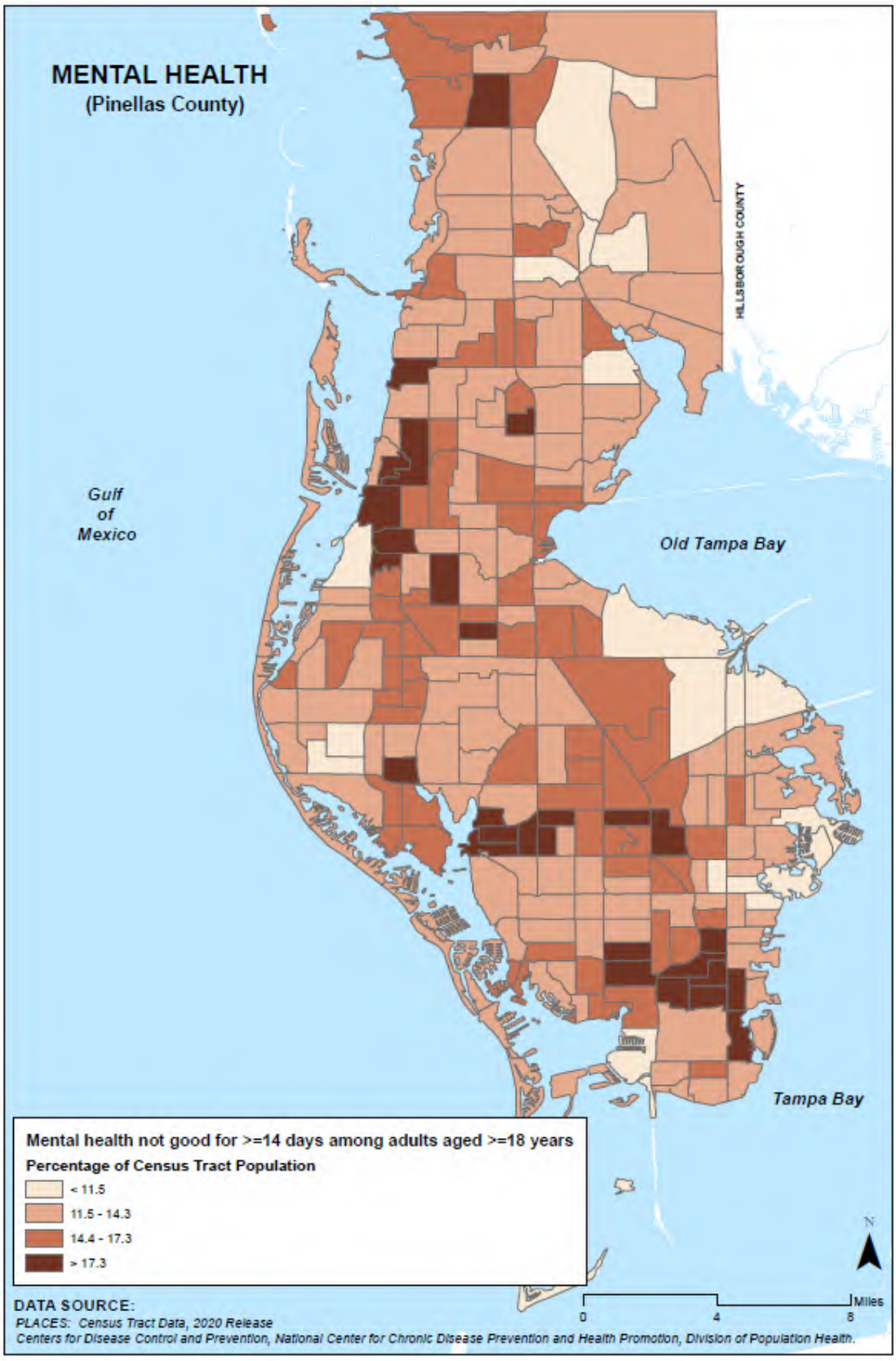
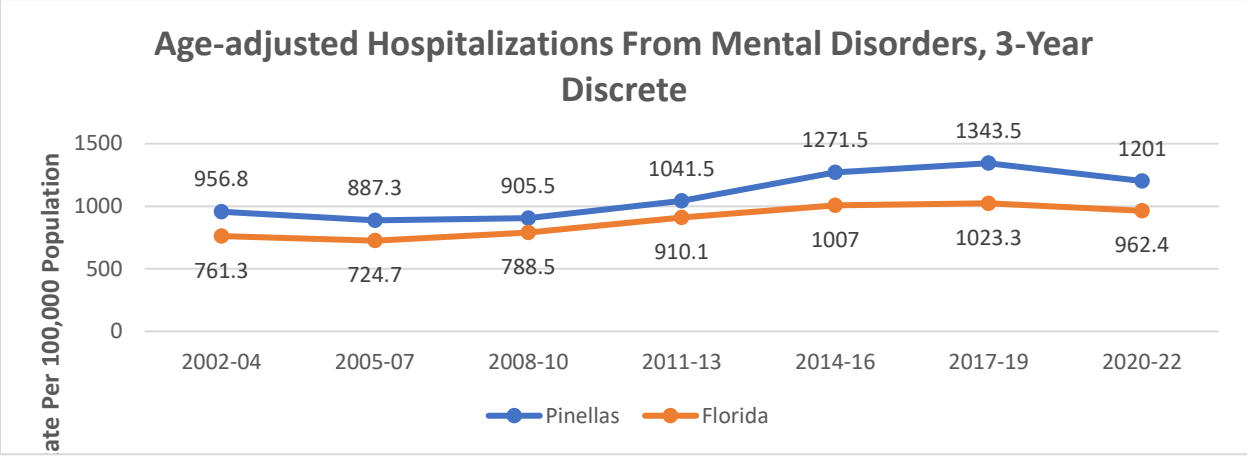


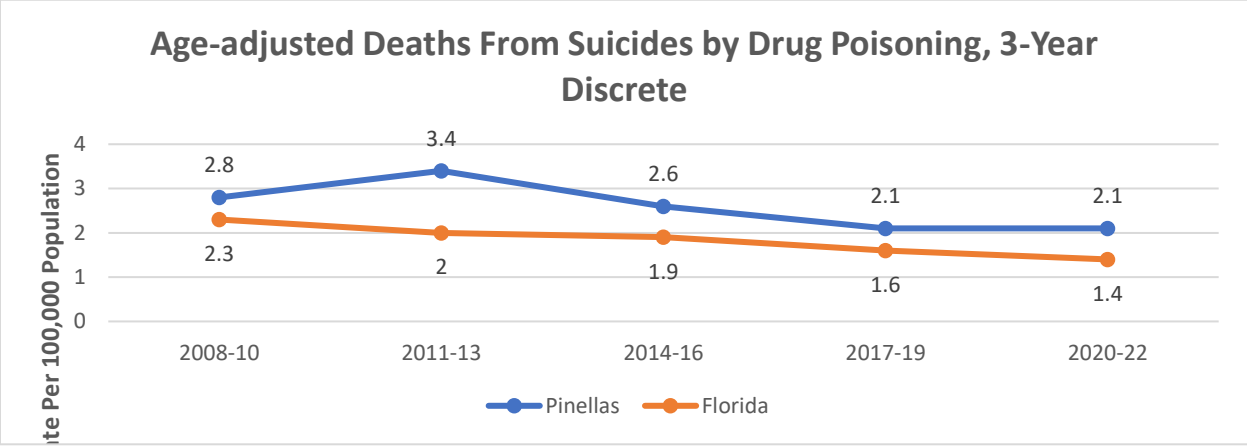
Figure 1.11: Age-Adjusted Hospitalizations for Mental Disorders



Data Source: FL Dept. of Health, Division of Public Health Statistics & Performance Management, www.FLHealthCharts.com

In Pinellas County, the age-adjusted rate of Suicide Deaths by Drug Poisoning was 2.1 per 100,000 population compared to Florida at 1.4 (2020-2022).

Figure 1.12: Age-Adjusted Suicide Deaths



Data Source: FL Dept. of Health, Division of Public Health Statistics & Performance Management, www.FLHealthCharts.com

Structural Drivers of Health Outcomes

Health Care Access & Coverage

During and after disasters, it can be more difficult to receive healthcare. Those who live in medically underserved areas, those without health insurance, and those with low income may be especially vulnerable.

Table 1.5: Health Care Access

2017-2019 Pinellas County and 2019 State	Pinellas County	Florida
Adults who had a medical checkup in the past year	79.9%	78.8%
Adults who could not see a doctor in the past year due to cost	15.1%	16.0%

Source: Florida Department of Health. 2017-2019 Florida Behavioral Risk Factor Surveillance System (BRFSS) Pinellas Data Report.

Housing Location & Access to Resources

Access to healthy food and recreation sources are a key part of a person's ability to consume a healthy diet and to get enough physical activity. During the COVID-19 pandemic, we have also learned the importance of parks and trails as spaces to engage in physical activity in a safe and physically distanced way.

Table 1.6: Access to Healthy Food Source, Park or Trail

2022	Pinellas County	Florida
Population living within a ten-minute walk (1/2 mile) of a healthy food source	39.89%	29.86%
Population living within a ten-minute walk (1/2 mile) of a park	60.35%	42.97%
Population living within a ten-minute walk (1/2 mile) of an off-street trail system	28.63%	18.78%

Source: Florida Department of Health, Florida Environmental Public Health Tracking Portal.

Many health conditions are related to the socio-economic aspects of a community; however, it is important to separately examine community health status. To specifically understand a community's vulnerability in terms of the health of its residents, we looked at the PLACES data set from the U.S. Centers for Disease Control and Prevention. The PLACES data set describes health measures that are grouped under three categories:

- Health Outcomes
- Prevention, and
- Unhealthy Behavior

Some of the Health Outcomes Measures that can impact a community's vulnerability are:

- Arthritis among adults aged ≥18 years
- Current asthma prevalence among adults aged ≥18 years
- High blood pressure among adults aged ≥18 years
- Cancer among adults aged ≥18 years
- High cholesterol among adults aged ≥18 years who have been screened in the past 5 years
- Chronic kidney disease among adults aged ≥18 years

- Chronic obstructive pulmonary disease among adults aged ≥18 years
- Coronary heart disease among adults aged ≥18 years
- Diagnosed diabetes among adults aged ≥18 years
- Mental health not good for ≥14 days among adults aged ≥18 years
- Physical health not good for ≥14 days among adults aged ≥18 years
- All teeth lost among adults aged ≥65 years
- Stroke among adults aged ≥18 years

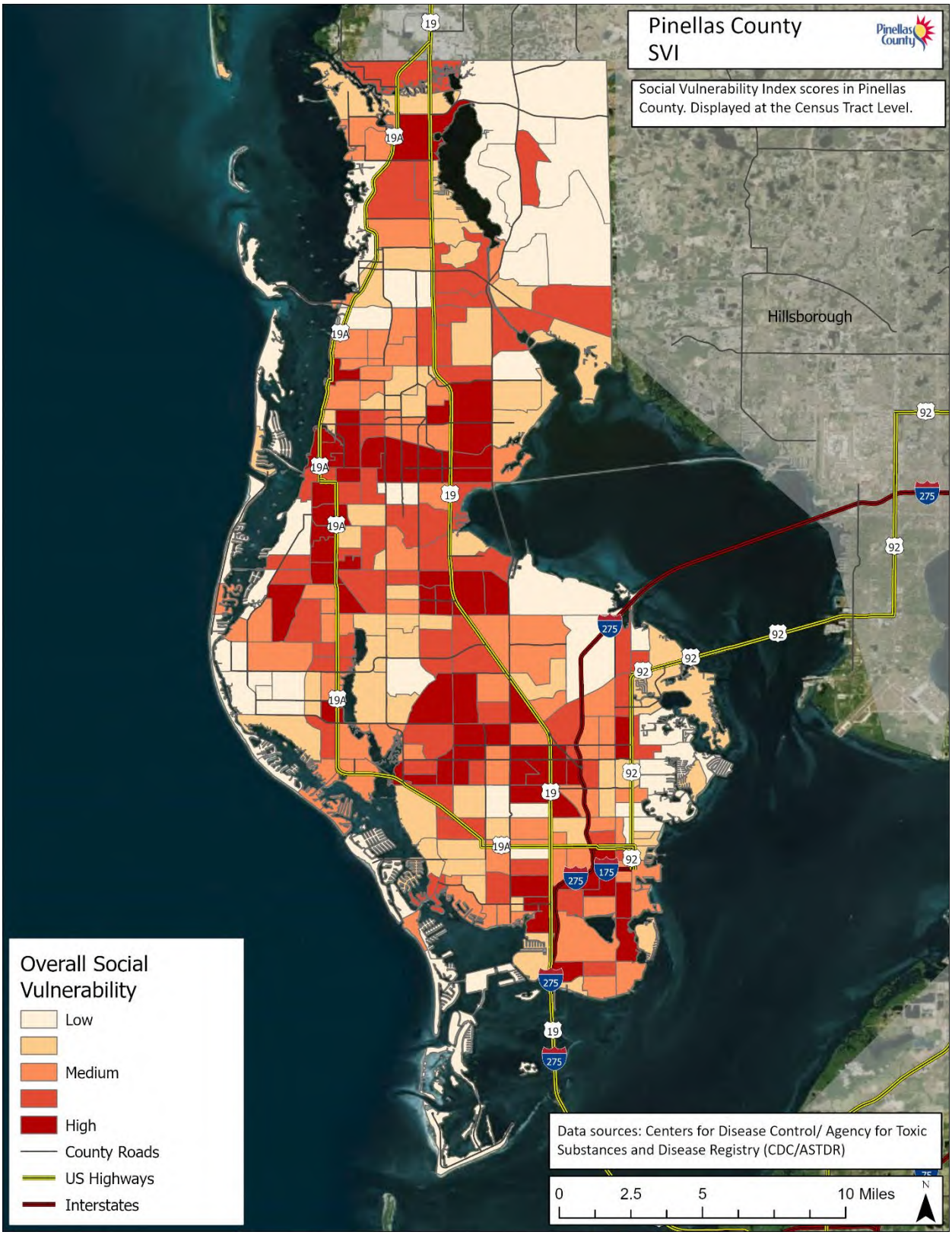
For this analysis, these factors were individually mapped. Their impacts in terms of the different stages of post-disaster emergency response, short-term recovery and long-term redevelopment were studied. The distribution of these factors within Pinellas County was also analyzed to understand concentration of certain risks especially in association with social vulnerability as well to understand implications in terms of post-disaster needs. Maps developed for this study can be found in Pinellas County's PDRP.

Areas of Concentrated Risks

While individual vulnerability factors have their own specific post-disaster needs and impact, a combination of these factors could drastically increase the need for assistance in the post-disaster environment. It is important to note, that in case of social and health-related vulnerabilities, the factors are often associative. For example, older populations are more vulnerable to the impacts of a major disaster as they are as compared to most other age groups, and more susceptible to illnesses and disability (physical as well as mental). Literature research shows that they are also more prone to fraud and exploitation and more likely to be confused and disoriented in the post-disaster environment, when there could be a loss of regular communication channels, and an abundance of misinformation, chaos, and confusion. Now this age-related vulnerability is also more likely to experience other vulnerabilities such as pre-existing medical conditions which would further expand their post-disaster need for assistance. They could have special needs during evacuation, might need constant access to medication and in some cases, access to life-supportive medical infrastructure or services such as dialysis. The situation worsens if they live in a house that is more susceptible to damage and flooding due to its location, age, or quality of construction. This would mean that they would need additional assistance and information, a prolonged access to temporary housing and financial help to rebuild back. Several of these health and social vulnerability factors are associative. They also have a compounding effect as indicated in the example above, thereby exacerbating the impacts posed by a disastrous event and further reducing capacity to cope and recover.

As a part of the social and health vulnerability analysis that was conducted for the PDRP, the distribution of each of the identified social and health-related vulnerability factors was studied. In addition, by mapping the social vulnerability overall index scores, the data shows areas of high concentrated social and health related risks, shown in the following map.

Figure 1.13: Areas with High Overall Social Vulnerability Indicating Concentrated Risk, 2020



These areas of concentrated risks are only based on the social and health vulnerability factors. Other factors related to locational risks, built-form vulnerability, or risks related to sea level rise are yet to be included in these.

There areas with layered vulnerabilities are locations that are most likely to struggle during the recovery process. They are also areas which would mostly likely see a drastic surge in demand for health and social service needs. It is critical to understand the impacts of these concentrated risks on both the population groups within these areas as well the services providers in these locations. This poses a major challenge for post-disaster redevelopment in terms of planning for the increased demand; identifying in advance, if possible, where the surge in demand is anticipated; and ensuring that all relevant information is accessible to communities as well as the service providers, in an environment marked by disruption of communications and physical displacement.

Addressing these areas of concentrated risks requires a comprehensive strategy, a multi-disciplinary concerted effort, and an area-based approach. Strategies that address the outreach needs and concerns related to the recovery of these population groups; the capacity of the service providers and their ability to restore back services and continue operations post-disaster, are outlined in the recommendations section of the PDRP.

Vulnerability Assessment

Sea Level Rise and Storm Surge Vulnerability

Pinellas County, in cooperation with its 24 municipalities, conducted a countywide sea level rise (SLR) and storm surge vulnerability assessment. This project was funded through the RESTORE Act Direct Component grant program administered by the U.S. Treasury's Office of Gulf Coast Restoration in combination with dedicated non-federal county allocated funds to complete this work.

This project was conducted to address the risks to the county presented by sea level rise and increasing risks from future storm surge. It involved multiple steps such as – review and collection of assets data; asset exposure analysis; and planning-level vulnerability assessment including impact analysis. Based on the results of the planning-level vulnerability assessment and discussions with county subject matter experts, five facilities were selected for detailed facility-level assessments.

The two main hazards that were studied are 1) tidal flooding (flooding due to sea level rise that could occur outside of storm events) and (2) storm surge. The project provided a detailed assessment of current and future flooding conditions, which then led to risk identification for several critical infrastructure assets across the county. The effort included modeling of potential impacts of sea level rise and storm surge in the county over various time horizons. The overall data parameters for the assessment included:

- 3 SLR scenarios (NOAA intermediate low, intermediate, and high)
- 4-time horizons (present day, 2040, 2070 and 2100)
- 8 asset categories (airports, transportation, stormwater, water supply, wastewater, natural gas, railway, and electricity distribution networks)

The results show dramatic increases in flood risk over time, particularly due to the flat topography of Pinellas County and because the county is a coastal peninsula. The results of this assessment were generated to facilitate effective decision-making, guide sustainable policies, and help prioritize efforts to ensure the long-term viability and resiliency of the county's coastal economy, infrastructure, and quality of life. The data developed for this study is assembled by the county into a Geographic Information System (GIS) database for use as a decision support tool moving forward.

The hazard, exposure, and risk data generated by this project is available as a resource to all county municipalities as they move forward with their adaptation planning efforts. It is understood that effective planning and implementation of future resilience measures will require collaboration between county and its various jurisdictions, as these risks do not adhere to municipal boundaries. The initial phase of the Sea Level Rise and Storm Surge Vulnerability Assessment was completed in 2022.

The Executive Summary for the initial phase of the Vulnerability Assessment is accessible at: Sea Level Rise & Storm Surge - Vulnerability Assessment Executive Summary - December 2022. Additional information is available at: Sea Level Rise & Storm Surge Vulnerability Assessment - Pinellas County. While this Vulnerability Assessment ties into various LMS goals and objectives, it especially helps advance the specific goal to become more disaster resilient and provides guidance and resources to the county and its municipalities, for addressing sea level rise. For the report, maps and data that were developed as a part of the Sea Level Rise and Storm Surge Vulnerability Assessment, please contact: Lauren Wolf, lwolf@pinellas.gov.

PLANNING PROCESS AND PLAN MAINTENANCE SECTION

Local Hazard Mitigation Planning Process Requirements
**P1-P7 correspond to FL Crosswalk tool. Items in parentheses correspond to FEMA Review.*
P1 (A1-a) The plan must document the current planning process.
P2 (A1-b) The plan must list the jurisdiction(s) in the current plan that will seek approval.
P3 (A1-b) The plan must list the representative from each jurisdiction that will seek approval and how they participated in the planning process. (At a minimum, it must identify the jurisdiction represented and the person's agency and title within the jurisdiction.)
P4 (A2) The plan must provide documentation of an opportunity for stakeholders to be involved in the current planning process. Documentation of this opportunity must identify how each of the stakeholders (see below) were presented with this opportunity, as applicable.
P5 (A3) The plan must document how the public had an opportunity to be involved in the current planning process and what that participation entailed, including how underserved communities and vulnerable populations within the planning area were provided an opportunity to be involved.
P6 (A4) The plan must document what existing plans, studies, reports and technical information were reviewed and how they were incorporated, if appropriate, into the development/update of the plan.
P7 (A4) For jurisdictions with structures for which National Flood Insurance Program (NFIP) coverage is available, regulatory flood mapping products are required to be incorporated, if applicable. Participants may use other jurisdiction-specific materials, including non-regulatory flood mapping products, that improve upon NFIP regulatory flood mapping products.

Local Hazard Mitigation Plan Maintenance Requirements
**M1-M7 correspond to FL Crosswalk tool. Items in parentheses correspond to FEMA Review.*
M1 (D1-a) The plan must describe how the participant(s) will continue to seek public participation after the plan has been approved and during the plan's implementation, monitoring, and evaluation.
M2 (D2-a) The plan must identify how, when and by whom the plan will be tracked for implementation over its five-year cycle (monitoring).
M3 (D2-b) The plan must identify how, when and by whom the plan will be assessed for effectiveness at achieving its stated purpose and goals (evaluating).
M4 (D2-c) The plan must identify how, when and by whom the plan will be reviewed and revised at least once every five years (updating).
M5 (D3-a) The plan must describe the community's process to integrate the plan's data, information, and hazard mitigation goals and actions into other planning mechanisms.
M6 (D3-c) A multi-jurisdictional plan must describe each participant's individual process for integrating information from the mitigation strategy into their identified planning mechanisms.
M7 (D3-b) The plan must identify the local planning mechanisms where hazard mitigation information/actions may be integrated. The identified list of planning mechanisms must be applicable to the plan participant(s) and not contradict the identified capabilities.

History of the HMP

According to the federal regulations outlined in DMA2K, state and local hazard mitigation plans are required to be updated and re-approved by FEMA every five years. The county's first LMS began its planning process in March of 1998 and took approximately 15 months to complete. The plan was then updated again in 2004, 2009, 2015, and 2020. This is the fifth update of the plan, and the focus of the update was on reviewing risk assessments, refining objectives, and refreshing the project list.

In 2024, Pinellas County, its municipalities and stakeholders once again embarked on a comprehensive update of the Local Mitigation Strategy. The county and its partners recognize that the planning process is as important as the plan itself. Therefore, it documents the planning process including how the plan was prepared and updated, who was involved in the process and how the public was involved. Using the 10-step planning process identified in the FEMA Floodplain Management Planning (CRS Coordinator's Manual, 2017), members worked together to enhance the planning process and strengthen the overall multi-jurisdictional mitigation strategy. The local mitigation strategy planning process is critical in the creation of the LMS. The process defines not only who should be involved, but how the process is going to work, and an understanding of how the process facilitates the production of the final product.

STEP 1: THE PLANNING ORGANIZATION

The development of a mitigation strategy requires the involvement of representatives from the public, private, and governmental sectors. Therefore, every attempt has been made to include the following entities in the Working Group membership:

- Representatives from Pinellas County and twenty-four (24) participating municipal planning and/or code enforcement or building departments, emergency management services, environmental protection and public information departments;
- Federal and State Agencies (FEMA Region IV, Florida Department of Transportation, Florida Division of Emergency Management);
- Private utilities (Duke Energy, Clearwater Gas, etc.);
- Health Care (Bayfront Health St. Petersburg, HCA Health Care, Advent Health North Pinellas, St. Anthony's Hospital, Sunstar);
- Businesses (Bay Area DKI, Florida Restaurant & Lodging Association, Wright National Flood Insurance Company, etc.);
- Educational (Eckerd College, Pinellas County Schools, UF/IFAS Extension, University of South Florida);
- Housing, Transit and Fire Districts (East Lake Tarpon Fire Control District, Pinellas Suncoast Fire Rescue District, Pinellas Suncoast Transit Authority, Tarpon Springs Housing Authority);
- Pinellas County Juvenile Welfare Board;
- Southwest Florida Water Management District;
- Tampa Bay Regional Planning Council;
- Non-profit and volunteer organizations (American Red Cross, Area agency on Aging of Pasco-Pinellas, PARC, The Arc Tampa Bay Inc., etc.)
- Hillsborough County Hazard Mitigation, and
- Public including Pinellas County Neighborhood Association, CAC members, county and municipal leadership programs.

The Pinellas LMS Procedures can be found in Appendix J.

The 2025 LMS was developed by the LMS Working Group in coordination with neighboring communities, local and regional agencies involved in hazard mitigation activities, agencies that have development review authority, businesses, academia and other private and non-private interests. Hillsborough County, and the Tampa Bay Regional Planning Council (TBRPC) were part of the Working Group.

These additional stakeholders, as well as the public are welcome to attend any meeting encouraging both a dynamic membership and participation of the Working Group. Meetings are noticed on Pinellas County's LMS Website (www.pinellaslms.org), municipal websites and online event calendars. The representatives commit their time and available resources to develop a mitigation strategy that would protect life, property, and the environment as well as contribute to the economic well-being of the county. The implication of the Hazard Mitigation Planning and Hazard Mitigation Grant Program (HMGP) Interim Final Rule is that each of the jurisdictions and representatives on the Working Group must show participation in the planning process to qualify for HMGP, Pre-Disaster Mitigation Program (PDM) and Flood Mitigation Assistance Program (FMAP) funding. The definition of participation as determined by the Working Group is attendance at a minimum of 50% of the scheduled meetings during the year. The 2024 meeting schedule is abnormal in that there are more meetings to accommodate the development of the plan update. Each member signs in at each meeting for documentation purposes.

Pinellas County has previously contracted with the Tampa Bay Regional Planning Council (TBRPC) when assistance is required to update the study. TBRPC provided additional staff support for the 2004 and 2009 5-year comprehensive updates, as well as the 2015 update. For the 2020 update, Pinellas County contracted with Atkins, an engineering and design firm headquartered in the Tampa Bay Area. Pinellas County contracted again with AtkinsRéalis for the 2025 LMS Plan Update.

A number of activities were performed at the start of the 2025 LMS 5-year update process. These activities included an email invitation to approximately 200 public and private stakeholders from the Tampa Bay region (Copy of email in Appendix A); starting off the new LMS Working Group meetings with a request for existing working group members to bring in new entities that they may work with in other capacities (shown in agendas and presentations within Appendix A); and introducing the Local Mitigation Strategy to the public and private participants of the Community Rating System's flood outreach group to include the involvement of lenders, real estate agents, and community entities, such as the St. Pete-Clearwater International Airport. As noted in other parts of this document, this existing flood outreach group merged with the local mitigation strategy outreach group to become the Flood Risk and Mitigation Public Information Working Group (FRMPIWG). **Please refer to Appendix A for a copy of the email notifications that were sent out to the municipalities and other stakeholders, and the announcement of Working Group meetings on the Pinellas County LMS webpage.**

The LMS Working Group elects a Chairperson and Vice-Chairperson at its regular annual meeting in January of each year. Smita Ambadi (Pinellas County) was approved to continue as LMS Chair with Megan Orlando (City of St. Petersburg) to continue as Vice Chair. In order to complete the 5-year update of the LMS in 2024-25, the LMS Working Group met most months from January 2024 to November 2024. The quarterly meeting schedule will resume in January 2025 augmented with conference calls to address comments and recommendations from the State Division of Emergency Management and FEMA. The meeting calendar is provided in Appendix A – Planning Process Documentation and reflects the Working Group work through the development and the revision of the LMS.

As a part of the 2025 LMS Five-Year Update, a LMS SharePoint Site was established to share related documents, plan drafts and meeting information. The link to the SharePoint site was shared with the Working Group and the stakeholders. This allowed the Working Group members to review, update, and help create new sections of the Plan. It also enabled them to weigh-in on the development of the strategy and provide recommendations and comments on the risk assessment, goals and objectives, mitigation initiatives, and public awareness programs. Through the Pinellas 2025 LMS SharePoint, members have updated their projects and accomplishments, the departmental responsibilities, and local goals, policies, LDRs3, and mitigation programs.

STEP 2: INVOLVING THE PUBLIC

Public participation was an important component of Pinellas County's mitigation planning process. Individual citizen and community-based input provides the entire planning team with a greater understanding of local concerns and increases the likelihood of successfully implementing mitigation actions by developing community "buy-in" from those directly affected by the decisions of public officials. As citizens become more involved in decisions that affect their safety, they are more likely to gain a greater appreciation of the hazards present in their community and take the steps necessary to reduce their impact. Public awareness is a key component of any community's overall mitigation strategy aimed at making a home, neighborhood, school, business or entire city safer from the potential effects of hazards.

Public involvement in the development of the Pinellas County LMS Update was sought using three methods: (1) public meetings were held and were advertised in local media; (2) public survey instruments were made available in hard copy and online; and (3) the draft Plan deliverables were made available on the Pinellas County LMS website along with contact information for providing input.

The general public was provided three opportunities to be involved in the development of the county plan: (1) twice during the drafting stage of the Plan; and (2) upon completion of a final draft Plan, but prior to official Plan approval and adoption.

- Public Information Meeting 1 (Introduction to Planning Process): April 15, 2024
- Public Information Meeting 2 (Input on Draft Plan): October 17, 2024

All meetings were advertised on the county website, the local newspaper, the electronic county calendar, additional websites, and through social media avenues. In addition, during the planning process, a public participation survey in both English and Spanish (see Appendix A) were shared at the LMS Working Group meeting; and their links distributed through emails to over 200 people on the LMS distribution list; and made available to the public at the April 15th public workshop. The Surveys were also launched online, and their links shared through Pinellas County's LMS website; through social media (Pinellas County's and those of municipalities'); through websites of other municipalities; and advertised using LMS flyers, an educational video at the April 15th workshop, and a press release. Underserved areas within Pinellas County were identified using, The Economic Impact of Poverty Report for Pinellas County Board of County Commissioners (2013, Health and Community Services), the LMS Plan's own social vulnerability analysis and FEMA designated Community Disaster Resilience Zones. To ensure outreach to these areas, one of the workshops was held at Lealman Exchange. In addition, efforts were made to reach out to organizations such as the Lealman and Asian Neighborhood Family Center and Florida Dream Center that serve these communities. The LMS Plan was introduced, through Connect Tarpon (City of Tarpon Springs public portal) and a newsletter was distributed to all Connect Tarpon users informing them of the LMS Workshop and

survey. The surveys were also made available at the City of Clearwater's Main Public Library at Osceola Drive and at the Annual Deaf Fest on August 10th. In addition, links to the survey and/or the workshop flyer were shared with The ARC Tampa Bay, PARC Center for Disabilities; DART (Direct Action and Research Center: FAST a congregation-based community organizing group); and the University of South Florida. Workshop information and survey links were distributed to areas throughout the county using Pinellas County's social media apps such as, Facebook, X (Twitter) and Nextdoor.

Valuable input gathered from the public meetings and survey responses helped inform various parts of the LMS Plan. **Please refer Appendix A for copies of newspaper notices for the two public workshops held for the 2025 LMS 5-Year update; workshop announcements on the Pinellas County Calendar and LMS webpage; workshop flyers; social media posts; surveys; comment card; and pictures from the public workshops.**

In addition to the input received from the workshops, post Hurricane Helene and Milton, the County and the municipalities received several emails from residents enquiring about potential hazard mitigation grants. The following is a summary of the some of the key concerns and needs, that were highlighted multiple times, through the LMS Workshop on Oct. 17th as well as through emails and phone calls received, following the 2024 hurricanes.

- Many homes flooded during Hurricane Helene and Hurricane Milton that hadn't flooded in past several years. There were also several homes that significantly flooded during these storms, that had repeatedly flooded in the past rain or storm events.
- Information requested on different types of grants available to assist with elevation; and/or reconstruction and elevation.
- Information requested for which grants are available and which grants could residents qualify for, and in some cases where a resident currently doesn't have flood insurance.
- Many questions were received regarding the application process for each of the grants.
- Clarification requested on the process such as, if homeowners could make the necessary repairs to their home, provided it is permitted by their jurisdiction, to make their home livable, while they wait to apply for mitigation funding for home elevation.
- Information requested about the maximum amount that a homeowner could qualify for, under each of the grants, for a home demolition and reconstruction versus elevation.
- Concerns expressed about the long wait time to access some of these grants.
- Concerns raised about the upfront cost for applying to some of these grants and in some cases, the inability to make the necessary repairs following the storms, because of the lack of funds to pay the insurance deductible.

The public participation survey was designed to capture data and information from residents of Pinellas County that might not be able to attend public meetings or participate through other means in the mitigation planning process. A total of 195 survey responses were received, which provided valuable input for the Working Group to consider in the development of the plan update. Selected survey results are presented below:

- Approximately 94 percent of survey respondents understanding that their home, business or organization is at least somewhat vulnerable to natural and/or man-made hazards.
- Respondents ranked Hurricane/Tropical Storm as the highest threat to their neighborhood, followed by Severe Thunderstorm/Winds/Tornado and then Flooding.

- Approximately 87 percent of respondents have taken actions to make their homes more resistant to hazards to include strengthening openings, roof retrofits, and optional flood insurance.
- Almost 94 percent of respondents understand that they would have to comply with current local/state codes, ordinances, and laws when rebuilding following a disaster.
- Local Plans and Regulations; Infrastructure Projects; Preparedness, Coordination and Response Actions; and Education and Awareness Programs were ranked as the most important activities for communities to pursue in reducing risks.

As part of the 2020 update, an ESRI Storymap was created for Pinellas County's LMS. This Storymap is a concise online version of the LMS Plan developed in a graphically- oriented, user-friendly format. It functions as an invaluable tool that helps bring together all hazard related datasets and enables the county to combine them with maps, images, text, and multimedia to visually communicate ideas and processes in the form of a Storymap. Owing to this function, the LMS Storymap serves as an educational tool to generate awareness and interest in Pinellas County's mitigation efforts. It outlines the benefits of mitigation; identifies overall hazard risks faced by the county and its jurisdictions; highlights the county's mitigation accomplishments so far; and provides a range of local, state, and national level resources for understanding mitigation. While the Storymap was not updated as part of the 2025 LMS update, the educational benefits are still ongoing and the Storymap may be accessed from the Pinellas County LMS website.

Input from the public occurs in many forms, such as: participating in working group meetings; taking surveys and providing comments at public forums; responding to messaging on social media channels; and engaging government staff and officials through direct communication. Throughout the plan update process, information from the public was integrated into the process in the appropriate method. Concerns or questions raised at the public workshop, through emails from residents or through survey responses, were brought to the LMS Working Group meetings. In the past residents have voiced their concerns at the LMS meetings and engaged the committee members. The Working Group members have discussed and provided appropriate responses to residents, and also evaluated the plan's objectives in response to the questions raised. Following public meetings, the LMS Working Group was briefed on the event and informed of any concerns or suggestions raised by the public via direct conversation or through information provided in surveys or comment cards. This interaction helped to guide the LMS Working Group during their meetings to act upon any items raised by the public.

Apart from the efforts of the LMS Working Group, Pinellas County's Flood Risk and Mitigation Public Information Working Group (FRMPIWG) played a key role in public outreach and in advancing the county's mitigation efforts. The FRMPIWG provided input and feedback in support of the NFIP CRS program and LMS within the county. This Working Group consists of representatives from all the jurisdictions in Pinellas County as well as citizens and members of the private sector. During the project timeline, this group met three times and developed their own mission statement and provided valuable input for the LMS. A member of the FRMPIWG and the LMS Working Group, acted as a liaison between the two groups and provided LMS progress updates at the FRMPIWG meetings. **Please refer Appendix A for email notifications indicating coordination between the LMS and FRMPIWG functions. For a copy of the FRMPIWG meeting minutes and sign-in sheets, please refer Appendix A of the Multi-Jurisdictional Program for Public Information (provided in Appendix H of the LMS Plan).**

During the plan maintenance process, the county will continue to use and refine the public engagement tools and methods described above to improve public awareness about mitigation, reach out to a wider audience, and increase participation in the county's mitigation efforts.

STEP 3: COORDINATION

The LMS Working Group representatives have responsibility to not only participate in the committee and its subcommittees, but to also reach out in their community to share significant information and messages, to coordinate activities within the county and to bring back perspectives of their constituency. The intent is for the representatives to contact agencies, organizations and their residents to collect information related to hazards and mitigation activities, provide information regarding the LMS and its update as well as offer these agencies and organizations an opportunity to be involved in the planning effort. The documents shared through the SharePoint site for the 2025 LMS plan update and the discussions at the LMS Working Group meetings helped to share information regarding existing plans, studies, and data belonging to different jurisdictions that are relevant to LMS. These discussions helped refine the Goals and Objectives within the LMS plan as a part of the five-year update. These discussions also emphasized the need to adopt language in related plans that encourage consistency in vulnerability metrics and mitigation measures throughout the county. (See Appendix A for more detailed information.) Local plans, such as comprehensive plans, capital improvement plans, economic development plans, etc., were also reviewed to inform the mitigation update process and may be updated in the future following the update of the risk assessment and strategy development. These plans are listed in Section 3 – Mitigation Strategy.

STEP 4: ASSESSING THE HAZARD

One of the most important tasks required of the LMS Working Group is to conduct and maintain a hazard identification and vulnerability assessment. The information provided by the assessment is the foundation on which decisions about future mitigation initiatives are based. An analysis of both natural and technological hazards is on-going, as new information and technology evolves and events occur. The hazard identification and vulnerability assessment data is gathered from FEMA, National Oceanographic and Atmospheric Administration (NOAA) and the National Weather Service, the Tampa Bay Regional Planning Council (TBRPC); the National Hurricane Center SLOSH (Sea Lake Overland Surge in Hurricanes) model; the Laser Infrared Detection and Ranging system (LIDAR); the municipalities and their departments; and Pinellas County departments such as, Emergency Management, Housing and Community Development, Public Works, Building Services, Business Technology Services and Utilities. The Hazards Analysis and Vulnerability Assessment relied heavily on GIS planning tools to identify vulnerable areas, populations and recognize geographic vulnerabilities of critical facilities and key infrastructure.

STEP 5: ASSESSING THE PROBLEM

While the previous step assesses the hazards facing the community, this step quantifies the impact of those hazards on the community. The LMS Working Group collected population and demographic data from American Community Survey (ACS) data, critical infrastructure and facilities inventories, flood insurance data, building type/valuation from the property appraiser data, historical damage and an estimation of potential future events.

This section also described the areas within the floodplain that provide natural functions including wetlands, riparian areas, sensitive areas and habitat. This was tied to the community goals and policies reflected in the local government comprehensive plans which provide a description of the development, redevelopment and population trends.

STEP 6: GOALS AND OBJECTIVES

In 2009 a Goals and Objectives Subcommittee was tasked with the development of recommendations for new goals and objectives. The Subcommittee and Working Group decided to follow the Federal Guidance and develop hazard-specific goals addressing the major hazards facing the county: coastal flooding (storm surge, coastal erosion and wave action), inland and riverine flooding, severe winds (hurricanes and tornadoes), hazardous material incidents, and security hazards (terrorism, civil disruptions, etc.). In addition, an all-hazards goal was developed for those mitigation objectives or actions which addressed a broader safety goal or more than one hazard. In 2014 the Subcommittee revisited the Goals and Objectives and made only minor adjustments to specifically address sea level rise, as appropriate. The LMS then focused on the identification and analysis of mitigation actions and addressed existing and new buildings and infrastructure. The county followed the FEMA suggestion that the mitigation actions be sorted into the following groups:

- Prevention
- Property Protection
- Public Education and Awareness
- Natural Resource Protection
- Structural Projects

In 2019, several changes were made to the goals and objectives to reflect updated information from the vulnerability assessment and revised focus areas to include six new objectives in Goal 1 – Disaster Resilience:

- Countywide consistency in approach to hazard planning and higher standards
- Addressing social vulnerability when assessing hazards
- Plan for future conditions of hazards
- Plan for impacts of Red Tide
- Better protection/resilience for energy infrastructure
- Chemical storage security and safety for private facilities.

Additionally, other objectives had language broadened to allow flexibility for multi-hazard approaches. As wildfire has been determined by the Working Group as a lesser concern, that goal has been removed, but its corresponding objectives were simply moved to the broader Goal 1 – Disaster Resilience.

In 2024, the LMS Working Group determined that the goals for the five-year update would remain the same as the previous update. However, the LMS Working Group spent considerable time reviewing the objectives within each goal and assessed the language to ensure the information reflected the current efforts of the communities. Additional objectives were added in a few instances to reflect new, ongoing, and anticipated efforts.

STEP 7: POSSIBLE ACTIVITIES: MITIGATION OPPORTUNITIES AND INITIATIVES

The process of developing the local mitigation strategy culminated in the identification of potential mitigation opportunities and initiatives. Each Working Group member is required to review, evaluate, and analyze his or her current policies and ordinances regarding mitigation. The information is then shared and compared with the other members of the Working Group. This allows for the exchange of good ideas, accomplishments, and past experiences both successful and unsuccessful. The process also identifies any inconsistencies between communities. The most successful policies limit public expenditures in areas subject to repetitive damage from disasters; protect critical facilities and infrastructure; preserve, restore and enhance natural resources that can mitigate hazards; encourage economic diversification as protection from the loss of any one asset; encourage structural retrofitting, property acquisition and relocation; and identify procedures to expedite post-disaster recovery and permitting. Because of the education gained from this process, the Working Group is better prepared to determine the future mitigation initiatives that should be or need to be pursued. Some of the needed mitigation initiatives require unified intergovernmental coordination and participation. Other initiatives can be accomplished on an individual community basis.

STEP 8: AN ACTION PLAN

Objectives were identified for each Goal to specifically identify action items and are reflected in five categories of mitigation activities:

- **Preventive measures** – activities which prevent vulnerability from getting worse. The use and development of vulnerable areas through planning, land acquisition or regulation. This includes hazard vulnerability mapping and data; open space preservation; floodplain regulations, coastal setbacks; planning and zoning; Stormwater management; drainage system maintenance and building codes.
- **Property protection** – activities which are usually undertaken by property owners or the community on a, parcel by parcel basis, including relocation, acquisition, building elevation, retrofitting, sewer backup protection and insurance.
- **Natural resource protection** – activities which preserve or restore natural areas or the natural function of the floodplain and watershed areas. These activities include wetlands protection erosion and sediment control, natural area preservation or restoration, water quality improvement, coastal barrier protection, and environmental corridors.
- **Structural projects** – are those traditionally engineering/maintenance projects that protect vulnerable populations and structures including seawalls, levees, Stormwater/drainage improvements or maintenance, access restrictions, etc.
- **Public education and awareness** – activities which advise property owners and visitors about hazards, ways to protect people and property from the hazards. These include maps, outreach projects, real estate disclosure, technical assistance and education.

Pinellas County and each of the twenty-four (24) participating municipalities submit a list of their prioritized mitigation initiatives. The initiatives are then placed on a consolidated county-wide list, which is divided into the six categories relevant to specific goals and objectives.

These mitigation actions are then evaluated using the STAPLEE method. This technique identifies the following local conditions: Social, Technical, Administrative, Political, Legal, Economic and Environmental. Actions are also evaluated using other criteria:

- Compatibility with the Local Government Comprehensive Plans
- Compatibility with the Comprehensive Emergency Management Plan
- Compatibility with other related programs, such as the Community Rating System

A spreadsheet is placed online for editing by working group participants. All stakeholders are asked to update the status of existing projects to either still viable, new, completed, or removed. Completed or removed projects were updated with an explanation as to what had changed. New projects are self- scored by the applicant, then reviewed by the LMS Working Group's scoring committee, and then presented to the LMS Working Group to provide any clarification on details before being accepted by the group.

2025 Update

The preparation for the 2024 LMS update began with the contractor, AtkinsRéalis working with the LMS Working Group in January of 2024. Throughout 2024, the LMS Working Group met numerous times and went through the entire process of reviewing goals and objectives, assessing the hazards, analyzing the risks, and updating the appropriate mitigation actions. The plan was reviewed and updated to reflect progress in county mitigation efforts and changes in priorities. The schedule of the LMS meetings is included below along with the agencies and departments that participated on the LMS Working Group.

Table 2.1: List of Local Mitigation Strategy Working Group Meetings

Date	LMS Working Group Meetings
January 17, 2024	Kickoff – New Requirements and Data Needs
February 21, 2024	Planning Process – Repetitive Loss Data, Capability Assessments
March 20, 2024	Capability Assessment Survey, Review Potential Funding
April 10, 2024	Capability Assessment and Upcoming LMS Workshop
May 8, 2024	Goals and Objectives
May 10, 2024	FRMPIWG Meeting (CRS and LMS coordination activities)
June 26, 2024	Capability Assessment and Goals and Objectives
July 17, 2024	Goals and Objectives and Table D-1
August 21, 2024	Capability Assessment, LMS Goals and Objectives, Risk Assessment, Repetitive Loss and Severe Repetitive Loss Data, and Table D-1
August 28, 2024	Annual Update Training and overview of the internal process for Hazard Mitigation Grant Program (HMGP) and common related FAQ.
October 30, 2024	Update on the LMS Workshop, review of Plan Maintenance, CRS coordination within the LMS, and final review

List of agencies that participated in LMS Working Group Meetings during the planning process update.

Table 2.2: LMS Participating Agencies

LOCAL	SPECIAL DISTRICTS AND OTHER ENTITIES
Town of Belleair	Advent Health North Pinellas
City of Belleair Beach	American Red Cross
City of Belleair Bluffs	Area Agency on Aging of Pinellas and Pasco Counties
Town of Belleair Shore	Baycare Inc.
City of Clearwater	Bayfront Health St. Petersburg
City of Dunedin	Bay Area DKI
City of Gulfport	East Lake Tarpon Fire Control District
City of Indian Rocks Beach	Eckerd College
Town of Indian Shores	FL Restaurant & Lodging Association
Town of Kenneth City	HCA Health Care
City of Largo	Johns Hopkins All Children's Hospital
City of Maderia Beach	Lealman Special Fire Control District (SCFD)
Town of North Redington Beach	Morton Plant Hospital Association
City of Oldsmar	Parc Center for Disabilities (PARC)
Pinellas County	Pinellas County Juvenile Welfare Board
City of Pinellas Park	Pinellas County Schools
Town of Redington Beach	Pinellas Suncoast Fire Rescue District
Town of Redington Shores	Pinellas Suncoast Transit Authority (PSTA)
City of Safety Harbor	REBUILD Northwest Florida, Inc
City of Seminole	St. Anthony's Hospital
City of South Pasadena	Sunstar
City of St. Pete Beach	Tarpon Springs Housing Authority
City of St. Petersburg	The Arc Tampa Bay Inc
City of Tarpon Springs	University of South Florida
City of Treasure Island	UF/IFAS Extension
[redacted]	Wright National Flood Insurance Company
FEDERAL	Hillsborough County (Adjacent Jurisdiction)
Federal Emergency Management Agency Reg. 4	[redacted]
[redacted]	
STATE	
Florida Department of Transportation	
Florida Division of Emergency Management	
Southwest Florida Water Management District	
Tampa Bay Regional Planning Council	

STEP 9: ADOPTION OF THE STRATEGY

After the 2025 LMS underwent final revisions, and the plan was completed to the Florida Division of Emergency Management's satisfaction (and thus the Federal Emergency Management Agency per agreement with FDEM), the plan was officially adopted by Pinellas County via a memorandum signed by the Chief Executive Officer as the County's Authorized Representative, on XX/XX/2025. Each municipality adopted the updated plan and the exact dates are provided in Appendix F – Plan Adoption. The 2025 Plan will be effective from May, 6, 2025 until May, 5, 2030. (**Will be updated in May 2025**)

The following documentation can be found in *Appendix F: Plan Adoption*.

- Adoption
- Approval

STEP 10: IMPLEMENTATION, EVALUATION, AND REVISION

The Pinellas 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. The current steward of the multijurisdictional plan and planning process is as follows:

Pinellas County Housing and Community Development Department
Planning Division
310 Court St., Clearwater, FL.
https://pinellas.gov/department/planning/
727.464.8200

The Housing and Community Development Department Director and/or their designee is also currently assisted by staff from Pinellas County's Emergency Management Department to coordinate activities and ensure compliance with local, state, and federal requirements. Consistent with federal and state requirements, the LMS Working Group will meet to update and review the effectiveness of the local mitigation strategy quarterly. The Working Group meeting schedule for each calendar year, shall be officially approved by the Working Group. The LMS Chair (elected annually by the LMS Working Group) with help from the Working Group, will submit the annual LMS updates to the Florida Division of Emergency Management no later than the last working weekday of each January. This update will follow an annual review of the plan by the LMS Working Group. The LMS Chair will also be responsible for calling and coordinating the Working Group meetings, and for monitoring and evaluating the plan for the update and on an ongoing basis.

To facilitate the evaluation of the LMS, a portion of each regularly occurring Working Group meeting (quarterly meetings) will address the following criteria:

- April: Evaluate any changes to risk assessment prior to the start of hurricane season. Assess opportunities for outreach with community.
- July: Evaluate objectives to determine if any activity needs to be revised based on any updated policies or risk assessment factors.
- August – Annual Update Training to remind working group members of the annual update requirements and guide new members or stakeholders on the overall process, project scoring sheet and how to update the documents.
- October: Review the status of projects/actions and update the projects' list. Finalize the yearly roster of working group members. Finalize the schedule of meetings for the upcoming year. Prepare for the annual update to FDEM. Annual update also includes attaining necessary approval and signature from within the county, prior to submitting to FDEM.
- Jan: Verify annual update items and submit to FDEM. Elect Chairperson for the year. Determine LMS Working Group priorities for the year.

On an ongoing basis, new mitigation initiatives will be considered by the Working Group for inclusion into the LMS plan (Table D-1 Mitigation Initiatives). Completed initiatives, will be removed from the Initiatives List and detailed in Table D-2 Mitigation Accomplishments. The new initiatives will be added as they are

identified, ranked and approved by the Working Group.

Five-Year Update

In addition to these annual progress reports and reviews, the LMS will be updated every five years, in accordance with 44 CFR 201.4. Each section of the 2025 LMS will be reviewed and updated accordingly. Every five years, or after any major change, the LMS Plan will be resubmitted to municipal councils/commissions and to the Board of County Commissioners for re- adoption.

The five-year updates are labor intensive and can take over a year to complete. Below is a timeline starting when the 2025 Update began and ending at the end of 2029 and includes annual and five-year update cycle actions. As a countywide plan, all jurisdictions participate in the maintenance process.

Table 2.3: Pinellas 2025 Plan Update Timeline

Year	Task(s)
2023	• Quarterly LMS Working Group Meetings • Program for Public Information Meetings (3) • Annual Progress Report to FDEM • Prepare for 2025 Update • Agreement with Consultant for 2020 Update
2024	• LMS Working Group Meetings • Program for Public Information Meetings (3)
	• Work on the Five-Year 2025 Update • Provide Five-Year 2025 Plan Updates to FDEM • Annual Progress Report to FDEM
2025	• Provide any necessary revisions to FDEM for 2025 Update • Local Adoption of 2025 Plan • Quarterly LMS Working Group Meetings • Program for Public Information Meetings (3) • Prepare Annual Progress Report to FDEM
2026	• Quarterly LMS Working Group Meetings • Program for Public Information Meetings (3) • Annual Progress Report to FDEM
2027	• Quarterly LMS Working Group Meetings • Program for Public Information Meetings (3) • Annual Progress Report to FDEM
2028	• Quarterly LMS Working Group Meetings • Program for Public Information Meetings (3) • Annual Progress Report to FDEM • Prepare for 2030 Update
2029	• Quarterly LMS Working Group Meetings • Program for Public Information Meetings (3) • Annual Progress Report to FDEM • Provide updates for 2030 Plan to FDEM

MITIGATION STRATEGY SECTION

Local Hazard Mitigation Plan Requirements
**S1-S8 correspond to FL Crosswalk tool. Items in parentheses correspond to FEMA Review.*
S1 (C1-a) The plan must describe how resources of each participant the existing authorities, policies, programs, funding and are available to support the mitigation strategy. This must include a discussion of the existing building codes and land use and development ordinances or regulations. Capabilities may be described in a table or narrative.
S2 (C1-b) The plan must describe the ability of each participant to expand on and improve the capabilities described in the plan (see S1).
S3 (C2-a) The plan must describe participation in the NFIP for each participant, as applicable, in accordance with NFIP regulatory requirements.
S4 (C3-a) The plan must include goals to reduce the risk of the identified hazards.
S5 (C4-a) The mitigation strategy must include an analysis of a comprehensive range of actions or projects that the participants considered to specifically address vulnerabilities identified in the risk assessment.
S6 (C4-b) Each plan participant must identify one or more mitigation actions the participant(s) intends to implement for each hazard addressed in the risk assessment.
S7 (C5-a) The plan must describe the criteria used for prioritizing the implementation of the actions. The criteria must include an emphasis on the extent to which benefits are maximized, in relation to the associated costs of the action.
S8 (C5-b) The action plan must identify who is responsible for administering each action, along with the action's potential funding sources and expected time frames for completion.

Mitigation Strategy

The purpose of the local mitigation strategy is to develop a "blueprint" or guide intended to:

Provide a unified and consistent course of action needed to eliminate or reduce the impact of disasters that threaten Pinellas County and its municipalities.

This strategy was originally developed in 1998 in accordance with the Florida Department of Community Affairs publication, *The Local Mitigation Strategy: A Guidebook for Florida Cities and Counties*, and other applicable guidance promoted by the Department of Community Affairs (DCA), the Florida Division of Emergency Management (DEM) and the Federal Emergency Management Agency (FEMA).

The content of this section discusses how the county and its municipalities develop and prioritize actions in coordination with countywide goals and objectives.

Goals and Objectives

Goals and objectives help capture the overall purpose of the plan and assist with determining possible new directions for hazard mitigation efforts. Setting goals and objectives ensures that the state is headed in the right direction when it comes to hazard mitigation planning by providing ways in which success can be measured. The goals and objectives below are intended to reduce long-term vulnerabilities. It is

important that both the goals and objectives are reviewed regularly for continuing relevance to the county hazard mitigation strategy.

The following list represents the newly revised goals and objectives by the LMS Working Group. Additionally, the proposed revisions were provided to the Flood Risk and Mitigation Public Information Working Group (FRMPIWG) as well as provided to the public at an evening workshop for comment and recommendations.

Overview

Based on the hazards and vulnerability analyses, the next step in the LMS planning process was the review of the existing goals and objectives. This involved checking if they were relevant and realistic and identifying additional goals or objectives if needed.

With the update of the 2025 Local Mitigation Strategy, the Workgroup found the existing goals and objectives provided a clear strategy on where to expend additional funds; as well as addressed mitigation as a comprehensive, multi-jurisdictional program. While the jurisdictions want to be "ready" if mitigation funds are available, the shared goal of resiliency requires a local commitment even in difficult economic times.

In addition to non-structural approaches (growth management) to mitigation, public education campaigns; hardening of critical facilities and shelters; the concepts of community resiliency and intergovernmental and inter-agency coordination remain critical to the LMS. The Workgroup focused on the hazard-specific goals to maintain the "all-hazards" approach.

During the 2020 update the LMS Working Group decided to remove the goal specific to wildfire. The risk assessment showed that there is decreased exposure to this hazard as the community is built out and wildland urban interface is contained to a small geography in the northern portion of the county that is well maintained by park services. Even though this goal was removed, the objectives related to it were retained and moved to the more general goal number 1, "Become a More Disaster Resilient Community". During the 2025 update, the LMS Working Group revisited these goals and decided to retain the goals from the 2020 plan for this update.

Beyond the goals themselves, changes were also made to the objectives. While some of the changes were minor tweaks, the more substantive changes were intended to: encourage collaboration countywide for consistent approach to mitigation and higher standards, consider future conditions of the hazards, and to include social vulnerabilities. Some additional objectives were added after thorough discussion of the list during LMS WG meetings.

Additionally, objectives were reviewed and modified to achieve these goals. The six goals adopted for the LMS Plan are:

1. Become a More Disaster Resilient Community.
2. Minimize Coastal Flooding Losses.
3. Minimize Inland or Riverine Flooding Losses.
4. Minimize Storm Wind Losses in the County.
5. Minimize Losses from Hazardous Material Incidents.
6. Minimize Vulnerability to Technological Hazards.

Specific Measures

Mitigation tools and techniques fall into three broad categories: (1) **structural techniques** including design and construction; (2) **environmental interventions** and (3) **non-structural interventions**. Structural mitigation projects include strengthening of vulnerable structures and public facilities to withstand wind, fire and other forces, elevation of structures to protect them from flood damage, construction of stormwater control facilities and drainage improvements. Environmental intervention refers to actions that reduce the vulnerability of communities by armoring them against the elements. This term includes beach restoration and stabilization projects. Non-structural mitigation refers to policies for avoiding hazard impacts, applying zoning restrictions, land acquisition in the floodplain, promoting citizen awareness and public education initiatives.

Each goal identified objectives which fell into one of five (5) specific measures:

A. Prevention Measures:

Government administrative or regulatory actions or processes that influence the way land and buildings are developed and built. These actions also include public activities to reduce hazard losses. Examples include planning and zoning, building codes, capital improvement programs, open space, preservation and storm water management regulation.

B. Property Protection:

Actions that involve the modification of existing building or infrastructure to protect them from a hazard or removal from the hazard area. Examples include acquisition, elevation, relocation, structural retrofits, flood proofing, storm shutters, and impact-resistant glass.

C. Natural Resource Protection:

Actions that, in addition to minimizing hazard losses also preserve or restore the functions of natural systems. These actions include sediment and erosion control, stream corridor restoration, watershed management, forest and vegetation management and wetland restoration and preservation.

D. Structural Projects:

These are actions that involve the construction of structures to reduce the impact of a hazard. Such structures include storm water controls, floodwalls, seawalls, retaining walls and safe rooms. The implementation of a mitigation program is a key component in the achievement of a “sustainable community”, one in which citizens, businesses and institutions are protected from the disruptions and impacts of disasters. In an urbanized metropolitan county such as Pinellas County, coordination among and between levels of government is critical to the success of the program.

E. Public Education and Awareness:

Actions to inform and educate citizens, elected officials and property owners about potential risks from hazards and potential ways to mitigate them. Such actions include outreach projects, real estate disclosure, hazard information centers, and school-age and adult education programs.

The LMS Working Group established the goals and objectives listed in the table on the following pages as a foundation of the countywide mitigation strategy in earlier plans. These were reviewed by the LMS Working Group during the June, and July 2024 meetings. The proposed revisions were distributed to the LMS Working Group for further review and comment. These revisions were reviewed and finalized in August 2024.

Table 3.1: Pinellas County Goals and Objectives

Goal #	Goal Name	Activity Class	Objective #	Objective Description	Actions	Implementation Documents	Agency/Dept
1	Become a more disaster resilient community	Preventive Measures	1.1	Continue to adopt comprehensive and consistent sets of goals, objectives, and policies in local government comprehensive plans which minimize risk and potential property damage through density restrictions, zoning, and land use regulations.	Local governments have adopted their Evaluation & Appraisal Report-based amendments of their respective comprehensive plans, according to Ch. 163, F.S. In addition, currently annual amendments update the Capital Improvement Elements of the Comprehensive Plans.	Local government comprehensive plans	Planning, Building/Dev. Review Services
1	Become a more disaster resilient community	Preventive Measures	1.2	Adopt and enforce land development regulations (LDRs) including building codes and floodplain management regulations which provide for enhanced public safety and structural integrity of buildings and infrastructure in order to achieve mitigation goals.	Local governments shall adopt and enforce LDRs to implement their respective comprehensive plans. Amendments to LDRs are made accordingly as comprehensive plan amendments are adopted.	Local government codes of ordinances	Building/Dev. Review Services, Public Works, Planning
1	Become a more disaster resilient community	Preventive Measures	1.3	Local governments, non-governmental organizations (NGOs) and businesses should develop and maintain Continuity of Operations (COOP) Plans which minimize the impact of business interruption and protect vital records.	Local government departments prepare and update individual COOPs; promote Small Business Disaster Survival Kit Programs	Department emergency response plans, COOPs	Emergency Management, Real Estate Mgt., all local government departments and constitutional departments

Goal #	Goal Name	Activity Class	Objective #	Objective Description	Actions	Implementation Documents	Agency/Dept
1	Become a more disaster resilient community	Preventive Measures	1.4	Continue to maintain and implement, as necessary, the Pinellas County Post-Disaster Redevelopment Plan annually.	In 2013 Pinellas County completed the most recent update to the Post-Disaster Redevelopment Plan. In 2024, Pinellas County in coordination with the City of Tampa and other regional partners kicked off the PDRP planning process to update the current PDRP. The county will continue to coordinate with DEO and its municipal partners regarding the update and implementation of the Post-Disaster Redevelopment Planning Program including emergency ordinances, Disaster Housing Strategy, Debris Management Plan, etc. Lessons learned through the Hurricane Helene (Sept. 2024) and Hurricane Milton (Oct. 2024) response and recovery processes will be used to inform the PDRP update.	Local government comprehensive plans; CEMP, Local Government Disaster/Post- Disaster Redevelopment Guides; Pinellas County Post- Disaster Redevelopment Guide (2010)	Emergency Management and Planning are lead agencies, coordinating with other interested parties
1	Become a more disaster resilient community	Preventive Measures	1.5	Conduct research to determine impacts from climate change to the county and work regionally to identify adaptive strategies to meet future challenges including sea level rise.	Pinellas County will work with federal, state and local entities to determine potential impacts to the county and its jurisdictions and will incorporate adaptive strategies in the next update of the LMS, as appropriate.	Local government comprehensive plans; CEMP, Local Government Disaster/Post- Disaster Redevelopment Guides; Pinellas County Post- Disaster Redevelopment Guide (2010)	Planning agencies at local, regional, state and federal levels; the National Estuary Program, Tampa Bay Regional Planning Council; Pinellas County UF/Cooperative Extension Office and others.

Goal #	Goal Name	Activity Class	Objective #	Objective Description	Actions	Implementation Documents	Agency/Dept
1	Become a more disaster resilient community	Property Protection	1.6	Develop a local program in concert with federal and state programs to encourage and provide incentives to residents to make their homes more resistant to natural, technological, and human-caused disasters.	The Pinellas County and St. Petersburg Home Repair Loan Programs are examples of local programs which provide low interest loans for improvements such as roof bracing/replacement, impact resistant windows and doors, shutters, etc. In addition, local governments may sponsor flood mitigation programs for repetitive and severe repetitive loss properties via the Flood Mitigation Assistance Program; Support State Hurricane Preparedness Tax Holidays and Wind Retrofit Program	Housing programs, CIEs and budgets, HUD Programs, FMAP and Floodplain Management Programs; State action to allow for Hurricane Preparedness Tax Holidays; continuation of State Wind Retrofit Program	County Community Development Depts., City Housing Departments, DEO, FDEM
1	Become a more disaster resilient community	Property Protection	1.7	Identify critical facilities and key critical infrastructure and include an assessment of their current and future hazard risks based on the most updated vulnerability assessments wherever possible; critical assets that are identified, should be prioritized based on their risks, for implementation, of appropriate mitigation or adaptation measures.	Each government through the updating of the CEMP and LMS assesses the status of critical facilities and infrastructure	CEMP (2013); Local Mitigation Strategy (2015)	Emergency Management, Fire Administration, Real Estate Mgt.
1	Become a more disaster resilient community	Property Protection	1.8	Support environmental land acquisition programs which limit existing or future development potential from a hazard while protecting environmental lands and/or providing recreational opportunities.	Continue programs that acquire environmentally sensitive lands and flood-prone properties in conjunction with stormwater management projects.	Pinellas County and local comprehensive plans, Pinellas County Capital Improvements Program	Environmental Management, Real Estate Management, Public Works, Planning

Goal #	Goal Name	Activity Class	Objective #	Objective Description	Actions	Implementation Documents	Agency/Dept
1	Become a more disaster resilient community	Public Education and Awareness	1.9	Develop a public awareness and education campaign that informs citizens, officials, and businesses about potential risks, mitigation alternatives, their costs and benefits, incentives and funding assistance programs	Continue CRS outreach efforts and education campaigns via flyers, newspaper articles, direct mailing to repetitive loss properties/areas, email subscriptions, local events, and speaker bureaus. Promote Family and Small Business Disaster Survival Kit Programs	Local Floodplain Management Plan (CRS), Hurricane Guides, website.	Emergency Management, Planning, Communications, Economic Development
1	Become a more disaster resilient community	Public Education and Awareness	1.10	Incorporate mitigation and preparedness activities into existing community programs, such as, but not limited to, Neighborhood Crime Watch and CERT programs.	Coordinate information activities with local CERT and law enforcement agencies during local neighborhood meetings.	CEMP, Floodplain Management Plan	Fire Administration, Emergency Management, Law Enforcement
1	Become a more disaster resilient community	Public Education and Awareness	1.11	Provide hazard- specific training, such as awareness, ICS, hazardous material handling, floodproofing, code-plus construction techniques (“Blueprint for Safety”), etc. to governmental employees, contractors and citizens to reduce our vulnerabilities.	Coordinate information activities with local CERT and law enforcement agencies during local neighborhood meetings. Identify and expand training opportunities for governmental employees.	CEMP, Floodplain Management Plan, LEPC, RDSTF 5-year Training Program	Fire Administration, Emergency Management, Law Enforcement, Public Information Office
1	Become a more disaster resilient community	Natural Resource Protection	1.12	Adopt and enforce land development regulations (LDRs) which provide for the protection of environmentally sensitive lands, i.e., wetlands, coastal areas and upland habitats in order to achieve mitigation goals.	Continue environmental protection through methods such as upland buffers, density restrictions within the CHHA, PCCCL and Coastal Storm Area, minimization of impervious surfaces consistent with local plans and codes	Comprehensive Plan; Land development regulations, Gulf Beaches Coastal Construction Code	Building/Dev. Review Services, Planning, Pinellas County Construction Licensing Board

Goal #	Goal Name	Activity Class	Objective #	Objective Description	Actions	Implementation Documents	Agency/Dept
1	Become a more disaster resilient community	Structural Projects	1.13	Support the construction of structures that reduce the impact of hazards including storm water controls, floodwalls, seawalls, security and monitoring capabilities, and safe rooms.	Enforce land development codes regarding hardening shorelines (where appropriate) and developing more disaster resistant housing. Design improvements utilizing climate change and sea level rise for the life expectancy of the structure.	Land development regulations; Florida Building code; Gulf Beaches Coastal Construction Code	Public Works, Environmental Management, PCCCL
1	Become a more disaster resilient community	Preventive Measures	1.14	When assessing hazards (exposure and impacts), consider future conditions. as identified in the community's latest plans or vulnerability assessments.	Local planning documents should include maps and tables that illustrate expected future conditions from hazards	Local government comprehensive plans; CEMP, Local Government Disaster/Post- Disaster Redevelopment Guides; Pinellas County Post- Disaster Redevelopment Guide (2010)	Emergency Management and Planning are lead agencies, coordinating with other interested parties
1	Become a more disaster resilient community	Preventive Measures	1.15	Establish countywide consistency in hazard planning policies that enable the enforcement of higher regulatory standards.	Identify benchmarks for hazard planning policies and higher standards that all communities could adopt.	Local government comprehensive plans, land development ordinances, stormwater manuals	Building/Dev. Review Services, Public Works, Planning
1	Become a more disaster resilient community	Preventive Measures	1.16	Include social vulnerability when assessing hazards in community planning processes	Local planning documents should include maps and tables that illustrate expected social vulnerability impacts from hazards in coordination with public health agencies	Local government comprehensive plans; CEMP, Local Government Disaster/Post- Disaster Redevelopment Guides; Pinellas County Post- Disaster Redevelopment Guide (2010); Local Mitigation Strategy	Emergency Management, Public Health, and Planning in coordination with other interested parties

Goal #	Goal Name	Activity Class	Objective #	Objective Description	Actions	Implementation Documents	Agency/Dept
1	Become a more disaster resilient community	Natural Resource Protection	1.17	Develop plans and procedures that minimize impacts from red tide	Continue environmental protection through methods such as upland buffers, density restrictions within the CHHA, PCCCL and Coastal Storm Area, minimization of pollutant runoff into waterways	Local government comprehensive plans, land development ordinances, stormwater manuals	Public Works and supporting water quality/environmental agencies
1	Become a more disaster resilient community	Preventive Measures	1.18	Enforce adopted building codes and “Firewise” policies (buffers, etc.) to minimize risk.	Assess existing codes in meeting updated “Firewise” guidelines	Land development regulations, building codes	Building/Dev. Review Services
1	Become a more disaster resilient community	Preventive Measures	1.19	Conduct, with emphasis on safety protocols, prescriptive burning programs in passive recreational areas and parks.	Carry out controlled burning, mechanical vegetative thinning and timber thinning policies of local preserve management plans.	Brooker Creek Preserve Management Plan	Environmental Management, Fire Administration
1	Become a more disaster resilient community	Public Education and Awareness	1.20	Provide residents with up-to-date information regarding their fire risk and Firewise strategies, as well as water conservation.	Carry out annual public outreach through websites, speaker bureaus, email subscriptions, events, PCC-TV and other Public, Educational and Governmental Channels (PEGs), local and commercial TV, and radio.	CEMP	Emergency Management, Environmental Management, Communications
1	Become a more disaster resilient community	Natural Resource Protection	1.21	Protect wildland areas through prescribed burning, acquisition, provision of recreational opportunities (where appropriate), outdoor camping/fire restrictions, and habitat restoration.	Carry out controlled burning, mechanical vegetative thinning, timber thinning policies of local preserve management plans, and established park policies and regulations	Park policies and regulations, Environmental lands management plans	Environmental Management, Culture, Education & Leisure (CEL) Depts.
1	Become a more disaster resilient community	Preventive Measures	1.22	Develop plans and procedures that minimize impacts from power outages	Evaluate higher standards for critical infrastructure	Land development regulations, CEMP	Planning, Utilities, and Emergency Management

Goal #	Goal Name	Activity Class	Objective #	Objective Description	Actions	Implementation Documents	Agency/Dept
1	Become a more disaster resilient community	Structural Projects	1.23	Consider burying power lines when retrofitting existing utilities or in areas of new development	Development review procedures should evaluate opportunities to bury power lines	Land development regulations	Planning and Utilities
1	Become a more disaster resilient community		1.24	Maintain higher regulatory standards for floodplain management to ensure new development meets community standards for resilience and public safety.			
1	Become a more disaster resilient community		1.25	Work collaboratively with local and regional partners to learn new and innovative ways for addressing sunny day flooding and sea level rise, such as conducting research to determine impacts from compound flooding.			
1	Become a more disaster resilient community		1.26	Pursue mitigation projects and outreach within FEMA-designated Community Disaster Resilience Zones (CDRZ), and other areas throughout the County, that would benefit vulnerable and traditionally underserved populations.			
2	Minimize Coastal Flooding Losses	Preventive Measures	2.1	Restrict permanent residential density increases, expenditure of public funds, and the location of critical facilities within areas of coastal vulnerability	Develop appropriate land development regulations to implement coastal protection policies. Implement goals, objections, and policies in local comprehensive plans.	Comprehensive Plan; Land development regulations	Planning, Building/Dev. Review Services

Goal #	Goal Name	Activity Class	Objective #	Objective Description	Actions	Implementation Documents	Agency/Dept
2	Minimize Coastal Flooding Losses	Preventive Measures	2.2	Enforce adopted building codes and floodplain management regulations.	Carry out obligations to participate in the National Flood Insurance Program and its associated CRS program.	Building code; land development regulations, comprehensive plan	Building/Dev. Review Services, Planning
2	Minimize Coastal Flooding Losses	Preventive Measures	2.3	Develop a program which provides incentives to encourage higher standards for flood mitigation construction and design.	Investigate the feasibility of initiating freeboard requirements greater than 1 foot	Land development regulations	Building/Dev. Review Services
2	Minimize Coastal Flooding Losses	Property Protection	2.4	Develop local programs in concert with federal and state programs that encourage and provide incentives to residents to elevate their homes or businesses within areas of coastal vulnerability	Participate in Flood Mitigation Assistance Program through sponsorships of applications for grant funds.	Floodplain Management Plan	Floodplain Management sections; Building/Dev. Review
2	Minimize Coastal Flooding Losses	Public Education and Awareness	2.5	Provide residents with up-to-date information regarding their Hurricane evacuation zone, flood zone, opportunities to participate in programs which can assist them with their mitigation efforts.	Carry out public outreach regarding disaster preparations throughout the year through websites, speaker bureaus, email subscriptions, events, PCC-TV and other Public, Educational and Governmental Channels (PEGs), local and commercial TV, and radio, and CRS outreach activities.	CEMP, Floodplain Management Plan, Hurricane guides	Emergency Management, Planning, Communications, Building/Dev. Review Services, Public Information Office
2	Minimize Coastal Flooding Losses	Public Education and Awareness	2.6	Provide vulnerable residents with up-to-date information to adequately plan for potential evacuation and disasters	Carry out annual public outreach disaster preparations through websites, speaker bureaus, email subscriptions, events, PCC-TV and other Public, Educational and Governmental Channels (PEGs), local and commercial TV and radio, and CRS outreach activities.	CEMP, Floodplain Management Plan, Hurricane guides	Emergency Management, Planning, Communications, Public Information Office

Goal #	Goal Name	Activity Class	Objective #	Objective Description	Actions	Implementation Documents	Agency/Dept
2	Minimize Coastal Flooding Losses	Natural Resource Protection	2.7	Protect coastal resources through acquisition, density restrictions, and the provision of beach access, natural vegetation, and dune protection.	Carry out environmental lands acquisition program, coastal management programs, and applicable land development regulations; i.e. community sea oat planning activities, and community beach clean-up efforts.	Local capital improvements programs and departmental budgets	Public Works, Environmental Management, Parks and Recreation Departments, Public Information Office
2	Minimize Coastal Flooding Losses	Natural Resource Protection	2.8	Identify structural projects where appropriate that minimize coastal flooding loss but protect environmental resources.	Update Comprehensive Plan Capital Improvements Element; local capital improvements program, and LMS project lists. Design the structural improvement utilizing the information pertaining to climate change and sea level rise for the life expectancy of the structure.	Capital Improvements Element, Capital Improvements Program, Local Mitigation Strategy	Public Works, Environmental Management, Planning
2	Minimize Coastal Flooding Losses		2.9	Provide public education on risks due to sea level rise and coastal flood hazards as identified in community and regional studies			
2	Minimize Coastal Flooding Losses		2.10	Develop a strategic area-based approach for outreach in locations with concentrated risks (i.e. where multiple social and health-related vulnerability factors coincide), and develop outreach strategies that take into account the gaps and specific challenges for different vulnerable populations.			

Goal #	Goal Name	Activity Class	Objective #	Objective Description	Actions	Implementation Documents	Agency/Dept
2	Minimize Coastal Flooding Losses		2.11	Provide residents with information on building requirements in coastal areas and the recommended higher design standards for new development.			
2	Minimize Coastal Flooding Losses		2.12	Restore damaged natural resources and encourage use of nature-based strategies wherever possible and assist restoration efforts with less intrusive and nature-sensitive mitigation methods or adaptation strategies			
3	Minimize Riverine or Inland Flooding Losses	Preventive Measures	3.1	Regulate residential density increases, expenditure of public funds and the location of critical facilities in areas of inland/riverine flood risk.	Carry out local policies in comprehensive plans that deal with densities, critical facilities, and public expenditures within floodplains	Local comprehensive plans, land development regulations	Building/Dev. Review Services, Planning
3	Minimize Riverine or Inland Flooding Losses	Preventive Measures	3.2	Enforce adopted building codes and floodplain management regulations.	Carry out obligations to participate in the National Flood Insurance Program and its associated CRS program.	Building code, Land development regulations	Building/Dev. Review Services
3	Minimize Riverine or Inland Flooding Losses	Preventive Measures	3.3	Develop a program which provides incentives to encourage code-plus flood mitigation construction and design.	Investigate the feasibility of initiating freeboard requirements.	Land development regulations	Building/Dev. Review Services
3	Minimize Riverine or Inland Flooding Losses	Property Protection	3.4	Develop local programs in concert with federal and state programs to encourage and provide incentives to residents to floodproof or elevate their homes or businesses.	Participate in Flood Mitigation Assistance Program through sponsorships of resident applications for grant funds	Floodplain Management Programs, CRS	Planning Depts., Building/Dev. Review Services

Goal #	Goal Name	Activity Class	Objective #	Objective Description	Actions	Implementation Documents	Agency/Dept
3	Minimize Riverine or Inland Flooding Losses	Public Education and Awareness	3.5	Provide residents with up-to-date information regarding their flood zone, the need and availability of flood insurance, opportunities to participate in programs which can assist them with their mitigation efforts.	Carry out annual public outreach disaster preparations through websites, speaker bureaus, email subscriptions, events, PCC-TV and other Public, Educational and Governmental Channels (PEGs), local and commercial TV, and radio, and CRS outreach activities.	Floodplain Management Plans, CEMP, Hurricane guides	Emergency Management, Planning, Communications, Building/Dev. Review Services
3	Minimize Riverine or Inland Flooding Losses	Public Education and Awareness	3.6	Provide vulnerable residents with up-to-date information to adequately plan for potential evacuation and disasters.	Carry out annual public outreach disaster preparations through websites, speaker bureaus, email subscriptions, events, PCC-TV and other Public, Educational and Governmental Channels (PEGs), local and commercial TV, and radio, individual mailings, and CRS outreach activities.	Floodplain Management Plans, CEMP, Hurricane guides	Emergency Management, Planning, Communications
3	Minimize Riverine or Inland Flooding Losses	Public Education and Awareness	3.7	Educate the development community on Low Impact Development (LID) opportunities and transfer of density to avoid excessive development in the riverine areas.	Utilize websites, speaker bureaus, email subscriptions, events, PCC-TV and other Public, Educational and Governmental Channels (PEGs), local and commercial TV, and radio, individual mailings,	Brochures on Low Impact Development	Building/Dev. Review Services
3	Minimize Riverine or Inland Flooding Losses	Natural Resource Protection	3.8	Protect wetlands and watershed areas through acquisition, density restrictions, provision of recreational opportunities (where appropriate), and habitat restoration.	Continue programs that acquire environmentally-sensitive lands and flood-prone properties in conjunction with stormwater management projects.	Comprehensive Plans, Capital Improvements Programs	Building/Dev. Review Services, Environmental Management, Public Works, Real Estate Management

Goal #	Goal Name	Activity Class	Objective #	Objective Description	Actions	Implementation Documents	Agency/Dept
3	Minimize Riverine or Inland Flooding Losses	Structural Projects	3.9	Identify structural projects where appropriate that minimize flood loss including stormwater projects, drainage projects, and retention areas.	Update Comprehensive Plan Capital Improvements Element, local capital improvements programs, CRS Floodplain Management Plan, and LMS project list	Capital Improvements Programs, Comprehensive Plans, LMS, Floodplain Management Plan	Public Works, Environmental Management, Planning
4	Minimize Storm Wind Losses in the County	Preventive Measures	4.1	Regulate the placement of manufactured housing/ mobile homes and strive to replace stock with other affordable housing alternatives, including hurricane resistant modular construction; when considering replacement, migration to less vulnerable areas should be evaluated.	Coordinate with the building industry, Florida Manufactured Housing Association (FMHA) on policy directions and programs	Land development regulations, Comprehensive Plans	Building/Dev. Review Services
4	Minimize Storm Wind Losses in the County	Preventive Measures	4.2	Enforce adopted building codes, particularly with regards to window protection, garage doors, and roofs.	Carry out Florida Building Code. Work with local builders, builder associations, building official organizations and contractors	Building codes, Florida Product Approvals	Building/Dev. Review Services
4	Minimize Storm Wind Losses in the County	Preventive Measures	4.3	Develop a program which provides incentives to encourage code-plus wind mitigation construction (FORTIFIED by IBHS) and design (e.g., hip roofs).	Identify existing programs and non-profit partners to expand current efforts and assist homeowners in retrofitting their homes for wind; particularly window protection, bracing garage doors and anchoring roofs.	Housing Programs, Cooperative Extension Service, Florida Product Approvals	Habitat for Humanity; County Housing Dept. City of St. Petersburg, City of Clearwater, PC Community Development Dept

Goal #	Goal Name	Activity Class	Objective #	Objective Description	Actions	Implementation Documents	Agency/Dept
4	Minimize Storm Wind Losses in the County	Property Protection	4.4	Develop local programs in concert with federal and state programs to encourage and provide incentives/ assistance to residents to harden their homes or businesses.	Distribute information through public outreach outlets discussing how-to's in hardening structures. Provide testimonials; Support State Hurricane Preparedness Tax Holidays and Wind Retrofit Program.	CEMP, Hurricane guides, County All-Hazards Guides, Code enforcement; State action to allow for Hurricane Preparedness Tax Holidays; continuation of State Wind Retrofit Program	Emergency Management, Communications, DEO, FDEM, Public Information Office, Red Cross
4	Minimize Storm Wind Losses in the County	Public Education and Awarenes s	4.5	Provide residents with up-to-date information regarding their hurricane wind risks, retrofit options, their costs and benefits (rebates, insurance discounts, etc.), new construction, and opportunities to participate in programs which can assist them with their mitigation efforts.	Carry out public outreach for disaster preparations through websites, speaker bureaus, email subscriptions, events, PCC-TV and other Public, Educational and Governmental Channels (PEGs), local and commercial TV and radio, and CRS outreach activities. Support State Hurricane Preparedness Tax Holidays and Wind Retrofit Program.	CEMP, Hurricane guides; State action to allow for Hurricane Preparedness Tax Holidays; continuation of State Wind Retrofit Program	Emergency Management, Communications, Planning
4	Minimize Storm Wind Losses in the County	Structural Projects	4.6	Identify structural construction techniques that minimize wind loss damage to critical facilities (city halls, courthouse, and fire stations) and infrastructure (utilities, etc.).	Each government, through the updating of the CEMP and LMS, assess the status of critical facilities	CEMP, LMS, Florida Building Code, Florida Product Approvals	Emergency Management, Fire Administration, Building/Dev. Review Services
5	Minimize Losses from Hazardous Materials Incidents	Preventive Measures	5.1	Restrict noxious industrial land uses and the storage of potentially hazardous materials to specific areas.	Coordinate oversight through the Local Emergency Planning Committee (LEPC) and fire safety inspections.	Land development regulations, comprehensive plans, fire safety codes, Tampa Bay Region Hazardous Materials Plan, CEMP	Fire Administration; LEPC, Code Enforcement agencies; Planning Dept

Goal #	Goal Name	Activity Class	Objective #	Objective Description	Actions	Implementation Documents	Agency/Dept
5	Minimize Losses from Hazardous Materials Incidents	Preventive Measures	5.2	Enforce adopted fire and safety regulations, EPCRA reporting requirements, and adequate oversight.	Coordinate oversight through the Local Emergency Planning Committee (LEPC)	Land development regulations, comprehensive plans, fire safety codes, Tampa Bay Region Hazardous Materials Plan, CEMP	Fire Administration; LEPC, Code Enforcement agencies; Planning Dept.
5	Minimize Losses from Hazardous Materials Incidents	Preventive Measures	5.3	Maintain the highest level of Hazardous Material Team response capabilities.	Continue to staff and train HazMat teams.	Tampa Bay Region Hazardous Materials Plan, CEMP	Fire Administration, LEPC
5	Minimize Losses from Hazardous Materials Incidents	Preventive Measures	5.4	Coordinate traffic routes and roadway system with MPO	Coordinate with MPO to provide safe and effective/efficient routes in transporting hazardous materials	MPO Long Range Transportation Plan; Traffic Management Plans; Transportation Element of Comprehensive Plans	Pinellas County MPO; Planning Departments
5	Minimize Losses from Hazardous Materials Incidents	Property Protection	5.5	Implement local programs in concert with federal and state programs to encourage businesses and industries, including transporters, to address and mitigate any potential for release or spills.	Coordinate oversight through the Local Emergency Planning Committee (LEPC) and Regional Domestic Security Task Force (RDSTF)	Tampa Bay Region Hazardous Materials Plan, CEMP	Emergency Management, Fire Administration, LEPC, RDSTF
5	Minimize Losses from Hazardous Materials Incidents	Public Education and Awarenes s	5.6	Provide residents with up-to-date information regarding emergency response; i.e., warnings, shelter in place, and evacuation.	Carry out annual public outreach disaster preparations through websites, speakers' bureau, email subscriptions, events, PCC-TV and other Public, Educational and Governmental Channels (PEGs), local and commercial TV, and radio.	Tampa Bay Region Hazardous Materials Plan, CEMP	Emergency Management, Communications, Fire Administration, LEPC

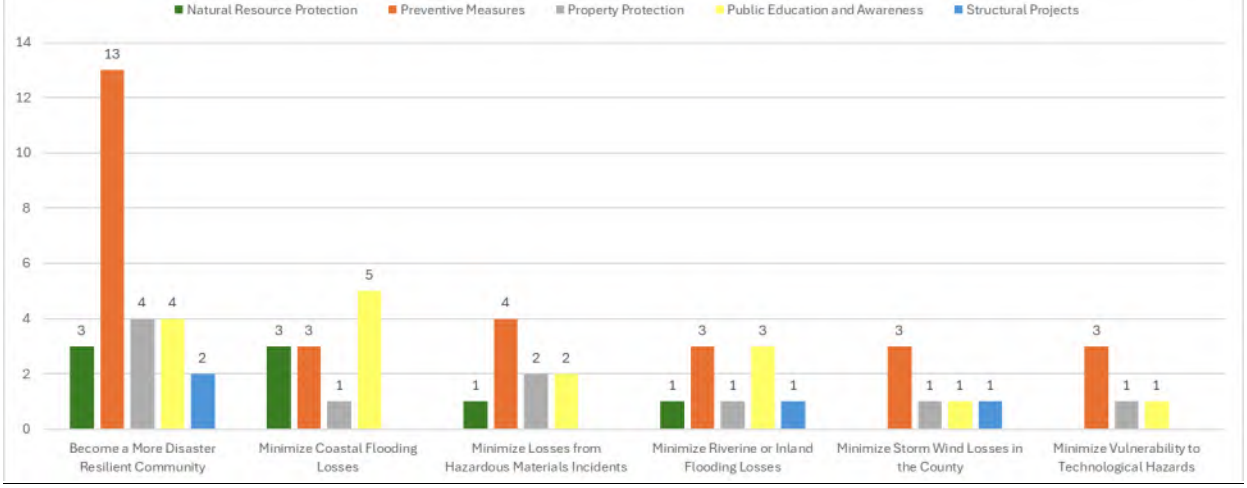
Goal #	Goal Name	Activity Class	Objective #	Objective Description	Actions	Implementation Documents	Agency/Dept
5	Minimize Losses from Hazardous Materials Incidents	Public Education and Awarenes s	5.7	Provide training to public works, parks/recreation and utility employees with Hazardous Materials Handling training as well as responders.	This training to be based at the first responder level, identification and proactive action to prevent/ mitigate damages from hazardous material incidents.	CEMP, 5-Year Training and Implementation Program	Emergency Management, Fire Administration, RDSTF, LEPC
5	Minimize Losses from Hazardous Materials Incidents	Natural Resource Protection	5.8	Protect environmental resources from the impacts of potential spills or releases through prevention activities, preparedness planning and enhanced response capabilities and provision of adequate resources.	Continue to Implement and coordinate with industry programs that minimize the use of hazardous materials in industrial processing (such a Pollution Preventions & Resource Recovery (P2R2) program)	Tampa Bay Region Hazardous Materials Plan, CEMP	Fire Administration, Emergency Management, Environmental Management, LEPC
5	Minimize Losses from Hazardous Materials Incidents	Property Protection	5.9	Work to ensure businesses that house, store or transport hazardous chemicals employ security measures and/or barriers to minimize unauthorized access to chemicals that may threaten community safety	Coordinate oversight through the Local Emergency Planning Committee (LEPC) and Regional Domestic Security Task Force (RDSTF)	Tampa Bay Region Hazardous Materials Plan, CEMP	Emergency Management, Fire Administration, LEPC, RDSTF
6	Minimize Vulnerability to Technologica l Hazards	Preventive Measures	6.1	Adopt key recommendations for Crime Prevention Through Environmental Design (CPTED), Buffer Zone Protection, etc. including territorial protection, access management, surveillance, etc.	Incorporate design principles in livable communities' initiatives and LDRs	Land development codes	Building/Dev. Review Services, law enforcement, fire depts.
6	Minimize Vulnerability to Technologica l Hazards	Preventive Measures	6.2	Integrate emerging technologies into the threat and vulnerability analysis of critical infrastructure and key assets.	Coordinate oversight through the Local Emergency Planning Committee (LEPC) and RDSTF	Tampa Bay Region Hazardous Materials Plan, CEMP	Emergency Management, Fire Administration, Law Enforcement, LEPC, RDSTF

Goal #	Goal Name	Activity Class	Objective #	Objective Description	Actions	Implementation Documents	Agency/Dept
6	Minimize Vulnerability to Technological Hazards	Preventive Measures	6.3	Local governments and businesses should develop and maintain Continuity of Operations (COOP) Plans which minimize the impact of business interruption and protect vital records.	Local government departments prepare and update individual COOPs; promote Small Business Disaster Survival Kit Programs	Department emergency response plans, COOPS	Emergency Management, Real Estate Mgt., all local government departments and constitutional departments
6	Minimize Vulnerability to Technological Hazards	Property Protection	6.4	Develop local programs in concert with federal and state programs to harden critical facilities and critical infrastructure and key assets and minimize vulnerabilities to attack.	Local governments and emergency management staff shall continue to participate in RDSTF regional critical infrastructure protection subcommittee.	Critical Infrastructure Protection Committee (CIPC) / RDSTF Government Documents	Emergency Management, Law Enforcement
6	Minimize Vulnerability to Technological Hazards	Public Education and Awareness	6.5	Provide residents with up-to-date information to adequately plan for potential evacuation or shelter in place.	Carry out annual public outreach disaster preparations through websites, speakers' bureau, email subscriptions, events, PCC-TV and other Public, Educational and Governmental Channels (PEGs), local and commercial TV, and radio.	CEMP, County and City Communications Departments, Civic Associations, Economic Development Agencies	Emergency Management, Communications Dept., law enforcement

1 – Yellow Row: This is a new objective that was added during the 2025 Plan Update process.

2 – Green Cell: Language of the goal's name or description was modified for clarity, but the intent is the same as the previous version.

The different objectives for each goal, by activity type, can be shown as follows:



Local Capability Assessment

The purpose of conducting a capability assessment is to determine the ability of a local jurisdiction to implement a comprehensive mitigation strategy and to identify potential opportunities for establishing or enhancing specific mitigation policies, programs, or projects. As in any planning process, it is important to try to establish which goals, objectives, and/or actions are feasible based on an understanding of the organizational capacity of those agencies or departments, tasked with their implementation. A capability assessment helps to determine which mitigation actions are practiced and likely to be implemented over time, given a local government's planning and regulatory framework, level of administrative and technical support, amount of fiscal resources, and current political climate.

A capability assessment has two primary components: 1) an inventory of a local jurisdiction's relevant plans, ordinances, or programs already in place and 2) an analysis of its capacity to carry them out. Careful examination of local capabilities will detect any existing gaps, shortfalls, or weaknesses with ongoing government activities that could hinder proposed mitigation activities and possibly exacerbate community hazard vulnerability. A capability assessment also highlights the positive mitigation measures already in place or being implemented at the local government level, which should continue to be supported and enhanced through future mitigation efforts.

The capability assessment completed for Pinellas County, serves as a critical planning step and an integral part of the foundation for designing an effective hazard mitigation strategy. Coupled with the Risk Assessment, the Capability Assessment helps identify and target meaningful mitigation actions for incorporation in the Mitigation Strategy portion of the LMS. It not only helps establish the goals and objectives for the county to pursue under this Plan but also ensures that those goals and objectives are realistically achievable under given local conditions.

Conducting the Capability Assessment

In order to facilitate the inventory and analysis of local government capabilities within participating jurisdictions of Pinellas County, a detailed Capability Assessment Survey was distributed as a part of the 2025 Plan update. The survey questionnaire requested information on a variety of "capability indicators"

such as existing local plans, policies, programs, or ordinances that contribute to and/or hinder the jurisdictions' ability to implement hazard mitigation actions. Other indicators included information related to the jurisdictions' fiscal, administrative, and technical capabilities, such as access to local budgetary and personnel resources for mitigation purposes. Survey respondents were also asked to comment on the current political climate with respect to hazard mitigation, an important consideration for any local planning or decision-making process.

At a minimum, survey results provide an extensive inventory of existing local plans, ordinances, programs, and resources in place or under development in addition to their overall effect on hazard loss reduction. However, the survey instrument can also serve to identify gaps, weaknesses, or conflicts, that the local jurisdictions can recast as opportunities for specific actions, to be proposed as part of the hazard mitigation strategy.

Planning and Regulatory Capability

Planning and regulatory capability is based on the implementation of plans, ordinances, and programs that demonstrate a local jurisdiction's commitment to guiding and managing growth, development, and redevelopment, in a responsible manner while maintaining the general welfare of the community. It includes emergency response and mitigation planning, comprehensive land use planning, and transportation planning; the enforcement of zoning or subdivision ordinances and building codes that regulate how land is developed, and structures are built; as well as protecting environmental, historic, and cultural resources in the community. Although some conflicts can arise, these planning initiatives generally present significant opportunities to integrate hazard mitigation principles and practices into the local decision-making process.

This assessment is designed to provide a general overview of the key planning and regulatory tools and programs that are in place or under development for Pinellas County, along with their potential effect on loss reduction. This information will help identify opportunities to address existing gaps, weaknesses, or conflicts with other initiatives, in addition to integrating the implementation of this Plan with existing planning mechanisms where appropriate. There is a circular relationship between many of these plans as they occur at different points in time and are nuanced within each jurisdiction. The plans both inform and are informed by the LMS document as well as the planning process in which the government stakeholders participate. The data that informs these local plans (and the LMS) often lives in geospatial tools outside of the plan documents themselves and are refreshed more currently than the policy documents. The most direct links between the actual LMS document and local codes occur through the Comprehensive Emergency Management Plan (CEMP) and each jurisdiction's Comprehensive Land Use Plan. The CEMP utilizes the risk assessment portion of the LMS to support it, and all jurisdictions coordinate emergency management activities with the county. The Comprehensive Plans have individual elements, some of which are guided by the LMS (or more broadly stated in some local plans as "hazard mitigation activities"). For example, many communities have a Conservation and Coastal Management Element in which ecologic and coastal hazard mitigation concerns within the jurisdiction are addressed.

The table below provides a summary of the relevant local plans, ordinances, and programs already in place or under development for Pinellas County. Each of these local plans, ordinances, and programs should be considered available mechanisms for incorporating the requirements of the Pinellas County LMS.

Table 3.2: Relevant Plans, Ordinances, and Programs

Planning/ Regulatory Tool	Unincorporated County	Belleair	Belleair Beach	Belleair Bluffs	Belleair Shore	Clearwater	Dunedin	Gulfport	Indian Rocks Beach	Indian Shores	Kenneth City	Largo	Madeira Beach	North Redington Beach	Oldsmar	Pinellas Park	Redington Beach	Redington Shores	Safety Harbor	St. Petersburg	St. Pete Beach	Seminole	South Pasadena	Tarpon Springs	Treasure Island
Subcategory: Emergency Management																									
Emergency Operations Plan	X		X	X	X	X		X	*	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Threat and Hazard Identification and Risk Assessment (THIRA)	X		*	X	*	X		X				X	X	*	*	X				X	X	X	X		X
Flood Response Plan	X		*		X	X		X		X		X	X	*	X	X	X	X		X	X	X	X	*	X
Emergency Management Accreditation Program (EMAP Accreditation)			X		*								X							X					X
Continuity of Operations Plan	*		X	*	X	X		*			X	X	X	X	*	X	X			X	X	X	X	X	X
Subcategory: Land Development																									
Comprehensive Land Use Plan (or General, Master or Growth Management Plan)	X		X	X	X	X	X	X	X	X	*	X	X	X	X	X	X	X	X	X	X	X	X		X
Open Space Management Plan (or Parks & Recreation/ Greenways Plan)			X	X	*	X	X	X	X			X	X	X	X				X	X	X	X	X		X
Zoning Ordinance	X		X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X
Subdivision Ordinance	X		X	X	*	X	X	X	X	X	X	X	X		X	X		X	X	X	X	X	X		X
Unified Development Ordinance						X	X		X	X	X	X	X					X		X		X			X
Post-disaster Redevelopment/ Reconstruction Plan/Ordinance	X			X	*	X	X	X		X		X	X			X		X		*		X	X		X
Building Code	X		X	X	X	X	X	X	X	X	X	X	X			X	X	X	X	X	X	X	X	X	X
Fire Code			X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	X	X
Historic Preservation Plan				X	*	X	X	X				X	X						X	X	X	X			
Subcategory: Flood Management																									
Floodplain Management Plan/Flood Mitigation Plan	X		X	X	X	X	X	X	X	X	X	X	X	X	X		X	X		X	X	X	X	X	X
Floodplain Ordinance (or Flood Damage Prevention Ordinance)	X		X	X	*	X	X	X	X	X	X	X	X	X	X	*	X	X	X	X	X	X	X	X	X
NFIP Community Rating System (CRS Program)	X		X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Stormwater Management Plan/Ordinance			X	X	*	X		*	X	X	X	X	*	X	X	*	X	X	X	X	X	X	X	X	X
Repetitive Loss Area Analysis	X		X		*	*	X	X		X		X	X	X		X	X	X		X	X		X	*	X
Substantial Damage Improvement Plan			X		X	X	X	X		X		X	X		*			X		X	X	X	X	*	X
Natural Resource Protection Plan			X	X	*	X		X		X	X	X	X					X		X	X		X		X
Subcategory: Other Plans																									
Capital Improvements Plan	X		X	X	X	X	X	X	X		X	X	X	*	X	X	*		X	X	X	X		X	X
Economic Development Plan	X					X	X	X			*	X				X				X	X	X			X
Other Relevant Plans (Specify in comments)						X						X	*		X	X									X

1 – X Cell: Indicates that the given item is currently in place and being implemented.

2 – * Cell: Indicates that the given item is currently being developed for future implementation.

3 – Green Cell: Indicates that the item strongly supports loss reduction.

4 – Blue Cell: Indicates that the item supports loss reduction but is not a primary tool.

Emergency Management

Hazard mitigation is widely recognized as one of the four primary phases of emergency management. The three other phases include preparedness, response, and recovery. In reality, each phase is interconnected with hazard mitigation. Opportunities to reduce potential losses through mitigation practices are most often implemented before disaster strikes, such as elevation of flood prone structures or through the continuous enforcement of policies that prevent and regulate development that is vulnerable to hazards due to its location, design, or other characteristics. Mitigation opportunities will also be presented during immediate preparedness or response activities, such as installing storm shutters in advance of a hurricane, and certainly during the long-term recovery and redevelopment process following a hazard event.

Planning for each phase is a critical part of a comprehensive emergency management program and a key to the successful implementation of hazard mitigation actions. As a result, the Capability Assessment Survey asked several questions across a range of emergency management plans, in order to assess the participating jurisdictions' willingness to plan and their level of technical planning proficiency. The following describes the various types of emergency management plans surveyed.

Emergency Operations Plan: An emergency operations plan outlines responsibilities and the means by which resources are deployed during and following an emergency or disaster. The State of Florida requires that every county develop and maintain a compliant Comprehensive Emergency Management Plan (CEMP). This plan addresses the threats to which a county or a region are exposed and how the local governing agency plans to respond to them.

Threat and Hazard Identification and Risk Assessment (THIRA): A THIRA is a comprehensive risk assessment process that helps a community understand its risks and estimate capability requirements. Outputs of the THIRA process can inform a variety of disaster preparedness and emergency management efforts, including emergency operations planning, mutual aid agreements, and hazard mitigation planning.

Flood Response Plan: A flood response plan establishes procedures for responding to a flood emergency including coordinating and facilitating resources to minimize the impacts of flood.

Emergency Management Accreditation Program (EMAP): EMAP is the voluntary standards, assessment, and accreditation program for disaster preparedness programs. It provides emergency management programs the opportunity to be recognized for compliance with industry standards, to demonstrate accountability, and to focus attention on areas and issues where resources are needed.

Continuity of Operations Plan: A continuity of operations plan establishes a chain of command, line of succession, and plans for backup or alternate emergency facilities in case of an extreme emergency or disaster event.

Land Development Planning

The implementation of hazard mitigation activities often involves agencies and individuals beyond the emergency management profession. Stakeholders may include local planners, public works officials, economic development specialists, and others. In many instances, concurrent local planning efforts will help to achieve or complement hazard mitigation goals, even though they are not designed as such. Therefore, the Capability Assessment Survey also asked questions regarding land development planning capabilities and the degree to which hazard mitigation is integrated into other ongoing planning efforts in Pinellas County. The following describes the various types of land development planning tools surveyed.

Comprehensive Land Use Plan: A comprehensive land use plan establishes the overall vision for what a community wants to be and serves as a guide for future governmental decision making. Typically, a comprehensive plan contains sections on demographic conditions, land use, transportation elements, and

community facilities. Given the broad nature of the plan and its regulatory standing in many communities, the integration of hazard mitigation measures into the comprehensive plan can enhance the likelihood of achieving risk reduction goals, objectives, and actions.

Open Space Management Plan: An open space management plan is designed to preserve, protect, and restore largely undeveloped lands in their natural state and to expand or connect areas in the public domain such as parks, greenways, and other outdoor recreation areas. In many instances, open space management practices are consistent with the goals of reducing hazard losses, such as the preservation of wetlands or other flood-prone areas in their natural state in perpetuity.

Zoning Ordinance: Zoning represents the primary means by which land use is controlled by local governments. As part of a community's police power, zoning is used to protect the public health, safety, and welfare of those in a given jurisdiction that maintains zoning authority. A zoning ordinance is the mechanism through which zoning is typically implemented. Since zoning regulations enable municipal governments to limit the type and density of development, a zoning ordinance can serve as a powerful tool when applied in identified hazard areas.

Subdivision Ordinance: A subdivision ordinance is intended to regulate the development of residential, commercial, industrial, or other uses, including associated public infrastructure, as land is subdivided into buildable lots for sale or future development. Subdivision design that accounts for natural hazards can dramatically reduce the exposure of future development.

Building Codes, Permitting, and Inspections: Building codes regulate construction standards. In many communities, permits and inspections are required for new construction. Decisions regarding the adoption of building codes (that account for hazard risk), the type of permitting process required both before and after a disaster, and the enforcement of inspection protocols all affect the level of hazard risk faced by a community. The Florida Building Code (FBC) is a statewide building construction regulatory system that places emphasis on uniformity and accountability in order to ensure building strength in the events of natural disasters. The building code is implemented and enforced locally by individual counties. This delegation allows for greater state coverage, but also presents challenges as some smaller counties do not have the staff and resources that other counties might have. All construction in the state must adhere to the FBC. This allows local jurisdictions to ensure structures are more resistant to certain types of natural disasters, especially to wind and flood events.

Post-Disaster Redevelopment Plan: The Post Disaster Redevelopment Plan (PDRP) identifies policies, operational strategies, and roles and responsibilities for implementation that will guide decisions affecting long-term recovery and redevelopment of a community after a disaster. The PDRP emphasizes seizing opportunities for hazard mitigation and community improvements consistent with the goals of the local comprehensive plan and with full participation of its citizens. Amendments to Chapter 163, F.S. in 2015 (commonly known as Perils of Flood requirements) further clarified the redevelopment component requirements.

Fire Code: Fire Codes establish both the minimum requirements for fire prevention as well as fire protection systems. Fire Codes are often adapted from, or directly reference the Internation Fire Code published by the International Code Council.

Historic Preservation Plan: A historic preservation plan is intended to preserve historic structures or districts within a community. An often-overlooked aspect of the historic preservation plan is the assessment of buildings and sites located in areas subject to natural hazards and the identification of ways to reduce future damages. This may involve retrofitting or relocation techniques that account for the need to protect buildings that do not meet current building standards or are within a historic district that cannot easily be relocated out of harm's way.

Floodplain Management

Note: A summary of each community's floodplain management activities is included within Appendix B.

Flooding represents the greatest natural hazard facing the nation. At the same time, the tools available to reduce the impacts associated with flooding are among the most developed when compared to other hazard-specific mitigation techniques. In addition to approaches that cut across hazards such as education, outreach, and the training of local officials, the National Flood Insurance Program (NFIP) contains specific regulatory measures that enable government officials to determine where and how growth occurs relative to flood hazards. Participation in the NFIP is voluntary for local governments; however, program participation is strongly encouraged by FEMA as a first step for implementing and sustaining an effective hazard mitigation program. It is therefore used as part of this assessment as a key indicator for measuring local capability.

In order for a county or municipality to participate in the NFIP, they must adopt a local flood damage prevention ordinance that requires jurisdictions to follow established minimum building standards in the floodplain. These standards require that all new buildings and substantial improvements to existing buildings will be protected from damage by a 100-year flood event and that new development in the floodplain will not exacerbate existing flood problems or increase damage to other properties.

A key service provided by the NFIP is the mapping of identified flood hazard areas. Once completed, the Flood Insurance Rate Maps (FIRMs) are used to assess flood hazard risk, regulate construction practices, and set flood insurance rates. FIRMs are an important source of information to educate residents, government officials, and the private sector about the likelihood of flooding in their community.

NFIP policy and claim information for each participating jurisdiction in Pinellas County can be found in the Risk Assessment Section. Each of the jurisdictions participating in the development of this plan also participates in the NFIP and is committed to maintaining and enforcing its floodplain management ordinance and regulating new development in floodplains.

All jurisdictions in Pinellas County are participants in the NFIP and will continue to comply with all required provisions of the program and will work to adequately comply in the future utilizing a number of strategies. For example, the jurisdictions will coordinate with FDEM and FEMA to develop maps and regulations related to special flood hazard areas within their jurisdictional boundaries and, through a consistent monitoring process, will design and improve their floodplain management program in a way that reduces the risk of flooding to people and property.

Floodplain Management Plan: A floodplain management plan (or a flood mitigation plan) provides a framework for action regarding corrective and preventative measures to reduce flood-related impacts. The Local Mitigation Strategy also serves as the Floodplain Management Plan.

Flood Damage Prevention Ordinance: A flood damage prevention ordinance establishes minimum building standards in the floodplain with the intent to minimize public and private losses due to flood conditions.

Community Rating System: An additional indicator of floodplain management capability is the active participation of local jurisdictions in the Community Rating System (CRS). The CRS is an incentive-based program that encourages counties and municipalities to undertake defined flood mitigation activities that go beyond the minimum requirements of the NFIP by adding extra local measures to provide protection from flooding. All of the 18 creditable CRS mitigation activities are assigned a range of point values. As points are accumulated and reach identified thresholds, communities can apply for an improved CRS class rating. Class ratings, which range from 10 to 1, are tied to flood insurance premium reductions as shown in the table below. As class ratings improve (the lower the number the better), the percent reduction in

flood insurance premiums for NFIP policyholders in that community increases.

Table 3.3: CRS Premium Discounts by Class

CRS Class	Premium Reduction SFHA*	Premium Reduction Non-SFHA†
1	45%	10%
2	40%	10%
3	35%	10%
4	30%	10%
5	25%	10%
6	20%	10%
7	15%	5%
8	10%	5%
9	5%	5%
10	0	0

*Special Flood Hazard Areas (SFHAs) – all A and V Zones (except AR and A99 Zones)

†Non-Special Flood Hazard Areas (non-SFHAs) – Zones B, C, X, D; all AR and A99 Zones are treated as non-SFHAs

Note: Premium reductions are subject to change.

Source: FEMA

Community participation in the CRS is voluntary. Any community that is in full compliance with the rules and regulations of the NFIP may apply to FEMA for a CRS classification better than class 10. The CRS application process has been greatly simplified over the past several years based on community comments. Changes were made with the intent to make the CRS more user-friendly and make extensive technical assistance available for communities who request it.

Table 3.4: Pinellas County NFIP Participation, CRS Communities and Classes (as of August 2024)

Location	NFIP Entry Date	CRS Class
Belleair	5/14/1971	7
Belleair Beach	5/14/1971	6
Belleair Bluffs	8/15/1977	7
Belleair Shore	5/14/1971	Not participating
Clearwater	6/4/1971	6
Dunedin	5/14/1971	5
Gulfport	5/21/1971	6
Indian Rocks Beach	5/7/1971	6
Indian Shores	5/21/1971	6
Kenneth City	1/16/1981	8
Largo	5/28/1971	6
Madeira Beach	5/7/1971	7
North Redington Beach	5/14/1971	7
Oldsmar	5/21/1971	6
Pinellas Park	8/15/1977	6
Redington Beach	5/7/1971	7
Redington Shores	5/7/1971	6
Safety Harbor	5/14/1971	7
St. Petersburg	5/28/1971	5
St. Pete Beach	5/14/1971	6

Location	NFIP Entry Date	CRS Class
Seminole	6/1/1981	Not participating
South Pasadena	5/14/1971	8
Tarpon Springs	5/14/1971	5
Treasure Island	5/7/1971	6
Unincorporated	6/18/1971	2

Both the NFIP and the CRS program allow county-level mitigation programs to address RL properties. The following describes the other types of floodplain management tools surveyed.

Stormwater Management Plan: A stormwater management plan is designed to address flooding associated with stormwater runoff. The stormwater management plan is typically focused on design and construction measures that are intended to reduce the impact of more frequently occurring minor urban flooding.

Repetitive Loss Area Analysis: A repetitive loss area analysis (RLAA) is described under Activity 510 (Floodplain Management Planning) of the Community Rating System. The CRS describes a RLAA as a mitigation plan for areas that have or are expected to experience repeated losses from flooding. During this analysis, detailed building information is collected through field visits to develop an understanding of the exact causes of repetitive flood damage at those sites. The purpose of a RLAA is to generate mitigation solutions for individual buildings or areas, in contrast to a hazard mitigation or floodplain management plan, which examines community-wide flooding problems and solutions. Repetitive Loss and Severe Repetitive Loss is discussed in further detail in the Risk Assessment Section of this LMS.

Substantial Damage Improvement Plan: According to the NFIP, substantial damage means damage of any origin sustained by a structure whereby the cost of restoring the structure to its before damaged condition, would equal or exceed 50 percent of the market value of the structure before the damage occurred. The substantial damage management plan evaluates potential damage to buildings, examines what can be done to mitigate the potential for damage to those buildings, and lays out the strategy to address substantial damage after any hazardous event (flood, fire, earthquake, tornado, etc.). A substantial damage management plan identifies available data about flood prone buildings, helps educate community leaders and the public, guides the community in building its capacity to conduct post-flood substantial damage determinations and outlines its procedures for doing so. It also specifies the steps the community will take if buildings are determined to be substantially damaged. The plan also considers mitigation options to reduce long-term impacts from flooding.

Addressing substantial damage after a flood or other hazardous event is a requirement of the NFIP. Every NFIP community must do it, and CRS communities are expected to do it better. This CRS activity credits plans and actions for managing substantial damage that a community takes, before a flood or hazardous event. In the 2021 Addendum to the CRS Coordinator's Manual, Section 512.d details the steps required for receiving CRS credit points for a substantial damage management plan, including how they must go above and beyond the basic requirements found in the NFIP and how many points are available for each credit level.

Some jurisdictions in Pinellas County have lowered the threshold percentage for substantial damage to apply, or made the timeframe for calculating the threshold longer, as found in Table 3.5.

Table 3.5: Substantial Damage Threshold and Timeframe for Jurisdictions in Pinellas County

Entity	Substantial Damage Percentage Threshold in Code	Cumulative Threshold
Belleair	50%	5 years
Belleair Beach	50%	5 years
Belleair Bluffs	50%	1 year
Belleair Shore	50%	1 year
Clearwater	50%	1 year
Dunedin	50%	5 years
Gulfport	50%	NA
Indian Rocks Beach	50%	NA
Indian Shores	50%	10 years
Kenneth City	50%	NA
Largo	50%	5 years
Madeira Beach	50%	NA
North Redington Beach	50%	NA
Oldsmar	49%	5 years
Pinellas County	49%	1 year
Pinellas Park	50%	NA
Redington Beach	50%	NA
Redington Shores	49%	1 year
Safety Harbor	49%	1 year
Seminole	50%	NA
South Pasadena	50%	1 year
St. Pete Beach	50%	5 year
St. Petersburg	49%	NA
Tarpon Springs	50%	NA
Treasure Island	50%	NA

Natural Resource Protection Plan: A natural resource management plan is designed to protect and restore natural areas. According to the UF IFAS Extension, a natural resource management plan is a specific statement of the objectives you have for your land, followed by a series of activities that will take place in order to meet those objectives. Without a plan, decisions may be made based on short-term conditions but with long-term, undesirable consequences. In essence, your plan is a "road map" to guide you from where you are, to where you want to be. It should include objectives, property location and history, resource assessment, management recommendations, activity schedule, and any other supplemental information necessary to conduct the plan.

Other Plans

The implementation of hazard mitigation activities may also rely on Capital Improvement Plans or Economic Development Plans to assist in implementing hazard mitigation goals. Therefore, the Capability Assessment Survey also asked questions regarding other planning capabilities and the degree to which hazard mitigation is integrated into other ongoing planning efforts in Pinellas County.

The following describes the various types of other planning tools surveyed.

Capital Improvements Plan: A capital improvements plan guides the scheduling of spending on public improvements. A capital improvements plan can serve as an important mechanism for guiding future development away from identified hazard areas. Limiting public spending in hazardous areas is one of the most effective long-term mitigation actions available to local governments.

Economic Development Plan: An economic development plan is a strategy or set of guidelines to drive economic growth and improvement within an area. The goal of this plan is to enhance the living conditions and promote the economic well-being and growth of the community.

Administrative and Technical Capability

The ability of a local government to develop and implement mitigation projects, policies, and programs is directly tied to its ability to direct staff time and resources for that purpose. Administrative capability can be evaluated by determining how mitigation-related activities are assigned to local departments and if there are adequate personnel resources to complete these activities. The degree of intergovernmental coordination among departments will also affect administrative capability for the implementation and success of proposed mitigation activities.

Technical capability can generally be evaluated by assessing the level of knowledge and technical expertise of local government employees, such as personnel skilled in using Geographic Information Systems (GIS) to analyze and assess community hazard vulnerability. The Capability Assessment Survey was used to capture information on administrative and technical capability through the identification of available staff and personnel resources.

The table below provides a summary of the Capability Assessment Survey results for Pinellas County with regard to relevant staff and personnel resources. An "X" indicates the presence of a staff member(s) in that jurisdiction with the specified knowledge or skill.

Table 3.6: Relevant Staff/Personnel Resources

Staff/Personnel Resources	Unincorporated	Belleair	Belleair Beach	Belleair Bluffs	Belleair Shore	Clearwater	Dunedin	Gulfport	Indian Rocks	Indian Shores	Kenneth City	Largo	Madeira Beach	North Redington	Oldsmar	Pinellas Park	Redington Beach	Redington Shores	Safety Harbor	St. Petersburg	St. Pete Beach	Seminole	South Pasadena	Tarpon Springs	Treasure Island
Planners with knowledge of land development and land management practices	X	X	X	X		X	X	X	X	X	X	X	X		X	X		X	X	X	X	X			X
Engineers or professionals trained in construction practices related to buildings and/or infrastructure	X	X	X	X		X	X		X	X	X	X	X	X	X	X		X	X	X	X	X		X	X
Emergency manager	X	X	X	X		X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X
Floodplain manager	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Staff with Certified Floodplain Manager (CFM) credentials	X		X			X	X		X		X	X	X		X	X	X	X	X	X	X		X	X	X
Land surveyors	X	X	X			X			X		X								X	X	X	X			X
Personnel skilled in Geographic Information Systems (GIS)	X	X	X			X	x		X			X	X		X	X			X	X		X		X	X
Grant writers	X		X			X		X	X		X	X		X	X	X				X				X	

Fiscal Capability

The ability of a local government to take action is often closely associated with the amount of money available to implement policies and projects. This may take the form of outside grant funding awards or locally-based revenue and financing. The costs associated with mitigation policy and project implementation vary widely. In some cases, policies are tied primarily to staff time or administrative costs associated with the creation and monitoring of a given program. In other cases, direct expenses are linked to an actual project, such as the acquisition of flood-prone homes, which can require a substantial commitment from local, state, and federal funding sources.

The Capability Assessment Survey was used to capture information on the County's fiscal capability through the identification of locally-available financial resources.

The table below provides a summary of the Capability Assessment Survey results for Pinellas County with regard to relevant staff and personnel resources. An "X" indicates that the given fiscal resource has previously been used or is available to use to implement hazard mitigation actions.

Table 3.7: Relevant Fiscal Resources

Fiscal Tool/Resource	Unincorporated County	Belleair	Belleair Beach	Belleair Bluffs	Belleair Shore	Clearwater	Dunedin	Gulfport	Indian Rocks Beach	Indian Shores	Kenneth City	Largo	Madeira Beach	North Redington Beach	Oldsmar	Pinellas Park	Redington Beach	Redington Shores	Safety Harbor	St. Petersburg	St. Pete Beach	Seminole	South Pasadena	Tarpon Springs	Treasure Island
Capital Improvement Programming	X	X	X			X		X			X	X			X	X	X		X	X	X	X	X	X	X
Community Development Block Grants (CDBG)	X		X			X		X				X				X	X			X	X	X	X		X
Special Purpose Taxes (or taxing districts)			X			X						X								X		X	X		X
Gas/Electric Utility Fees		X				X		X			X			X		X						X			
Water/Sewer Fees						X		X				X		X	X	X				X	X	X	X		X
Stormwater Utility Fees			X			X		X				X			X	X	X			X	X	X	X		X
Development Impact Fees			X			X		X	X			X		X	X	X	X			X	X	X	X		X
General Obligation, Revenue, and/or Special Tax Bonds			X			X								X			X			X		X	X		
Partnering Arrangements or Intergovernmental			X			X		X	X			X		X			X			X	X	X	X		X

Political Capability

One of the most difficult capabilities to evaluate, involves the political will of a jurisdiction to enact meaningful policies and projects designed to reduce the impact of future hazard events. Hazard mitigation may not be a local priority or may conflict with or be seen as an impediment to other goals of the community, such as growth and economic development. Therefore, the local political climate must be considered in designing mitigation strategies as it could be the most difficult hurdle to overcome in accomplishing their adoption and implementation.

The Capability Assessment Survey was used to capture information on political capability of Pinellas

County and its municipalities. Survey respondents were asked to identify some general examples of local political capability, such as guiding development away from identified hazard areas, restricting public investments or capital improvements within hazard areas, or enforcing local development standards that go beyond minimum state or federal requirements (e.g., building codes, floodplain management, etc.).

Some survey responses provided examples of development regulations that go beyond minimum state or federal requirements. The responses included information on the enforcement of ordinances and building standards as well.

The table below provides a summary of the results for Pinellas County with regard to political capability. An "X" indicates the expected degree of political support by local elected officials in terms of adopting/funding information.

Table 3.8: Local Political Support

Level of Support	Unincorporated County	Belleair	Belleair Beach	Belleair Bluffs	Belleair Shore	Clearwater	Dunedin	Gulfport	Indian Rocks Beach	Indian Shores	Kenneth City	Largo	Madeira Beach	North Redington Beach	Oldsmar	Pinellas Park	Redington Beach	Redington Shores	Safety Harbor	St. Petersburg	St. Pete Beach	Seminole	South Pasadena	Tarpon Springs	Treasure Island
Limited						X																			X
Moderate		X		X				X	X	X			X	X	X	X	X	X							X
High	X		X																	X		X	X		
Unknown																									

Local Implementation

It is important to note, LMS goals and objectives are already implemented through some of these programs or documents listed earlier in Table 3.2, which guide policy approaches, regulatory processes, and day-to-day operations within Pinellas County. Mitigation is incorporated into these existing mechanisms as described below.

The Pinellas County Program for Public Information (PPI) is an ongoing effort to identify, implement and continuously improve, a range of public information activities to improve flood safety and protection of floodplains' natural functions. Since Pinellas County's LMS serves as the Floodplain Management Plan for the county and most of its municipalities, the Flood Risk and Mitigation Public Information Working Group (FRMPIWG), which is the multi-jurisdictional action team for the PPI, works closely with the LMS working Group. These two groups work in coordination to ensure that we consistently address flood risks and mitigation in a comprehensive manner. There is an overlap of membership between the two groups. In addition, ideas and strategies generated from each group informs the functions of the other. Members of the FRMPIWG are specifically tasked with evaluating flood risks and insurance coverage, floodplain management activities, and flood warning and response planning to identify flood information needs, target audiences, and associated messages; coordinate projects (countywide and jurisdictional) to relay flood information; identify flood risks and related potential mitigation opportunities; and to provide support to the LMS Working Group.

The LMS goals and objectives also form a critical part of the Coastal Management Element within Pinellas County's Comprehensive Plan. The county's Comprehensive Plan lists policies, objectives and strategies

that address mitigation from a variety of different approaches such as, encouraging non-structural or nature-based mitigation approaches; guiding density and development location; and requiring the maintenance of critical planning and operational documents that support mitigation and risk-reduction. Some of these mitigation-focused policies that are implemented through Pinellas County's Comprehensive plan include - protecting and preserving coastal habitats; limiting density within the Coastal Storm Area; restricting development within the Coastal Storm Area; restricting public infrastructure expenditures that subsidize (re)development in the Coastal Storm Area; and developing maintaining the LMS, Comprehensive Emergency Management Plan (CEMP) and the Post-Disaster Redevelopment Plan (PDRP).

The Comprehensive Plan policies define the scope of the post-disaster activities that need to be addressed in the PDRP. The associated strategies focus on incorporating mitigation and vulnerability-reduction into habitat restoration, rebuilding and other post-disaster activities. As a part of the county's last Comprehensive Plan update (2021-2022), some of these policies were re-evaluated in conjunction with the 2020 LMS 5-Year update. Likewise, the adopted policies within the county's current Comprehensive Plan - Plan Pinellas, informed the objectives within the LMS Plan's 2025 updates.

The Comprehensive Plans for other municipalities within Pinellas County such as the City of Clearwater and the City of St. Petersburg among many others, have similar policies that reflect the County's overall mitigation goals. For example, City of Clearwater's Comprehensive Plan's Coastal Management Element specifically identifies, objectives that implement hazard mitigation efforts; and emphasizes public education on flood risks, mitigation strategies, and all available programs to improve the City's Community Rating System (CRS) score.

In addition to the Comprehensive Plan, the LMS goals are closely tied with Pinellas County's CEMP. The principles and procedures defined within the county's CEMP were developed with input and expertise from various county departments, municipal emergency management coordinators as well as the LMS Working Group. The CEMP is the operations plan for Pinellas County that guides the response to a disaster. It establishes a framework through which Pinellas County and its municipalities prepare for, respond to, recover from, and mitigate the impacts of a wide variety of disasters. While Pinellas County's CEMP is an operations-based plan that addresses emergency protective actions such as evacuation, sheltering and recovery procedures, the LMS serves as the guiding document for all the mitigation priorities. The county's CEMP integrates the response and recovery activities with the LMS functions. For instance, as defined within Pinellas County's CEMP, in case of a disaster that results in damage impacts, the LMS Committee is provided with a detailed damage report by the Pinellas County Emergency Management Recovery Coordinator, to help determine if a local Mitigation Assessment Team should be mobilized, for the purpose of assessing property and infrastructure damage. The intent is to pro-actively identify mitigation-related needs and develop strategies for risk-reduction in future.

Pinellas County's PDRP is another such document that supports and implements mitigation goals. Developed in 2012, Pinellas County's PDRP identifies mitigation as one of its core post-disaster functions that is critical to how we approach land use changes in damaged areas, and rebuild, and restore the environment and infrastructure following a disaster. As we update the PDRP (2024-2025) following the LMS update, the 2025 LMS Goals and Objectives will be used to revise and expand on the actions defined within the PDRP.

The PPI, Comprehensive Plan, PDRP and CEMP discussed above, are some of the overarching policy,

procedure or operational documents that help implement the LMS goals and objectives. While the risk assessment and LMS Goals inform the policies, metrics and operational strategies within these plans, the analysis, policies and procedures developed as a part of these planning documents also inform the LMS goals. This is accomplished through the involvement of stakeholders from various municipalities representing multiple disciplines within the LMS and FRMPI working group. In addition to these plans and programs, there are other ongoing or upcoming initiatives that are equally comprehensive in scope and hold a lot of potential in implementing mitigation. These include, Pinellas County's Vulnerability Assessment project, Sustainability and Resiliency Action Plan, Sustainability and Resiliency Program, and the Health in All Policies Initiative. These initiatives can help - advance our understanding of vulnerability from a new perspective; address risk- reduction using new approaches; develop co-beneficial strategies and performance measures; strategically attain targeted goals; and reach out to new interested groups and mitigation partners. As a next step, we are looking for opportunities to integrate mitigation goals in these initiatives and vice versa.

Conclusions on Local Capability and Improving Upon Deficiencies Identified

The overall capability to implement hazard mitigation actions varies among the participating jurisdictions. Larger jurisdictions typically have higher planning and regulatory capability, more staff and technical resources, as well as greater fiscal capability compared to smaller jurisdictions.

One of the reasons for conducting a Capability Assessment is to examine local capabilities to detect any existing gaps or weaknesses within ongoing government activities that could hinder proposed mitigation activities and possibly exacerbate community hazard vulnerability. These gaps or weaknesses have been identified for each jurisdiction in the tables found throughout this section. The participating jurisdictions used the Capability Assessment as part of the basis for the Mitigation Measures that are identified in this LMS; therefore, each jurisdiction addresses their ability to expand on and improve their existing capabilities through the identification of their Mitigation Measures.

The jurisdictions within Pinellas County have relevant plans, ordinances, and programs that help them reduce losses due to natural hazards, with flooding being the hazard that is most frequently and thoroughly addressed. Nearly all communities in this plan have (or participate in a county-led) emergency operations plan, a comprehensive land use plan, zoning and subdivision ordinance, building and fire codes, floodplain management plan, floodplain ordinance, and capital improvement plan. Some plans that may be beneficial to reducing flood losses that are not widely used across all LMS participants include: a threat and hazard identification and risk assessment, an open space management plan, repetitive loss area analysis, substantial damage improvement plan, natural resources protection plan, and an economic development plan. If additional budget/funding and resources become available, jurisdictions will evaluate which of these optional planning efforts can be implemented to address gaps in processes that will benefit their residents and businesses.

<u>Linking the Capability Assessment with the Risk Assessment and the Mitigation Strategy</u>

The conclusions of the Risk Assessment and Capability Assessment serve as the foundation for the development of a meaningful hazard mitigation strategy. During the process of identifying specific mitigation actions to pursue, the LMS Working Group considered not only each jurisdiction's level of hazard risk but also their existing capability to minimize or eliminate that risk.

Changes to the Plan Based on Updated Jurisdictional Priorities

Jurisdictions in this plan have reviewed and evaluated their priorities, as compared to the 2020 Plan Update, based on their changing dynamics. As noted in the "Mitigation Strategy" section of the document, changes were made to the countywide objectives based on feedback from LMS participants during multiple, interactive planning sessions. The resulting updates to the language of the objectives promoted: countywide collaboration for a consistent approach to mitigation and higher standards; consideration of future conditions when evaluating the hazards; and increased inclusion of social vulnerabilities within the planning process.

Although the county is generally built out, redevelopment and density along the coast increased exposure and vulnerability to coastal hazards. As flooding and storm surge are already the most frequently addressed hazards, the jurisdictions did not make major changes to the plan but continued to emphasize educational outreach through the countywide Program for Public Information, the Local Mitigation Strategy program, and individual public safety campaigns within each community. The State of Florida has also provided opportunities to further evaluate flood risks (sea level rise and future condition impacts to tidal, rainfall, and storm surge flooding) via the Resilient Florida program administered through the Florida Department of Environmental Protection. Jurisdictions that have received funding and are implementing FDEM vulnerability assessments will add the results from those studies into the 2030 LMS Update (either directly within the plan or by reference to the individual project documents). Furthermore, the countywide list of projects within table D-1 has been updated and many of the new projects address vulnerable infrastructure along the coastlines or other flood-prone areas.

Mitigation Initiatives

As a result of the goals and objectives developed by the LMS Working Group described in this section, the LMS Working group identified a number of proposed actions and projects to be considered to reduce the effects of hazards. Each proposed initiative is self-scored by the applicant using the standardized scoring sheet that was developed by the LMS Working Group. The tool allows the applicant to populate a series of low, medium, or high scores for a variety of criterion related to the following three overarching sections:

- Suitability (with 5 factors such as "Community Acceptance" and "Environmental Impact")
- Risk Reduction (6 factors including "Scope of Benefits" and "Number of People to Benefit")
- Cost (5 factors such as "Benefit to Cost Ratio" and "Financing Availability")

Following the self-scoring of any new initiative, the LMS Scoring Committee reviews them. The Scoring Committee comprising of representatives from multiple jurisdictions, meets to review and re-adjust the self-scores to ensure that all the new initiatives are scored in a consistent manner. Any discrepancies determined by the scoring committee are brought back to the LMS Working Group for consensus on any possible items to be re-scored. Finally, the new projects are presented to the Working Group for further explanation by the applicant and acceptance to be added to the living list of potential measures (LMS Table D-1 Mitigation Initiatives). When funding becomes available to support these initiatives, the initiatives are reviewed and rescored by the Working Group to reflect the current needs and priorities, prior to applying for the available funding. A copy of a blank scoring sheet is provided within this appendix to offer further explanation of how projects are scored and prioritized. A description of the process for adding new mitigation initiatives to the LMS Plan and the internal process for prioritizing mitigation projects for hazard mitigation grant funding is provided in the Planning Process and Plan Maintenance section. Both the project scoring sheet and the LMS Table D-1 Mitigation Initiatives can be found in Appendix D.

Integrating Social Vulnerability to Mitigation Initiatives and Throughout the Plan

Several mitigation actions have been undertaken in the past five years focused on underserved areas and vulnerable populations within Pinellas. The County has identified five at-risk community areas that the LMS is monitoring. The LMS tries to ensure that relevant projects are either included within or aligned with these areas. A number of mitigation actions were taken by the Working Group since the 2020 LMS Plan was adopted, to address these specific areas.

As a part of the 2021-2022 Annual Update, an in-depth analysis of the County and its municipalities' socially vulnerable populations and underserved areas was added to the LMS Plan, which was further enhanced with the 2025 Plan update. In addition, to address these areas and their post-disaster needs, related implementation strategies were identified within the County's Post-Disaster Redevelopment Plan. These changes were also reflected in the County's Plan Pinellas Comprehensive Plan and related strategies and policies were shared with all the municipalities as well.

Outreach efforts for the LMS Five-Year update, strategically targeted these areas that had been identified through a series of steps. The location of the workshop, method of distribution of the surveys and the outreach through social media, carefully considered the need to expand the LMS outreach to underserved areas and vulnerable populations. Information for the LMS Five-Year Update workshops was shared using Meltwater, Media Alert and Pinellas County's social media pages – Facebook and Twitter. It was also shared via Next Door with all neighborhoods within Pinellas County, including the areas identified as underserved areas within Pinellas County. The LMS Survey was distributed in different locations as well as made available online. The survey was available both in English and Spanish. LMS Surveys were shared with various entities such as - Asian Lealman Family and Neighborhood Center, Lealman Dream Center, which are two entities that serve at-risk communities and Asian communities of Pinellas County, such as Lealman and surrounding neighborhoods. Surveys were also shared with PARC, The Arc Tampa Bay, University of Florida and FAST (Congregation of faith-based organizations).

In addition, as a part of the planning process for the LMS Five-Year Update, the LMS Working Group closely reviewed the LMS Goals and Objectives with the intent to improve mitigation outreach and enhance the capacity to recover, especially for underserved areas and vulnerable populations. This is something that was repeatedly emphasized as a critical objective for Pinellas Communities during the working group meetings, for identifying future mitigation projects. With this intention in mind the working group also reviewed the current LMS Scoring Sheet and discussed the need to add an additional scoring criterion that takes into consideration – the recently designated Community Disaster Resilience Zone (CDRZ) within Pinellas County and the previously identified underserved areas and other socially vulnerable populations that are identified through future research efforts. The LMS Working Group intends to revisit this discussion and review how to incorporate this within their project prioritization criteria for mitigation projects.

RISK ASSESSMENT SECTION

Local Hazard Mitigation Plan Requirements
**R1-R11 correspond to FL Crosswalk tool. Items in parentheses correspond to FEMA Review.*
R1 (B1-a) The plan must include a description of all natural hazards that can affect the jurisdiction(s) in the planning area and their assets, such as dams, located outside of the planning area.
R2 (B1-a) The plan must provide rationale for the omission of any natural hazards that are commonly recognized to affect the jurisdiction(s) in the planning area.
R3 (B1-b) The plan must include information on location for each identified hazard.
R4 (B1-c) The plan must provide the extent of the hazards that can affect the planning area.
R5 (B1-d) The plan must include information on previous occurrences for each hazard that affects the planning area. At a minimum, this includes any state and federal major disaster declarations for the planning area since the last update.
R6 (B1-e) The plan must include the probability of future events for the identified hazards that can affect the planning area.
R7 (B1-f) For multi-jurisdictional plans, when hazard risks differ across the planning area and between participating jurisdictions, the plan must specify the unique and varied risk information for each applicable jurisdiction and their assets outside the planning area.
R8 (B2-b) The plan must describe the potential impacts on each participating jurisdiction and its identified assets.
R9 (B2-a) The plan must describe the overall vulnerability of each participant to the identified hazards.
R10 (B2-a) For plan updates, the risk assessment must meet Element E1-a (Changes in Development).
R11 (B2-c) The plan must address repetitively flooded NFIP-insured structures by including the estimated numbers and types (residential, commercial, institutional, etc.) of repetitive/severe repetitive loss properties.

Introduction

The risk assessment for the Pinellas County LMS provides the factual basis for developing a mitigation strategy for the state. This section profiles the natural, human-caused, and technological hazards that could possibly affect the county. Each natural hazard profile includes a discussion of the geographic areas affected, the historical occurrences in the county, an impact analysis, the probability, and the vulnerability and loss estimation by county and of state facilities. Because of the extensive data available to determine vulnerability to natural hazards, the natural hazard profiles contain complete analyses. Alternatively, the human-caused and technological hazards include similar topics of discussion, but not all aspects are able to be quantified. This is because of the limited data available and the imprecise nature of the human-caused and technological hazards, therefore they differ from the natural hazard profiles and may not contain complete vulnerability analyses.

2025 Update

Significant research was required to update the 12 natural hazard profiles and the 10 technological and human-caused hazards. References and sources are included as footnotes in the hazard profiles, but the

main sources of data included:

- Declared Events
- NOAA
- Hazus-MH
- FEMA
- CDC
- U.S. Census Bureau

Current Status and Future Maintenance

As of 2025, this risk assessment is the most current and detailed hazard analysis for Pinellas County, using the most current data sets available at the time of revision and update. As this risk assessment is continually updated, this information will be used to further refine the current county mitigation strategies.

Identified Hazards

The list below shows the natural hazards that are profiled in this risk assessment.

- Flood
- Tropical Cyclones
- Severe Storms
- Wildfire
- Erosion
- Drought
- Extreme Heat
- Geological
- Winter Storm
- Seismic
- Tsunami
- Red Tide

Because this risk assessment serves as the single risk assessment for the Pinellas County, other hazards have been included to meet requirements. To avoid duplication of effort, the LMS risk assessment serves as the CEMP risk assessment as well as the risk assessment for any other emergency management plans. The technological and human-caused hazards included in this risk assessment are listed below.

- Transportation Incident
- Cyber Incident
- Hazardous Materials Incident
- Space Weather Incident
- Radiological Incident
- Terrorism
- Agricultural Disruption
- Biological Incident
- Mass Migration Incident
- Civil Disturbance Incident

These 22 hazards were identified based on examination of past disasters, probability of occurrence, possible impacts, and vulnerability.

Hazard Profiles

The hazard profiles all follow the same outline, the sections and a short description of the intent of the section is listed in the table below.

Table 4.1: Hazard Profile Description

Hazard Profile Section	Description
Hazard Description	This section includes a basic overview of the hazard, such as causes, various types of the hazard, the measurements of the hazard, advisories for the hazard and any other pertinent information. There are also statements about the overall frequency and magnitude determinations that were made regarding the hazard. Natural hazards descriptions contain a section discussing climate change, where the potential impacts of climate change on that hazard are discussed. If there are no known potential impacts of climate change for a given hazard, there is a statement in place of the discussion.
Geographic Areas Affected by Hazard	This section discusses the areas of the county that are likely to be impacted by the hazard. There may also be references to where the hazard has occurred in the past.
Historical Occurrences of Hazard	This section lists significant occurrences of the hazard overall. There is also a list of every Major Disaster Declaration in the county for the hazard, if there are any.
Probability of Future Occurrences of Hazard	This section includes a description of the likelihood of the hazard occurring in the future. Where available, there is probabilistic data from Hazus-MH. Annual probability is also determined by averaging the number of occurrences within a specified timeframe. There is also a statement about the determined overall probability of the hazard.
Hazard Impact Analysis	This section lists impacts that are possible due to the hazard occurring in the county. They are categorized into impacts affecting • Public; • First Responders; • Continuity of Operations (including continued delivery of services); • Property, Facilities, Infrastructure; • Environment; • Economic condition of the jurisdiction; and • Public Confidence in the Jurisdiction's Governance The impacts were categorized this way to align more easily with EMAP Standard requirements.

Hazard Profile Section	Description
Vulnerability Analysis and Loss Estimation by Jurisdiction	Natural Hazards: This section includes a discussion of the overall vulnerability, exposure, and an estimation of potential losses. This information is gathered from various sources as discussed below. Technological and Human-Caused Hazards: This section includes a discussion of overall vulnerability. Where possible, loss estimation information is provided. There are also examples of the cost of incidents in the past to provide a baseline of losses possible.
Vulnerability Analysis and Loss Estimation of Critical Facilities	Natural Hazards: This section includes a discussion of the vulnerability of critical facilities and identifies the number of facilities located in high risk areas. Where possible, information regarding potential loss estimations are provided. Technological and Human-Caused Hazards: This section includes a discussion of overall vulnerability of the county.
Hazard Summary Matrix	There is a statement about the ranking system below, as well as a statement about the overall vulnerability of the respective hazard in each profile. These statements are followed by the Hazard Summary Matrix. Overview: A few sentences from the hazard description. Probability: Ranking of how often the hazard occurs. Impact: Rankings of the hazard's general impact on people, property, and critical facilities. Spatial Extent: Ranking of the area of the county that will be affected by the hazard. Warning Time: Amount of time generally available before an impending hazard event. Duration: Length of time a typical hazard event will last. PRI Score: Numerical value that indicates degree of risk for the hazard. *More details on how this is calculated can be found below. Overall Vulnerability: Overall risk ranking based on PRI scores.

Data Sources

Hazus-MH

Hazus-MH is a nationally applicable standardized methodology that contains models for estimating potential losses from floods, hurricanes, and earthquakes. HAZUS-MH uses Geographic Information Systems (GIS) technology to estimate physical, economic, and social impacts of disasters. This helps users to visualize the spatial relationship between populations and other more permanently fixed geographic

assets or resources for the specific hazard being modeled. HAZUS-MH is used for preparedness, response, recovery, and mitigation and is useful in the risk assessment step in the mitigation planning process.

Hazus-MH 6.0 uses 2022 Census data for population and a combination of RSMeans and National Structure Inventory (NSI) for general building stock information, which are aggregated to the Census Tract and Block (wind and flood, respectively). Furthermore, the Flood model incorporates a dasymetric model which more accurately represents where the population is located based on land use and land cover.

FEMA

The FEMA website provides information about each federal declaration that has been made for Florida, including emergency declarations, major disaster declarations, and fire management assistance declarations.

The Risk Mapping, Assessment and Planning (RiskMAP) program aims to identify flood risk and promote informed planning and development practices to help reduce risk. The GIS portion of the RiskMAP program was used to develop the *Flood Hazard Profile* and analyses.

NOAA/NWS/NHC

The National Oceanic and Atmospheric Administration (NOAA) is a large agency with many purposes. The National Weather Service (NWS) is part of NOAA and both agencies provided information via their websites that is included in the natural hazard profiles. The National Hurricane Center (NHC) is within NOAA/NWS and works to issue the best watches, warnings, forecasts, and analyses, as well as increase the understanding of tropical weather. Much of the Tropical Cyclone Hazard Profile stems from information on this website. The NHC is located on the Florida International University in Miami, Florida.

National Centers for Environmental Information (NCEI)

The NCEI Storm Events Database contains records which document three things: the occurrence of storms and other significant weather phenomena with sufficient intensity to cause loss of life, injuries, significant property damage, and disruption to commerce; rare or unusual weather phenomena that generates media attention; and other significant meteorological events, such as record maximum or minimum temperatures. The database was used to search for data from January 1950 through 2024. Event types recorded include coastal flood, cold/wind chill, drought, excessive heat, extreme cold/wind chill, flash flood, flood, frost/freeze, hail, heat, heavy rain, high wind, lightning, sleet, storm surge/tide, strong wind, thunderstorm wind, tornado, tropical depression, tropical storm, wildfire, winter storm, and winter weather.

National Climate Assessment

The National Climate Assessment is a summary document of the overall impact of climate change on the United States currently and futuristically. It is a culmination of work from a large pool of experts along with the Federal Advisory Committee. This document explores the effects of climate changes on the various sectors such as water, ecosystems, human health, energy, transportation, agriculture, and forests throughout the regions of the country.

United States Drought Monitor

Since 1999, the U.S. Drought Monitor is a map that is released weekly showing the parts of the country that are experiencing drought. The map depicts the drought through five different classifications and is hosted by the National Drought Mitigation Center (NDMC) at the University of Nebraska-Lincoln, NOAA, and the U.S. Department of Agriculture.

Southern Wildfire Risk Assessment

The Southern Wildfire Risk Assessment (SWRA) works with various other agencies to provide wildfire information for southern U.S. states, including identifying areas that are prone to wildfires. The SWRA Portal (SWRAP) also works to create awareness and to support mitigation planning. This information was used to develop GIS information for the *Wildfire Hazard Profile*.

USGS

United States Geological Survey (USGS) provides the United States with reliable scientific information to describe and understand the Earth and to minimize the loss of life and property from natural disasters. Information from USGS is included in several hazard profiles, including the *Geological Hazard Profile*.

CDC

Centers for Disease Control and Prevention's (CDC) Social Vulnerability Index (SVI) uses 15 U.S. census variables at tract level to help local officials identify communities that may need support in preparing for hazards or recovering from disaster. Social vulnerability refers to the resilience of communities when confronted by external stresses on human health, stresses such as natural or human-caused disasters, or disease outbreaks. Reducing social vulnerability can decrease both human suffering and economic loss.

Florida State Agencies

Information from State of Florida agencies, such as Division of Emergency Management (FDEM), Florida Department of Transportation (FDOT) Department of Environmental Protection (FDEP), and Department of Agriculture and Consumer Services (FDACS) was used to develop the hazard profiles and the GIS data shown.

Priority Risk Index

In order to draw some meaningful planning conclusions on hazard risk for Pinellas County, the results of the hazard profiling process were used to generate county-wide hazard classifications according to a "Priority Risk Index" (PRI). The purpose of the PRI is to categorize and prioritize all potential hazards for Pinellas County as high, moderate, or low risk. Combined with the asset inventory and quantitative vulnerability assessment provided, the summary hazard classifications generated through the use of the PRI allows for the prioritization of those high hazard risks for mitigation planning purposes and, more specifically, the identification of hazard mitigation opportunities for Pinellas County to consider as part of their proposed mitigation strategy.

The prioritization and categorization of identified hazards for Pinellas County is based principally on the PRI, a tool used to measure the degree of risk for identified hazards in a particular planning area. The PRI is used to assist the Pinellas County LMS Working Group in gaining consensus on the determination of those hazards that pose the most significant threat to the county based on a variety of factors. The PRI is

not scientifically based but is rather meant to be utilized as an objective planning tool for classifying and prioritizing hazard risks in Pinellas County based on standardized criteria. The application of the PRI results in numerical values that allow identified hazards to be ranked against one another (the higher the PRI value, the greater the hazard risk). PRI values are obtained by assigning varying degrees of risk to five categories for each hazard (probability, impact, spatial extent, warning time, and duration). Each degree of risk has been assigned a valued (1 to 4) and an agreed upon weighting factor as summarized in the table below.[1] 1 To calculate the PRI value for a given hazard, the assigned risk value for each category is multiplied by the weighting factor. The sum of all five categories equals the final PRI value as demonstrated in the example equation below:

PRI Value = [(PROBABILITY x .30) + (IMPACT x .30) + (SPATIAL EXTENT x .20) + (WARNING TIME x .10) + (DURATION x .10)]

According to the weighting scheme and point system applied, the highest possible value for any hazard is 4.0. When the scheme is applied for Pinellas County, the highest PRI value is 3.3 (flood and tropical cyclone). Prior to being finalized, PRI values for each identified hazard were reviewed and accepted by the members of the Pinellas County LMS Working Group.

Table 4.2

PRI Category	Degree of Risk			Assigned Weighting Factor
	Level	Criteria	Index Value	
Probability	Unlikely	Less than 1% annual probability	1	30%
	Possible	Between 1 and 10% annual probability	2	
	Likely	Between 10 and 100% annual probability	3	
	Highly Likely	100% annual probability	4	
Impact	Minor	Very few injuries, if any. Only minor property damage and minimal disruption on quality of life. Temporary shutdown of critical facilities.	1	30%
	Limited	Minor injuries only. More than 10% of property in affected area damaged or destroyed. Complete shutdown of critical facilities for more than one day.	2	
	Critical	Multiple deaths/injuries possible. More than 25% of property in affected area damaged or destroyed. Complete shutdown of critical facilities for more than one week.	3	

[1] The Pinellas County LMS Working Group, based upon any unique concerns or factors for the planning area, may adjust the PRI weighting scheme during future plan updates.

PRI Category	Degree of Risk			Assigned Weighting Factor
	Level	Criteria	Index Value	
	Catastrophic	High number of deaths/injuries possible. More than 50% of property in affected are damaged or destroyed. Complete shutdown of critical facilities for 30 days or more.	4	
Spatial Extent	Negligible	Less than 1% of area affected	1	20%
	Small	Between 1 and 10% of area affected	2	
	Moderate	Between 10 and 50% of area affected	3	
	Large	Between 50 and 100% of area affected	4	
Warning Time	> 24 hours	Self explanatory	1	10%
	12 to 24 hours	Self explanatory	2	
	6 to 12 hours	Self explanatory	3	
	< 6 hours	Self explanatory	4	
Duration	< 6 hours	Self explanatory	1	10%
	< 24 hours	Self explanatory	2	
	< 1 week	Self explanatory	3	
	> 1 week	Self explanatory	4	

Pinellas County Asset Inventory

An inventory of geo-referenced assets within Pinellas County and its jurisdictions was compiled to identify and characterize those properties potentially at risk to the identified hazards. By understanding the type and number of assets that exist and where they are located in relation to known hazard areas, the relative risk and vulnerability for such assets can be assessed. Under this assessment, two categories of physical assets were created and then further assessed through GIS analysis. These are presented below.

Physical and Improved Assets

The two categories of physical assets consist of:

1. Improved Property: Includes all improved properties in Pinellas County according to local parcel data provided by the county. The information has been expressed in terms of the number of parcels and total assessed value of improvements (buildings) that may be exposed to the identified hazards. In addition, building footprint data was available for all jurisdictions and it was used to improve the overall assessment by providing an accurate assessment of how many buildings are located in hazard areas.
2. Critical Facilities: Critical facilities vary by jurisdiction and the critical facilities provided by the county are used in this section. It should be noted that this listing is not all-inclusive for assets located in the county, and it is anticipated that it may be expanded or adjusted during future plan updates as more geo-referenced data becomes available for use in GIS analysis. Critical facilities for each jurisdiction were determined based on jurisdictional boundaries and not necessarily by jurisdictional ownership.

The following tables provide a detailed listing of the geo-referenced assets that have been identified for inclusion in the vulnerability assessment by Pinellas County.

Table 4.3 Improved Property in Pinellas County

Location	Number of Parcels	Number of Living Units	Just Building Value
Belleair	2,587	2,552	$682,385,470
Belleair Beach	1,383	1,315	$346,610,998
Belleair Bluffs	1,385	1,560	$223,113,747
Belleair Shore	60	54	$80,236,607
Clearwater	72,990	93,495	$13,169,958,130
Dunedin	19,431	23,229	$3,338,065,776
Gulfport	7,052	7,696	$1,021,476,573
Indian Rocks Beach	3,544	4,001	$475,752,219
Indian Shores	2,813	2,766	$80,804,939
Kenneth City	2,180	2,738	$290,236,785
Largo	41,237	52,223	$7,718,654,107
Madeira Beach	4,076	4,901	$538,140,432
North Redington Beach	1,347	1,675	$190,467,088
Oldsmar	10,517	10,838	$2,275,376,327
Pinellas Park	22,768	27,732	$5,000,704,917
Redington Beach	1,103	1,046	$277,702,862
Redington Shores	2,099	2,238	$266,106,030
Safety Harbor	8,149	9,561	$1,893,516,281
St. Petersburg	127,597	165,063	$25,734,185,846
St. Pete Beach	7,886	10,240	$1,434,115,850
Seminole	29,382	31,084	$5,228,717,385
South Pasadena	3,192	3,935	$246,295,494
Tarpon Springs	18,180	18,515	$4,177,979,046
Treasure Island	6,071	7,693	$749,937,157
Unincorporated	39,069	40,612	$8,585,292,216
Pinellas County Total	**436,098**	526,762	**$84,025,832,282**

Parcel data and building values are sourced from the Pinellas County Property Appraiser database. The Pinellas County Property Appraiser defines Just Building Value as the portion of the just value attributed to the buildings. The Number of Living Units is defined as the number of living units per parcel and is reported in the "PR_PROPERTY_INFO" table within the Pinellas County Property Appraiser's database files. [2]

[2] https://www.pcpao.gov/tools-data/data-downloads/raw-database-files

Table 4.4: Age of Building Stock in Pinellas County

Year Built Range	Number of Living Units
Before 1950	39,475
1950 – 1979	262,498
1980 – 1989	100,915
1990 – 1999	38,676
2000 – 2009	34,472
2010 – 2019	24,904
After 2019	14,119

The maps below illustrate the age of the county's building stock as well as the location of mobile home parks.

Figure 4.1: Buildings by Year Built

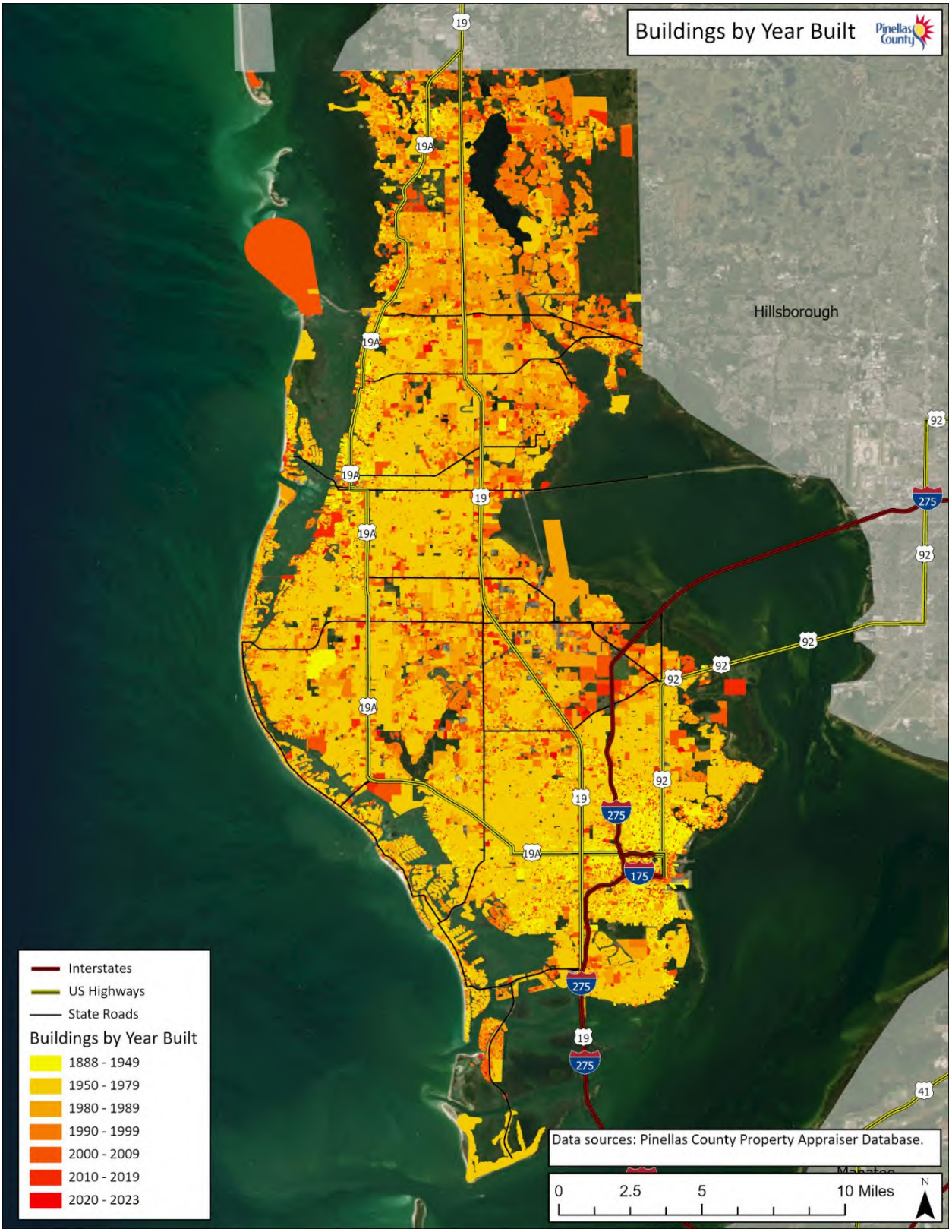
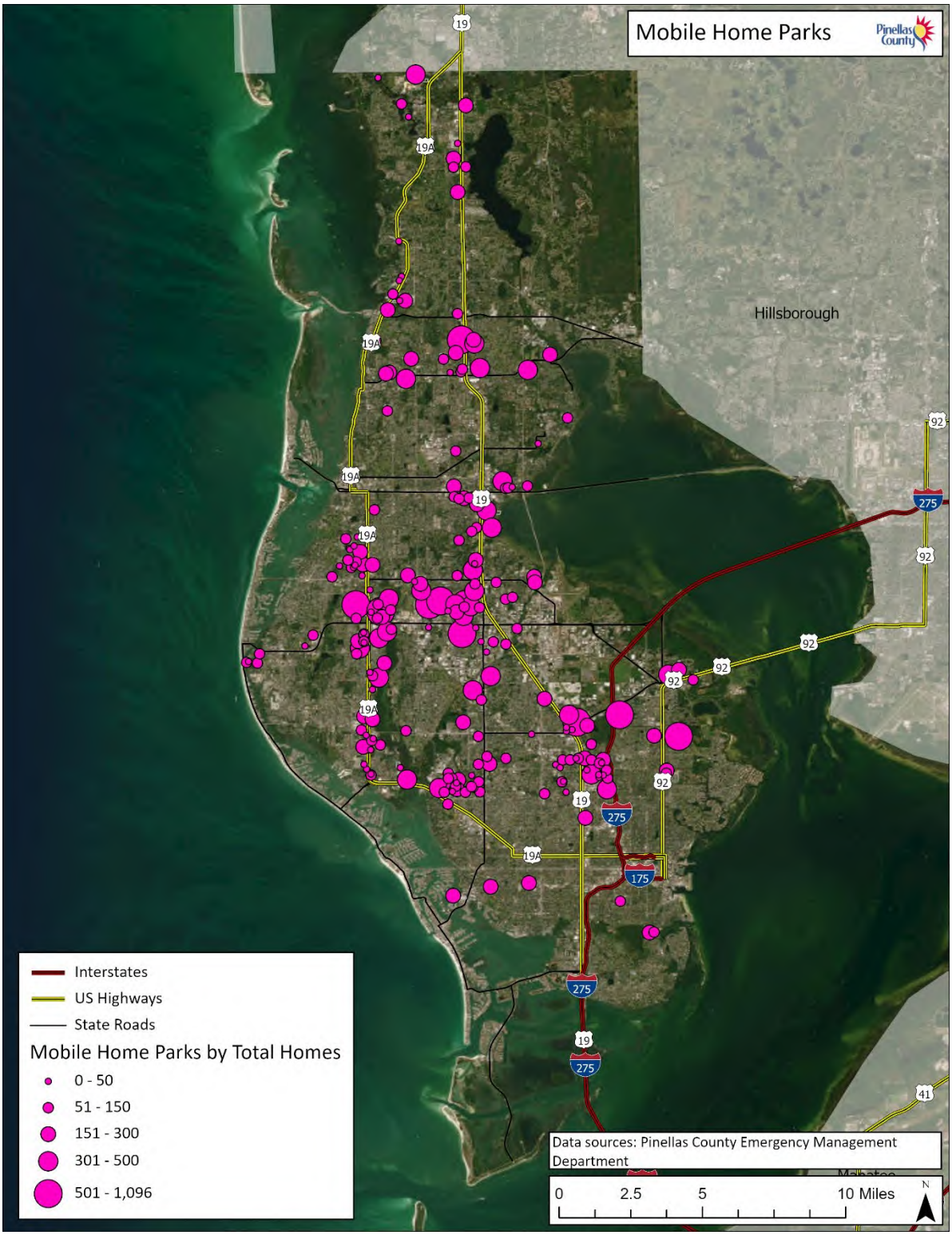


Figure 4.2: Mobile Home Parks in Pinellas County



The table below summarizes the number of critical facilities per municipality.

Table 4.5: Critical Facility Inventory in Pinellas County

Location	Number of Critical Facilities
Belleair	18
Belleair Beach	4
Belleair Bluffs	5
Belleair Shore	0
Clearwater	305
Dunedin	133
Gulfport	25
Indian Rocks Beach	11
Indian Shores	9
Kenneth City	10
Largo	273
Madeira Beach	15
North Redington Beach	1
Oldsmar	84
Pinellas Park	128
Redington Beach	4
Redington Shores	4
Safety Harbor	34
St. Petersburg	479
St. Pete Beach	31
Seminole	44
South Pasadena	16
Tarpon Springs	175
Treasure Island	17
Unincorporated	797
Pinellas County Total	2,622

These facilities were geospatially mapped and used as the basis for further geographic analysis of the hazards that could potentially affect critical facilities. The maps below illustrate the location of critical facilities in the county by type.

Figure 4.3: Critical Facilities – Emergency Services

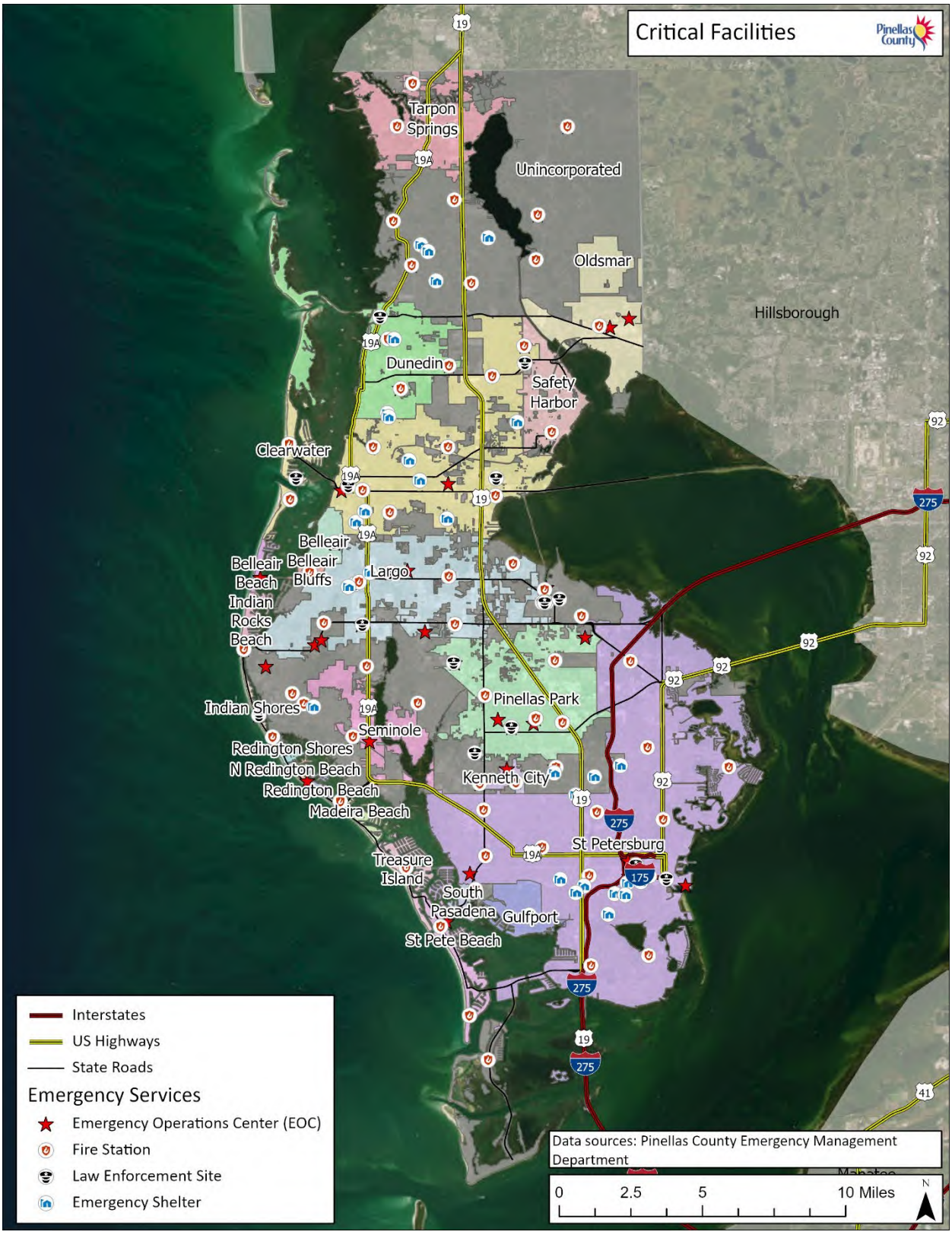


Figure 4.4: Critical Facilities – Hazardous Materials

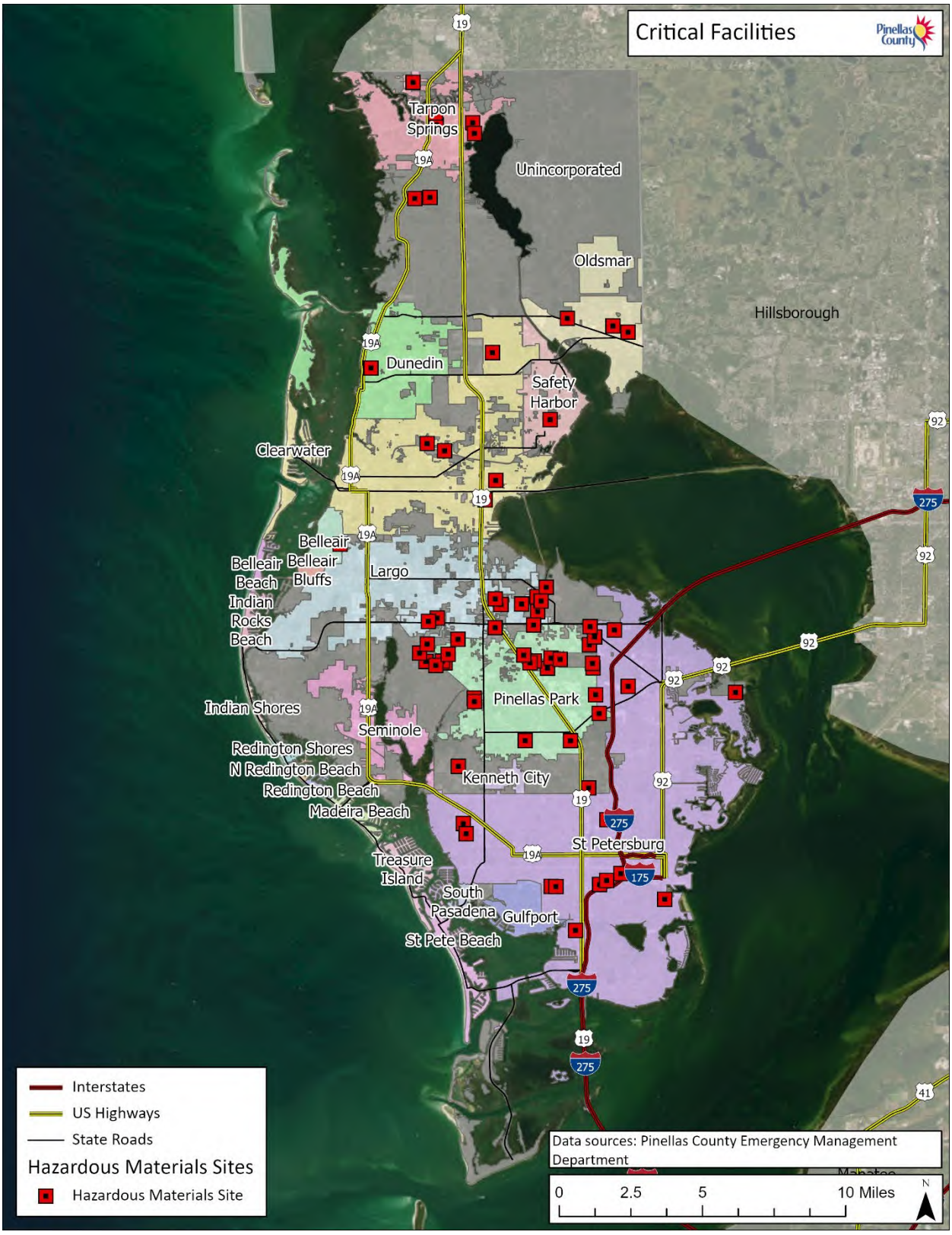


Figure 4.5: Critical Facilities – Health

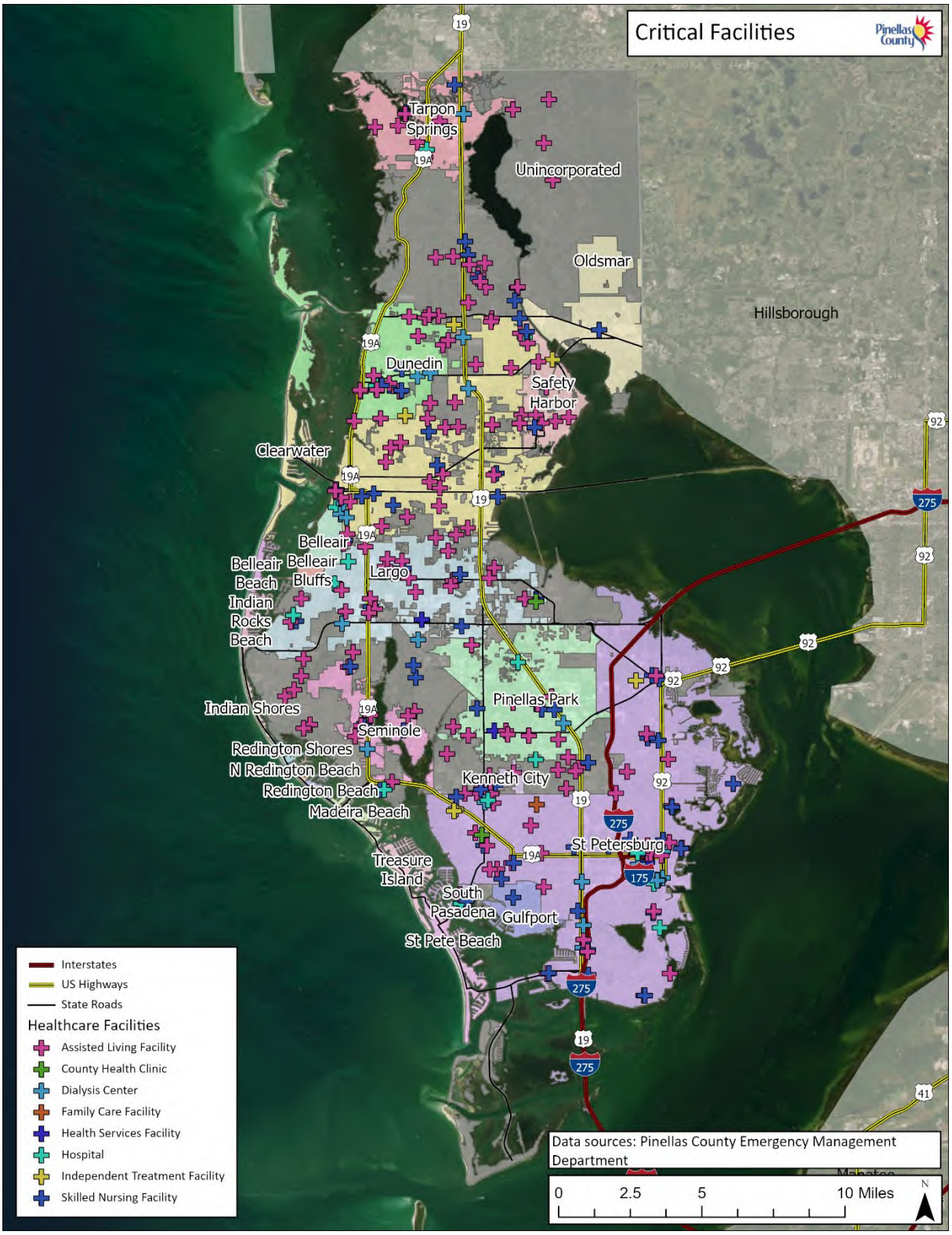


Figure 4.6: Critical Facilities – Communication Facilities

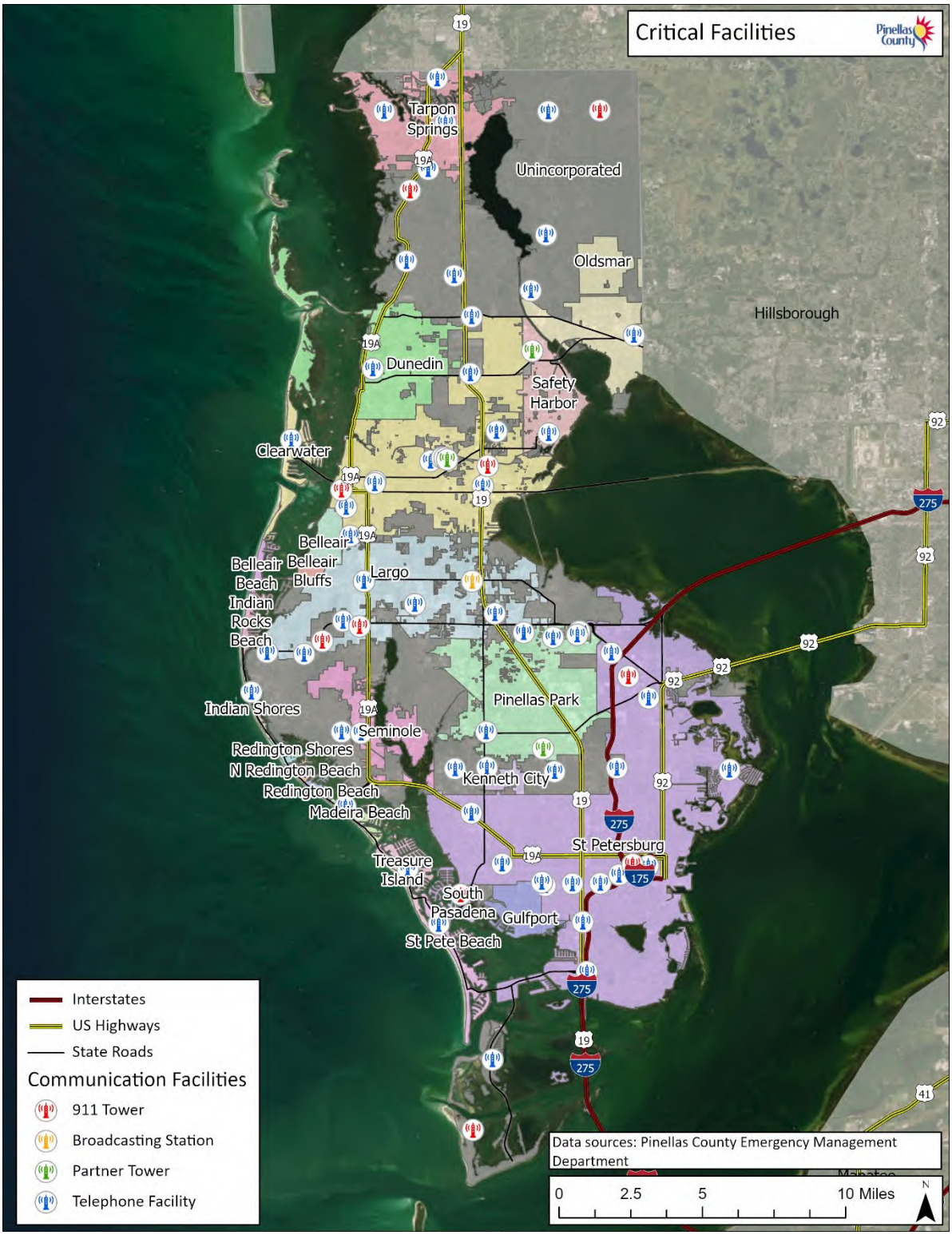
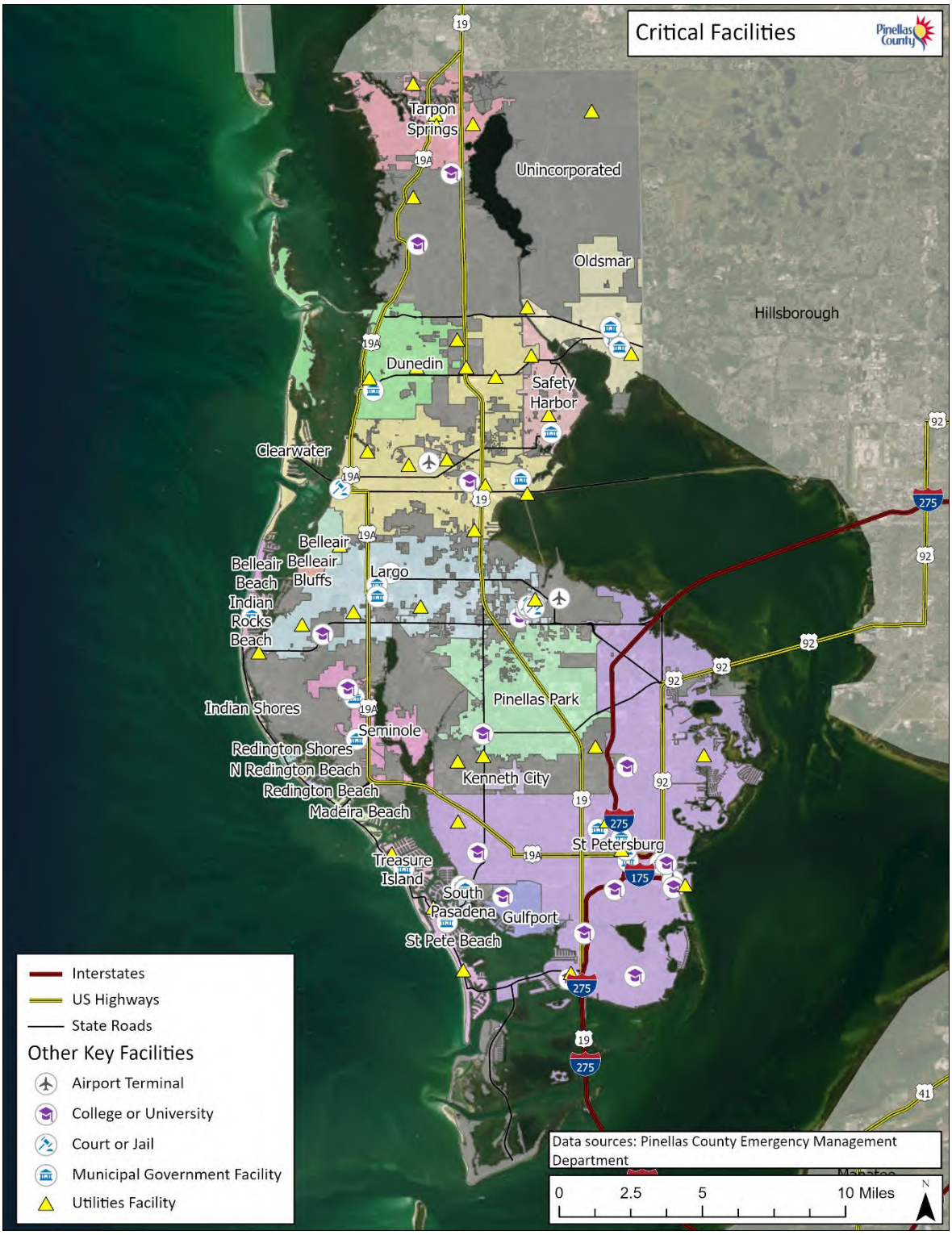


Figure 4.7: Critical Facilities – Other Facilities



Social Vulnerability

In addition to identifying assets potentially at risk to identified hazards, it is important to identify and assess segments of the residential population in Pinellas County that are potentially at risk to these hazards.

The following maps illustrate population density by census block as reported in the 2020 U.S. Census, in addition to other indicators of social vulnerability.

Figure 4.8: Population Density in Pinellas County

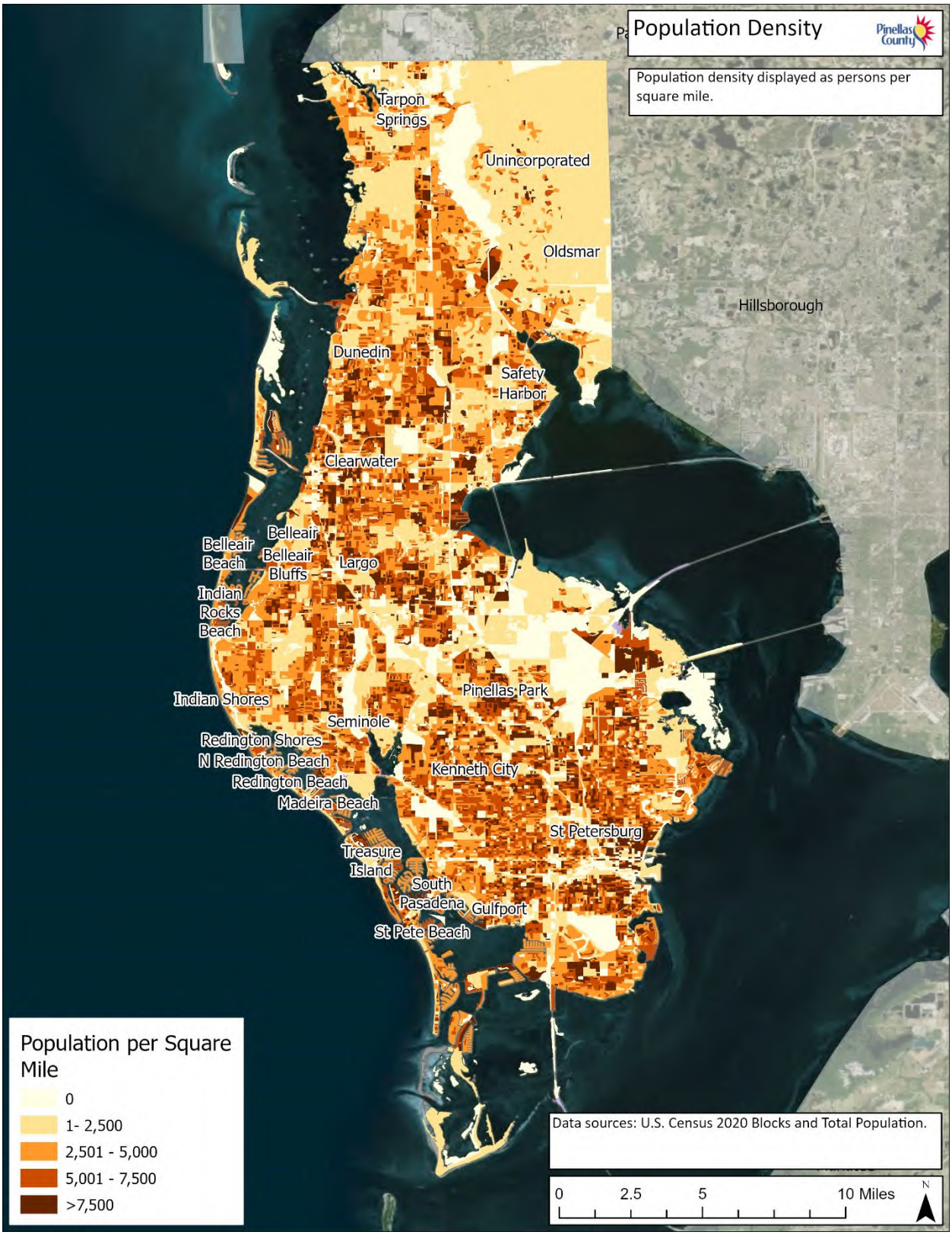


Figure 4.9: Population Aged 18 and Under in Pinellas County

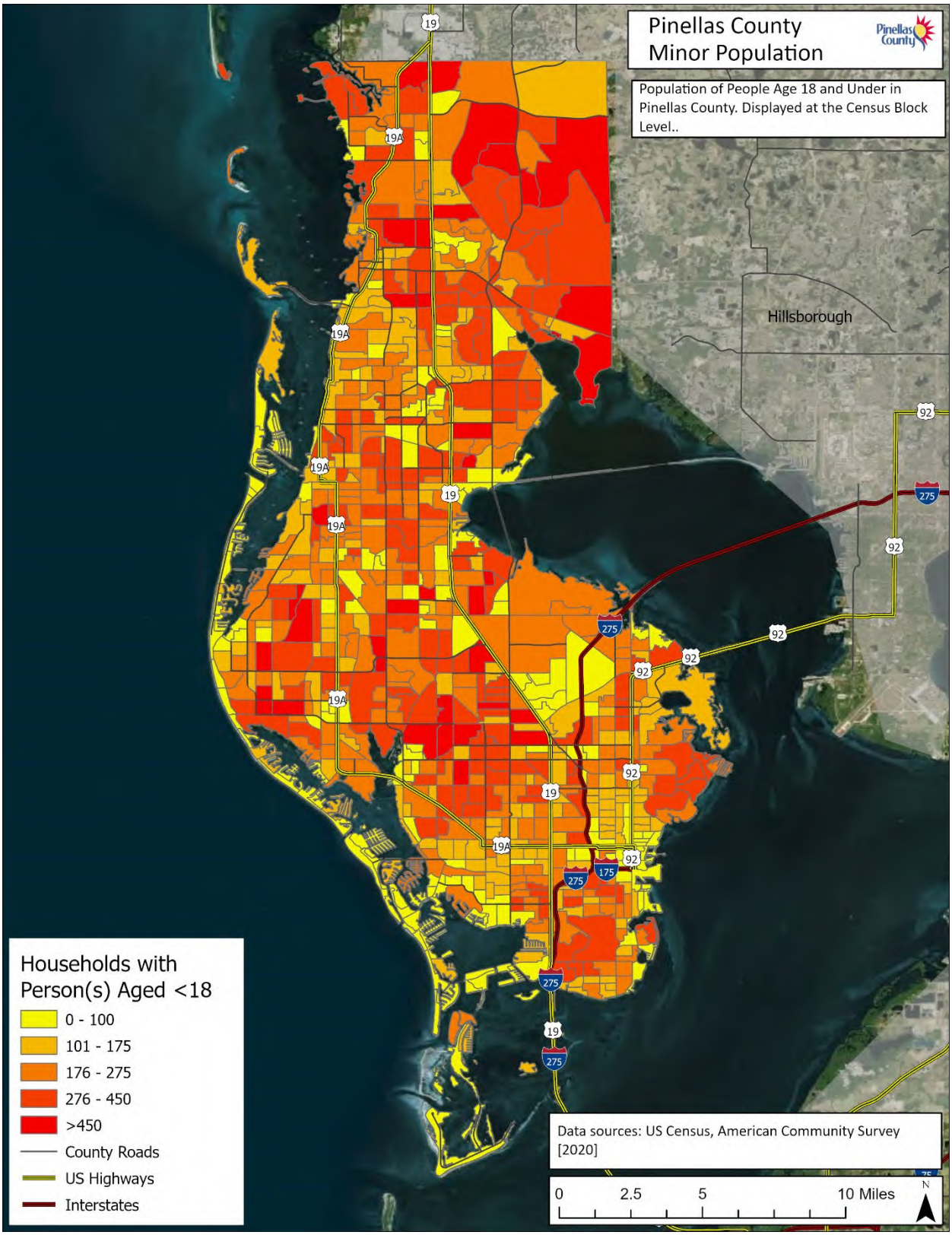


Figure 4.10: Population in Pinellas County Aged 65 and Over

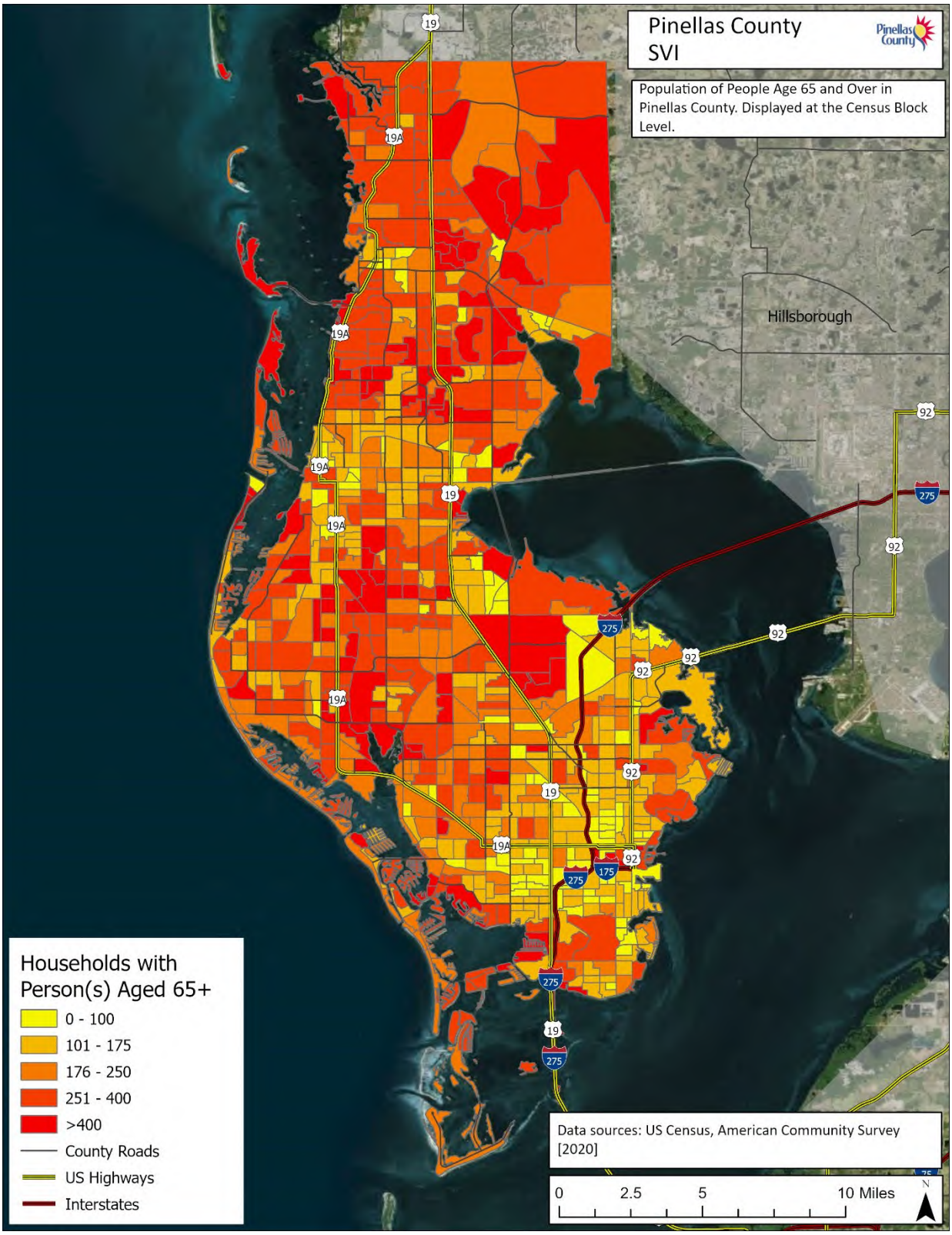


Figure 4.11: Social Vulnerability in Pinellas County – Total

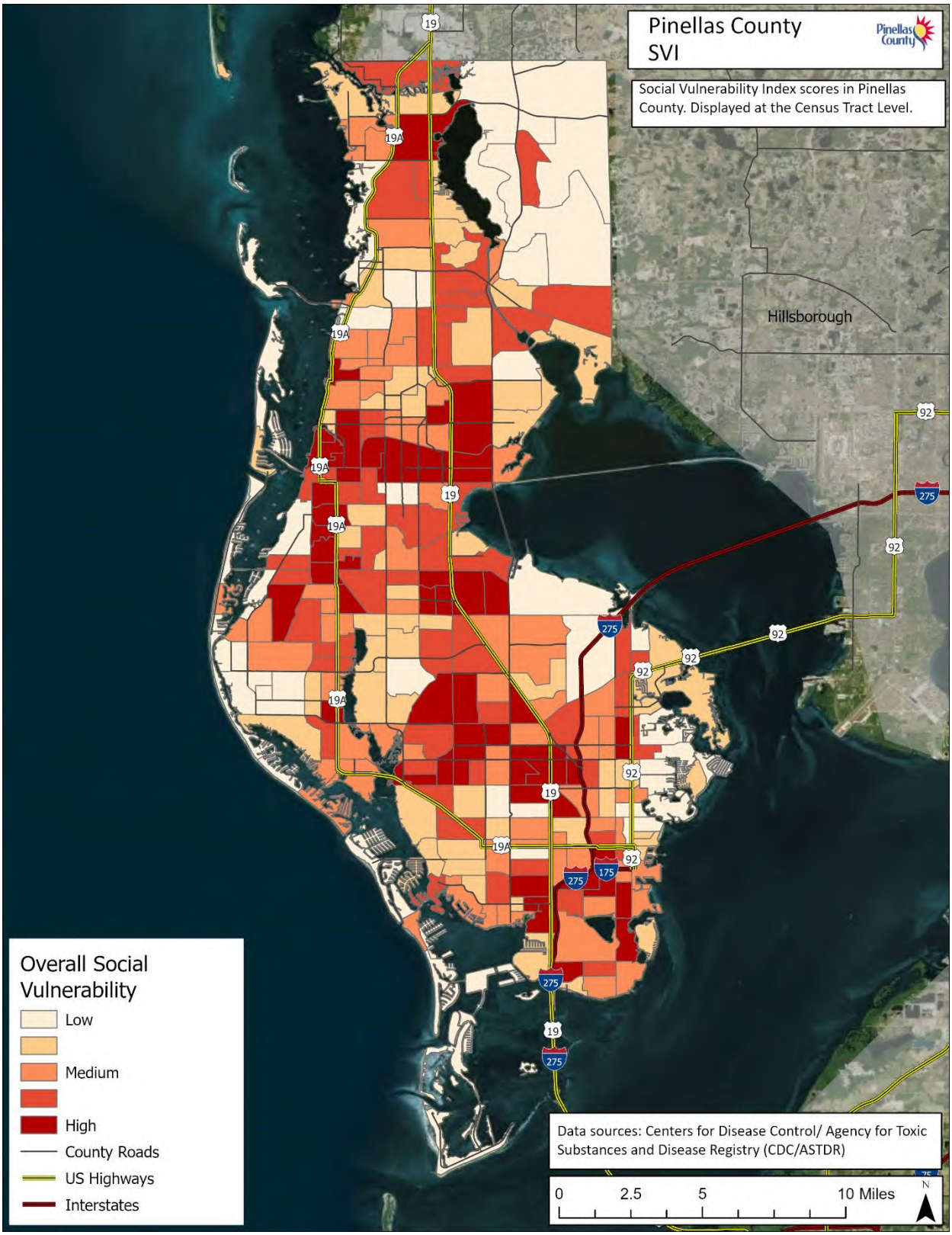


Figure 4.12: Social Vulnerability in Pinellas County – Household Characteristics

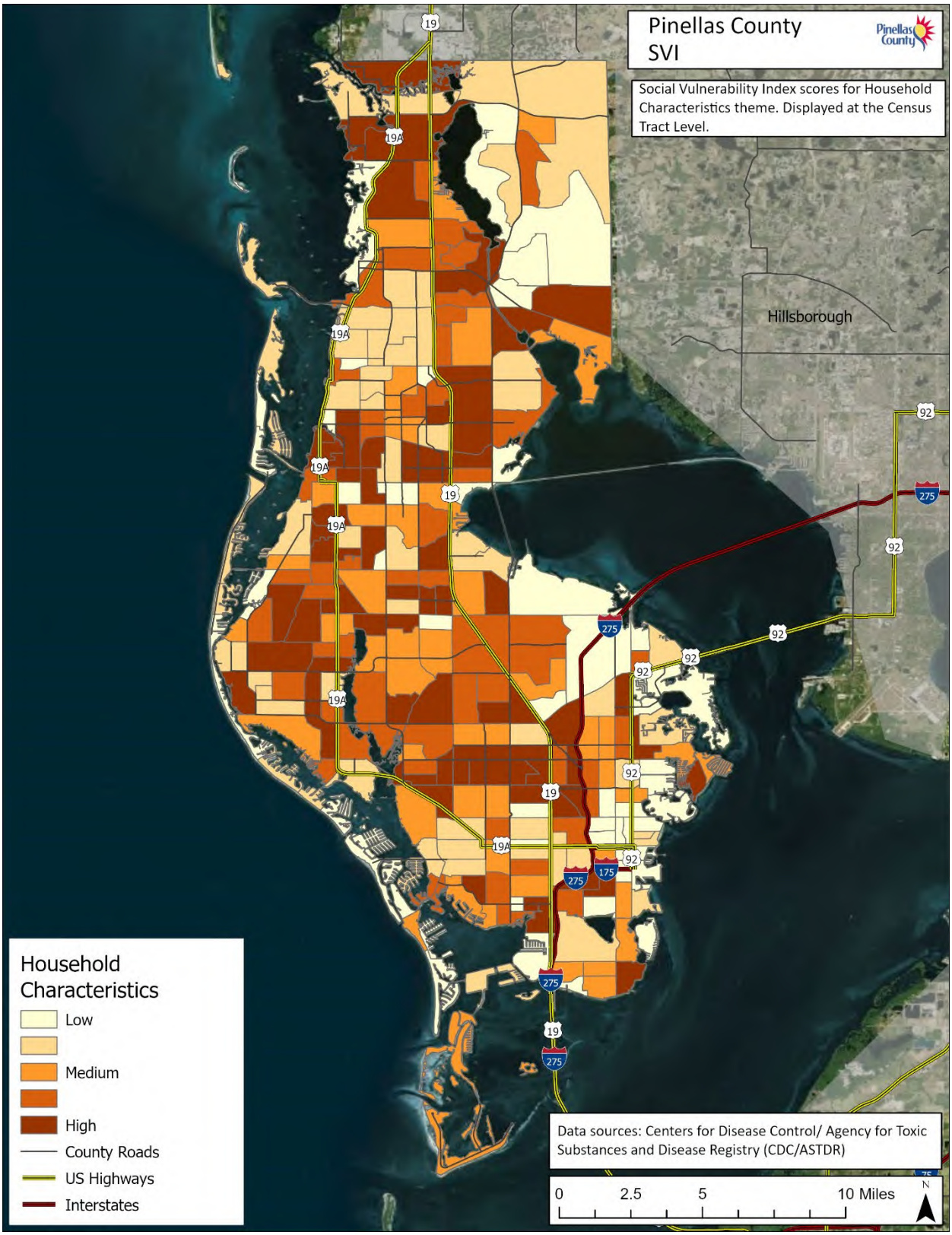


Figure 4.13: Social Vulnerability in Pinellas County – Socioeconomic Status

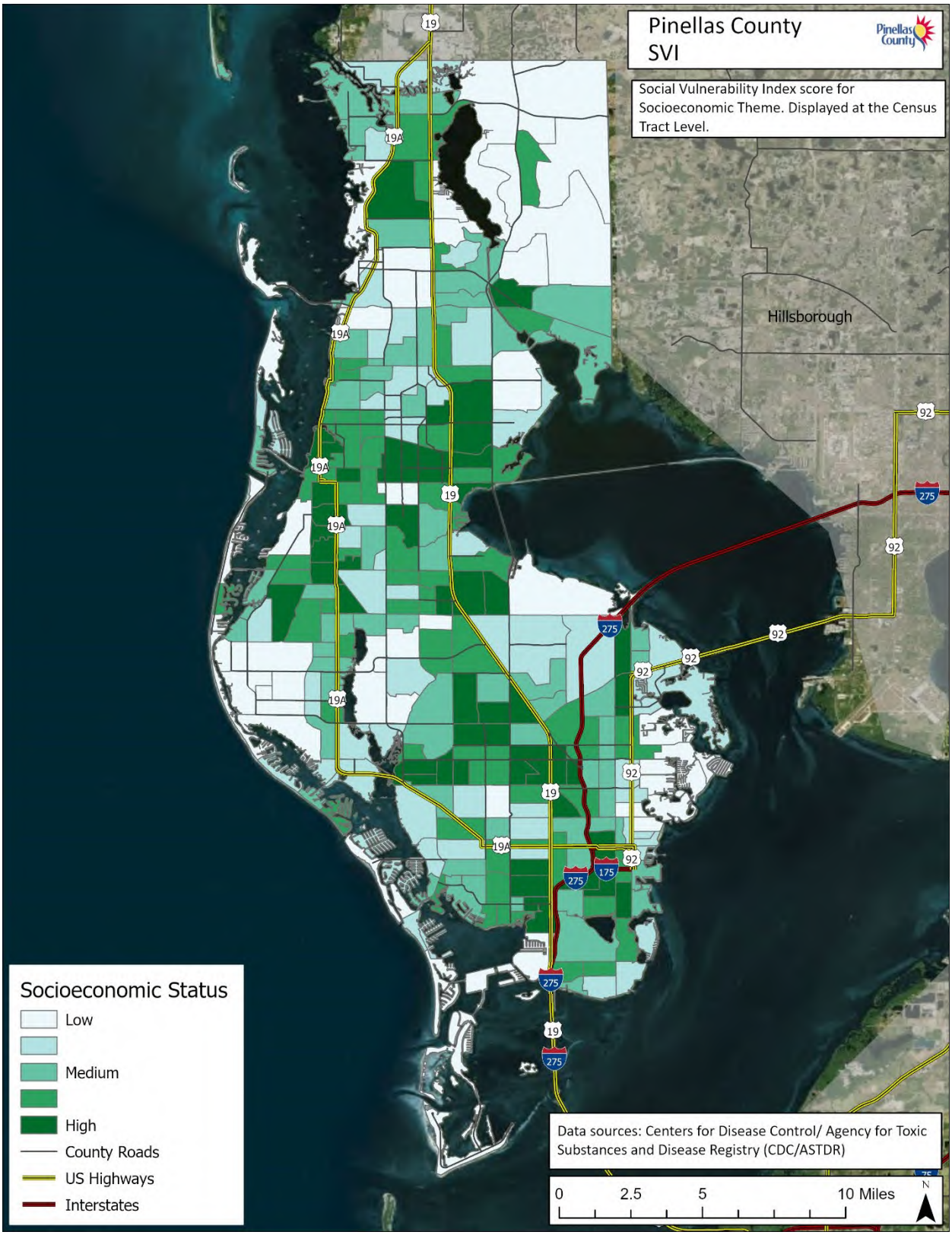


Figure 4.14: Social Vulnerability in Pinellas County – Racial & Ethnic Minority Status

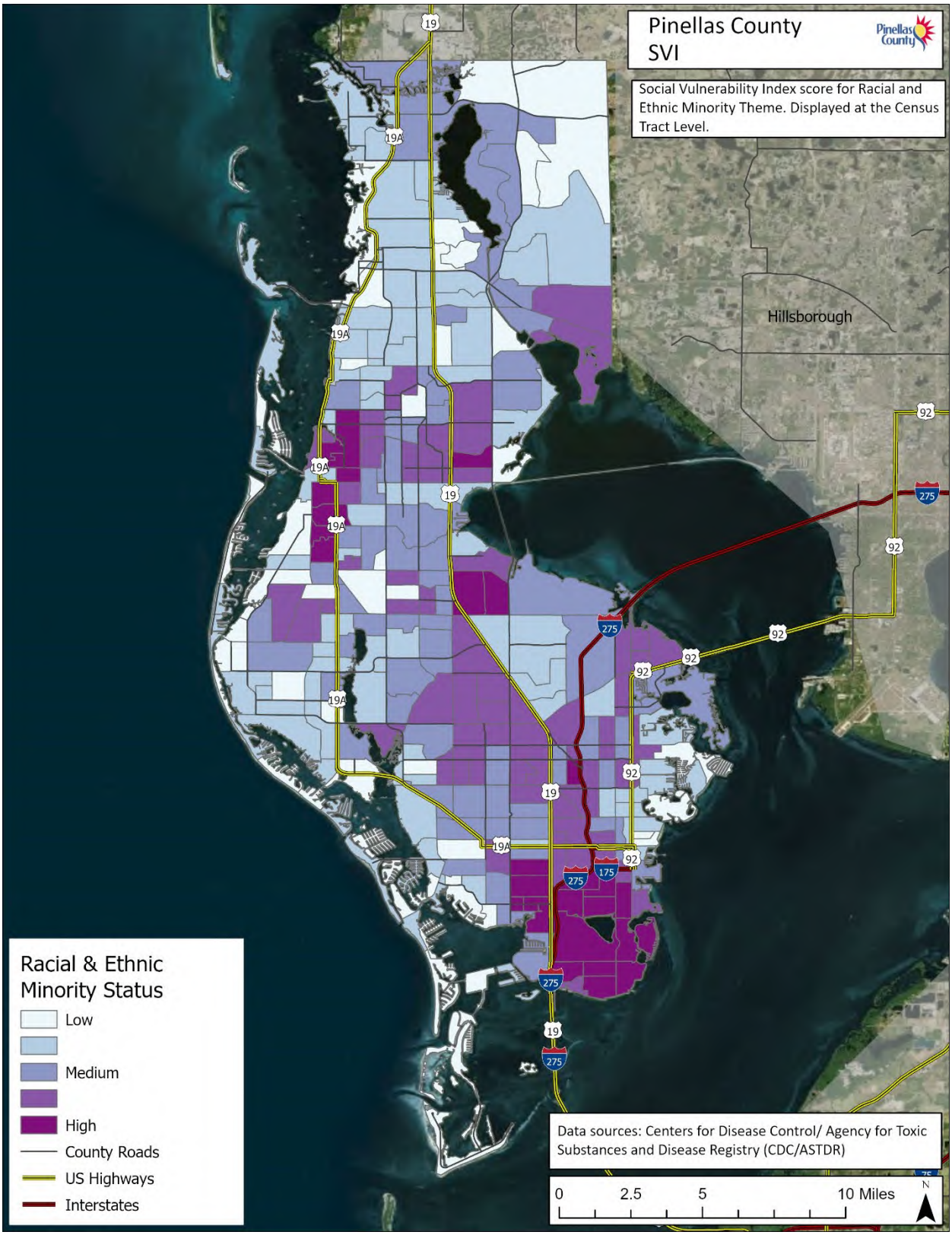
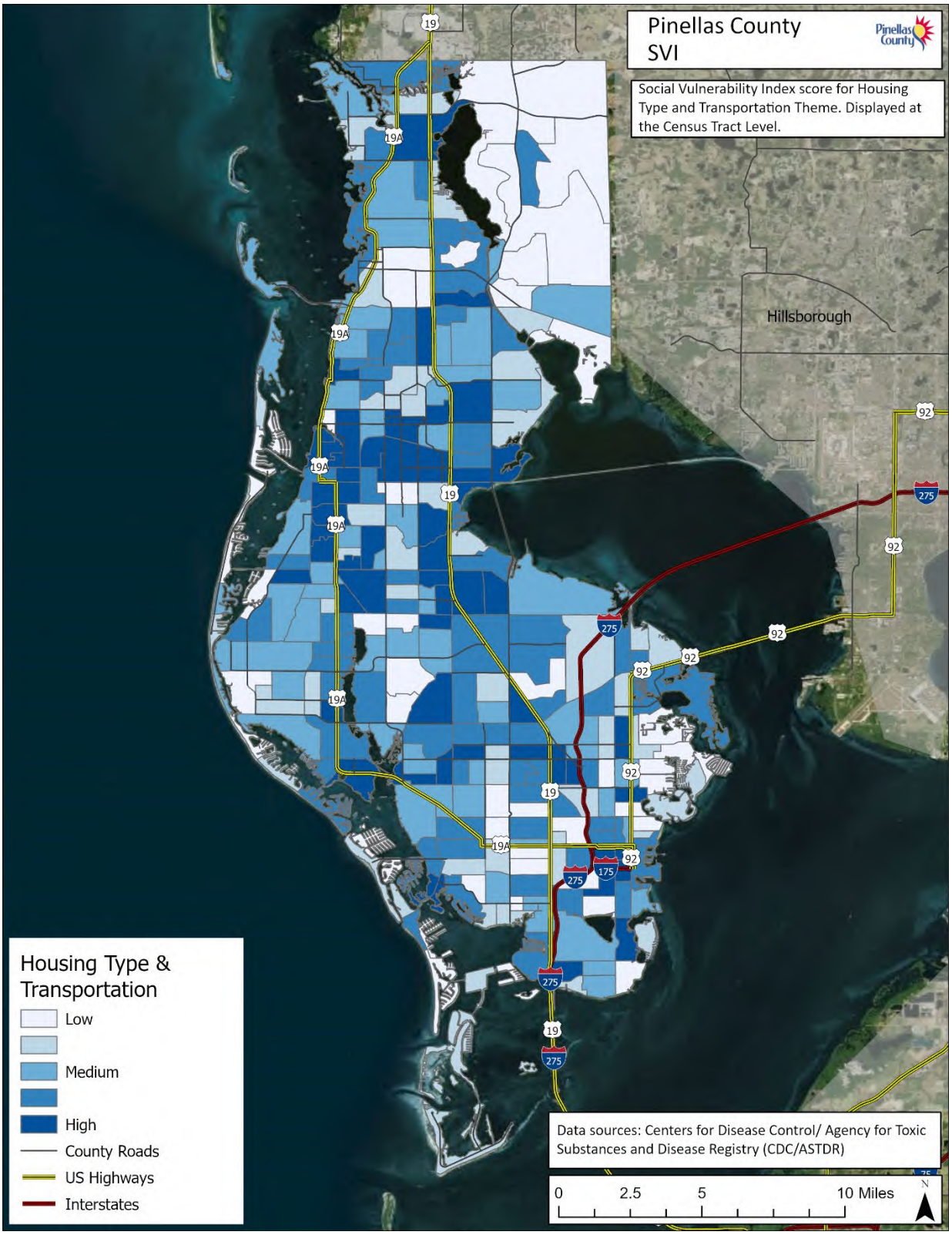


Figure 4.15: Social Vulnerability in Pinellas County – Housing Type and Transportation



Development Trends and Changes in Vulnerability

Since the previous LMS was approved, Pinellas County has experienced limited growth and development. The table below shows the number of living units constructed since 2020 according to the Pinellas County Property Appraiser. It should be noted that the appraiser data contains information up to the year 2023.

Table 4.6: Building Counts for Pinellas County

Location	Total Living	Living Units Built Post-2020	% of Living Units Built
Belleair	2,552	120	4.70%
Belleair Beach	1,315	11	0.84%
Belleair Bluffs	1,560	4	0.26%
Belleair Shore	54	2	3.70%
Clearwater	93,495	2,311	2.47%
Dunedin	23,229	263	1.13%
Gulfport	7,696	58	0.75%
Indian Rocks Beach	4,001	82	2.05%
Indian Shores	2,766	40	1.45%
Kenneth City	2,738	0	0.00%
Largo	52,223	1,068	2.05%
Madeira Beach	4,901	258	5.26%
North Redington Beach	1,675	9	0.54%
Oldsmar	10,838	44	0.41%
Pinellas Park	27,732	251	0.91%
Redington Beach	1,046	16	1.53%
Redington Shores	2,238	21	0.94%
Safety Harbor	9,561	66	0.69%
St. Petersburg	165,063	7,069	4.28%
St. Pete Beach	10,240	41	0.40%
Seminole	31,084	115	0.37%
South Pasadena	3,935	3	0.08%
Tarpon Springs	18,515	637	3.44%
Treasure Island	7,693	104	1.35%
Unincorporated	40,612	277	0.68%
Pinellas County Total	526,762	14,119	2.68%

The table below shows population estimates for the county with data taken from the American Community Survey 2017-2022 5-year estimates.

Table 4.7: Pinellas County Jurisdictions Population Estimates 2017-2022

Location	Population Estimates						
	2017	2018	2019	2020	2021	2022	% change 2017-2022
Belleair	3,982	4,097	4,146	4,198	4,266	4,295	7.86%
Belleair Beach	1,562	1,545	1,485	1,472	1,522	1,512	-3.20%
Belleair Bluffs	2,296	2,273	2,329	2,307	2,436	2,476	7.84%
Belleair Shore	86	87	80	96	85	87	1.16%
Clearwater	112,794	114,015	115,159	115,975	116,616	116,984	3.71%
Dunedin	36,099	36,244	36,381	36,480	36,110	36,089	-0.03%
Gulfport	12,222	12,280	12,335	12,334	11,830	11,796	-3.49%
Indian Rocks Beach	4,192	4,223	4,243	4,269	3,740	3,689	-12.00%
Indian Shores	1,354	1,292	1,189	1,232	1,133	1,182	-12.70%
Kenneth City	5,052	5,017	5,127	5,119	5,046	5,043	-0.18%
Largo	82,433	83,243	84,130	84,666	82,505	82,541	0.13%
Madeira Beach	4,352	4,284	4,300	4,303	3,947	3,931	-9.67%
North Redington Beach	1,417	1,359	1,242	1,246	1,148	1,349	-4.80%
Oldsmar	14,211	14,444	14,657	14,824	14,800	14,877	4.69%
Pinellas Park	51,788	52,291	52,857	53,486	53,130	53,352	3.02%
Redington Beach	1,518	1,397	1,293	1,233	1,243	1,320	-13.04%
Redington Shores	2,222	2,262	2,176	2,115	2,043	2,078	-6.48%
Safety Harbor	17,484	17,663	17,803	17,893	17,093	17,087	-2.27%
St. Petersburg	256,031	259,041	261,338	264,001	258,245	259,343	1.29%
St. Pete Beach	9,529	9,572	9,587	9,603	8,963	8,905	-6.55%
Seminole	18,206	18,542	18,657	18,772	19,224	19,287	5.94%
South Pasadena	5,061	5,071	5,088	5,090	5,319	5,334	5.39%
Tarpon Springs	24,686	24,974	25,176	25,389	25,138	25,355	2.71%
Treasure Island	6,844	6,875	6,889	6,910	6,620	6,590	-3.71%
Unincorporated	277,223	275,784	276,999	277,972	275,787	275,416	-0.65%
PINELLAS COUNTY TOTAL	949,842	957,875	964,666	970,985	957,989	959,918	1.06%

Flood Hazard Profile

1. Flood Description

A flood or flooding event refers to the general or temporary conditions of partial or complete inundation of normally dry land areas from the overflow of inland or tidal water and of surface water runoff from any source. Floodplains are defined as any land areas susceptible to being inundated by water from any flooding source. While many people underestimate the severity of floods, loss of life and property from flooding are real threats in Florida. Flood stages are the water elevations at which varying levels of damage to personal property occurs. Locally heavy precipitation may produce flooding in areas other than delineated floodplains or along recognized drainage channels. If local conditions cannot accommodate intense precipitation through a combination of infiltration and surface runoff, water may accumulate and cause flooding.

Types of Flooding

In Florida, several variations of flooding occur due to the effects of severe thunderstorms, tropical cyclones, seasonal rain, and other weather-related conditions. This hazard profile will focus on two broad categories of flooding, inland flooding and coastal flooding.

- Inland Flooding
    - Riverine Reach
    - Flash Floods
    - Dam or Dike Failure
- Coastal Flooding
    - Tidal Flooding

Inland or Riverine Flooding

Florida's low-lying topography combined with its subtropical climate makes it highly vulnerable to inland or riverine flooding. Riverine flooding occurs when the flow of runoff is greater than the carrying capacities of the natural drainage systems. Flood damage is proportional to the volume and the velocity of the water. High volumes of water can move heavy objects and undermine roads and bridges. Flooding can occur as a result of precipitation upstream without any precipitation occurring near the flooded areas.

Flash floods present more significant safety risks than other riverine floods because of the rapid onset, the high water velocity, the debris load, and the potential for channel scour. In addition, more than one flood crest may result from a series of fast-moving storms. Sudden destruction of structures and the washout of access routes may result in the loss of life.

Although rural flooding is dangerous to fewer people and may be less costly than urban flooding, it can cause great damage to agricultural operations.

The U.S. Geological Survey has established a system of monitoring stations to retrieve data about stream flow conditions. This system works in real time for flood warnings and for short-term trends.

The system is accessible at the following website: http://waterdata.usgs.gov/fl/nwis/rt.

Riverine Reach

The influence of tides and storm surges on river stage gradually increases the flood levels in bodies of water. Tides affect river stages at low and medium flows in the upper tidal reach and at all flows in the lower tidal reach. In the lower part of the lower tidal reach, stages during storm surges are higher than river flood stages. Soils are present in all riverine wetland forests, but the most nutrient-rich swamps are dry during low-flow periods. Most surface soils in the deepest riverine swamps, upper and lower tidal swamps and lower tidal mixed forests are continuously saturated mucks.

Upper Tidal Reach

Upper tidal mixed forests are found on low levees or in transitional areas between swamps and higher forest types. Upper tidal swamps are present at elevations below median monthly high stage and usually have surface soils that are permanently saturated mucks.

Lower Tidal Reach

The lower tidal reach in a floodplain is found on elevations that do not receive regular tidal inundation or frequent river flooding but have a high-water table and are briefly inundated by storm surges several times a decade. Lower tidal mixed forests include swamps with numerous small reaches and are found on deep muck soils that are below the elevation of the median daily or monthly high stage.

Flash Flooding

As Florida's population has rapidly increased since 1960, so has the profile of the state's landscape. Rapid urbanization has manifested itself in the form of increased impervious surface areas such as asphalt roads, concrete areas, sidewalks, and structures. This increase has led to a much higher level of flash flooding during heavy rainstorms and flooding events. The design of urban drainage systems in the past has concentrated on disposing of storm water as rapidly and efficiently as possible in a concentrated area; however, stormwater is often collected and transported elsewhere without a comprehensive strategy for dealing with it as a system. As a result, drainage in many of Florida's urbanized areas is often "piecemeal" and lacking comprehensive design.

Dam/Dike Failure Flooding

The failure of a dam or dike may also result in a flood event. The amount of water impounded by a dam is measured in acre-feet; an acre-foot of water is the volume that covers an acre of land to a depth of one foot. Dam failures are not routine. Two factors influence the potential severity of full or partial dam failure: (1) The amount of water impounded, and (2) the density, type, and value of development downstream.

National Inventory of Dams[3] assigns structures with a high, significant, or low hazard classification based on potential for loss of life and damage to property if the dam fails. Classifications are updated based on development and changing demographics upstream and downstream.

[3] https://nid.sec.usace.army.mil/#/

The National Inventory of Dams, a congressionally authorized database maintained by USACE, documents dams in the United States. Out of the 10 dams in Pinellas County, Taylor Lake Dam is the only privately owned dam along the McKay Creek. The Sawgrass Lake structure and Structure 551 on Lake Tarpon Canal, which are owned by the SWFWMD, and Lake Seminole Dam, owned by the local government (Pinellas County), are identified in Pinellas County. There is an Emergency Action Plan for Structure 551 on Lake Tarpon Canal.[4]

Dam hazard is a term indicating the potential hazard to the downstream area resulting from failure or operational errors of the dam or facilities. The level of risk associated with dams is classified into three categories based on definitions from USACE:

- Low: A dam where failure or operational error results in no probable loss of human life and low economic and/or environmental loss. Losses are principally limited to the owner's property.
- Significant: A dam where failure or operational error results in no probable loss of human life but can cause economic loss, environmental damage, disruption of lifeline facilities, or affect other concerns. These dams are often located in predominantly rural or agricultural areas but could be in areas with more dense populations and significant infrastructure.
- High: A dam where failure or operational error will probably cause loss of human life.

Pinellas County has 10 dams identified within the National Dam Inventory, with two of them being identified as "high", three as "significant", and the remaining five as "low".

Table 4.8: National Dam Inventory Pinellas County

Dam Name	Hazard Potential Classification	Emergency Action Plan	Owner Name	Primary Purpose
Unnamed Dam	High	No	NORTH BAY HILLS ASSOCIATION, LTD.	Flood Risk Reduction
Walsingham Reservoir	High	No	PINELLAS COUNTY	Recreation
Taylor Lake	Significant	No	PINELLAS COUNTY	Recreation
Alligator Lake Weir	Significant	No	PINELLAS COUNTY	Flood Risk Reduction
Feather Sound Structure	Significant	No	PINELLAS COUNTY	Flood Risk Reduction
Structure 551	Low	Yes	SWFWMD	Flood Risk Reduction
Sawgrass Lake Structure	Low	No	SWFWMD	Flood Risk Reduction
SWFWMD Lake Tarpon Control Structure (S-551)	Low	No	SWFWMD	Flood Risk Reduction
Lake Seminole Dam	Low	No	PINELLAS COUNTY	Recreation
Lake Maggiore Operable Structure	Low	No	CITY OF ST. PETERSBURG	Flood Risk Reduction

[4] https://www.southeastcoastalmaps.com/Pages/Projects/West-Florida.aspx

The Florida DEP coordinates the Florida Dam Safety Program and maintains information for over 1,200 federal and non-federal dams in the state.[5] It has been determined that the river systems and the immediate areas around these dams are the zones with the highest vulnerability to flooding resulting from dam failure. Overall dam failure is a low priority with respect to flooding since the risks of coastal and inland flooding are much higher.

Many different outside forces can cause dam failure, including prolonged periods of rain or flooding, landslides into reservoirs, failure of dams upstream, high winds, and earthquakes. Failure due to natural events such as earthquakes or tornadoes is significant because there is little to no advance warning. Improper design and maintenance, inadequate spillway capacity, internal erosion or "piping" within a dam, or a deliberate attack may also cause dam failure.[6]

National statistics show that overtopping of dams due to inadequate spillway design, debris blockage of spillways, or settlement of the dam crest account for 34% of all dam failures. Foundation defects, including settlement and slope instability, account for 30% of all failures. Piping and seepage cause 20% of national dam failures. This includes internal erosion caused by seepage, seepage and erosion along hydraulic structures, leakage through animal burrows, and cracks in the dam. The remaining 16% of failures are caused by other means, including the failure of conduits and valves.[7]

Coastal Flooding

Coastal flooding is usually the result of a severe weather system such as a severe thunderstorm, hurricane, or tropical storm with high winds. Water driven ashore by the wind, known as a storm surge, is the main cause of coastal flooding.

The damaging effects to structures in beach areas are caused by a combination of higher levels of storm surge, winds, waves, rains, erosion, and battering by debris. Sea walls, jetties, and the beach areas are affected by coastal flooding, and the loss over a period of time becomes costly. Loss of life and property damage are often more severe because a storm surge involves velocity wave action and accompanying winds. Storm surge is discussed in depth in the *Tropical Cyclone Hazard Profile*.

Tidal Flooding

A tide is the periodic rise and fall of a body of water resulting from gravitational interactions between the Sun, Moon, and Earth.[8] Tides are very predictable and most coastal areas experience two high tides and two low tides every day. High tides occur about every 12 hours and 25 minutes and it takes about half that time (6 hours and 12.5 minutes) for the tide to go from high to low or low to high.[9]

King tides are higher than normal tides and usually occur in the autumn months from September to November. These tides tend to be 6 inches or more above the average high tide of that area. Similar to regular high and low tides, king tides are predictable and usually last for 5–7 days.[10] King tides can cause flooding of streets and even structures. It is also important to note that weather conditions and

[5] https://floridadep.gov/water/engineering-hydrology-geology/content/florida-dam-safety-program
[6] http://www.damsafety.org/news/?p=412f29c8-3fd8-4529-b5c9-8d47364c1f3e
[7] https://www.damsafety.org/Roadmap#Dams%20in%20the%20U.S.
[8] http://tidesandcurrents.noaa.gov/glossary.html
[9] http://oceanservice.noaa.gov/education/kits/tides/tides05_lunarday.html
[10] http://www.southeastfloridaclimatecompact.org/wp-content/uploads/2016/06/KingTideToolkit.pdf

concurrent rainfall can exacerbate the effects of king tides.

Advisories

Below are the advisories that the NWS issues regarding flooding hazards:[11]

- Coastal Flood Watch - A Coastal Flood Watch is issued when moderate to major coastal flooding is possible. Such flooding would potentially pose a serious risk to life and property.
- Coastal Flood Warning - A Coastal Flood Warning is issued when moderate to major coastal flooding is occurring or imminent. This flooding will pose a serious risk to life and property.
- Costal Flood Advisory - A Coastal Flood Advisory is issued when minor or nuisance coastal flooding is occurring or imminent.
- Flood Watch - A Flood Watch is issued when conditions are favorable for flooding. It does not mean flooding will occur, but it is possible.
- Flash Flood Warning - A Flash Flood Warning is issued when flash flooding is imminent or occurring
- Flood Warning - A Flood Warning is issued when flooding is imminent or occurring.
- River Flood Watch - A River Flood Watch is issued when river flooding is possible at one or more forecast points along a river.
- River Flood Warning - A River Flood Warning is issued when river flooding is occurring or imminent at one or more forecast points along a river.

Floodplains

According to FEMA, a floodplain is any land area susceptible to being inundated by floodwaters, from any source. The USGS further defines a floodplain as the relatively flat lowland that borders a river and is usually dry but is subject to flooding.[12]

To establish floodplains, FEMA adopted the base flood elevation, which is the level of a flood that has a 1% probability of occurring in any given year. This level of flood is referred to as the base flood, the 1% flood, or the 100-year flood. The area that would be inundated by a base flood is called the 100-year floodplain. This is often misunderstood because many assume such a flood would only occur once every 100 years; however, as explained, the “100” number is referring to the 1% chance of the flood reaching that specified floodplain. The same theory is applied to understand the 500-year floodplain; it has a 0.2% chance of occurring each year.

FEMA has identified and mapped areas of flood risk on Flood Insurance Rate Maps and the zones are called Special Flood Hazard Areas (SFHA). The 100-year floodplain is considered a high-risk area and is denoted as Zone A. The 500-year floodplain is shown by the notation Zone C or Zone X. The areas between the 100 and 500-year floodplains are shown using Zone B and Zone X. Additionally, high risk coastal areas are denoted as Zone V. This information is shown in the table below.

[11] https://www.weather.gov/lwx/warningsdefined
[12] https://pubs.usgs.gov/fs/FS-229-96/

Table 4.9: FEMA Flood Zone Designations[13]

Zone	Description
Low to Moderate Risk Areas	
C and X (unshaded)	Area of minimal flood hazard, usually depicted on FIRMs as above the 500-year flood level. Zone C may have ponding and local drainage problems that don't warrant a detailed study or designation as a base floodplain. Zone X is the area determined to be outside the 500-year flood and protected by levee from 100-year flood.
B and X (shaded)	Area of moderate flood hazard, usually the area between the limits of the 100-year and 500-year floods. B Zones are also used to designate base floodplains of lesser hazards, such as areas protected by levees from 100-year flood, or shallow flooding areas with average depths of less than one foot or drainage areas less than 1 square mile.
High Risk Areas	
A	Areas with a 1% annual chance of flooding and a 26% chance of flooding over the life of a 30-year mortgage. Because detailed analyses are not performed for such areas; no depths or base flood elevations are shown within these zones.
AE	The base floodplain where base flood elevations are provided. AE Zones are now used on new format FIRMs instead of A1-A30 Zones.
A1-30	These are known as numbered A Zones (e.g., A7 or A14). This is the base floodplain where the FIRM shows a BFE (old format).
AH	Areas with a 1% annual chance of shallow flooding, usually in the form of a pond, with an average depth ranging from 1 to 3 feet. These areas have a 26% chance of flooding over the life of a 30-year mortgage. Base flood elevations derived from detailed analyses are shown at selected intervals within these zones.
AO	River or stream flood hazard areas, and areas with a 1% or greater chance of shallow flooding each year, usually in the form of sheet flow, with an average depth ranging from 1 to 3 feet. These areas have a 26% chance of flooding over the life of a 30-year mortgage. Average flood depths derived from detailed analyses are shown within these zones.
AR	Areas with a temporarily increased flood risk due to the building or restoration of a flood control system (such as a levee or a dam). Mandatory flood insurance purchase requirements will apply, but rates will not exceed the rates for unnumbered A zones if the structure is built or restored in compliance with Zone AR floodplain management regulations.
A99	Areas with a 1% annual chance of flooding that will be protected by a federal flood control system where construction has reached specified legal requirements. No depths or base flood elevations are shown within these zones.
High Risk Coastal Areas	
V	Coastal areas with a 1% or greater chance of flooding and an additional hazard associated with storm waves. These areas have a 26% chance of flooding over the life of a 30-year mortgage. No base flood elevations are shown within these zones.
VE, V1-30	Coastal areas with a 1% or greater chance of flooding and an additional hazard associated with storm waves. These areas have a 26% chance of flooding over the life of a 30-year mortgage. Base flood elevations derived from detailed analyses are shown at selected intervals within these zones.
Undetermined Risk Areas	

[13] https://www.fema.gov/flood-zones

Zone	Description
D	Areas with possible but undetermined flood hazards. No flood hazard analysis has been conducted. Flood insurance rates are commensurate with the uncertainty of flood risk.

Mitigation measures are taken to reduce the flood risk in the floodplain; however, development is not prohibited. Management of floodplains is accomplished through building codes, local ordinances, and zoning regulations to mitigate the damage from floodwaters. FEMA has furthered flood mitigation by adopting a new Federal Flood Risk Management Standard (FFRMS). This new policy aims to build a more resilient future and encourages federal agencies to consider future flood risks in tandem with current hazards. FFRMS increases the building standard for Federal assets and any projects receiving federal funding through FEMA's grant programs. The floodway is the channel of a watercourse and those portions of the adjoining floodplain that needs to be kept open to provide for the passage of a base flood. The floodway fringe is the portion of the floodplain which when fully developed should not result in more than a one-foot rise in flood levels.

Floodplains cover a very large area in Florida. Pressure from developers to build, and the potential tax revenues from developments, make it difficult to keep floodplains undeveloped and makes floodplain management challenging. This lack of control coupled with inadequate information available regarding the extent of floodplains and flood prone areas typically leads to unsound development on floodplain land.

Floodplains offer many benefits to communities by providing natural flood and erosion control, natural water filtration processes, habitats for plant and animal communities, as well as recreational areas and scientific field-study. Acting as natural flood storage areas, floodplains decrease the destructive force of floodwaters downstream by reducing the velocity of floodwaters. Though floodplain vegetation is partly responsible for slowing the rush of floodwaters, it also serves other valuable functions such as reducing soil erosion, trapping floodwater sediment that increases soil fertility by providing nutrients to environments, and reducing sediment load downstream.

The chemical filtration processes and biological activity that occur within a floodplain can also help reduce flood-generated pollution from agricultural and urban runoff and sewage overflow. Floodplains preserve and recharge groundwater supplies and provide opportunities for recreation, education, and scientific study. Urban expansion may encourage development in floodplains that would otherwise be reserved for these benefits.

National Flood Insurance Program and Repetitive Loss Properties

One of the consequences of flooding is repetitive loss. A repetitive loss property is one for which two or more losses of at least $1,000 each have been paid by the National Flood Insurance Program (NFIP) over a rolling 10-year period.

As of September 2024, all 24 jurisdictions and the unincorporated area of the county participate in the NFIP. Furthermore, there are 129,698 NFIP policies in Pinellas County, with flood insurance coverage totaling nearly $32.7 billion. According to the Florida NFIP Insurance Report and the NFIP Policy and Claims Report, there have been 22,281 NFIP claims in Pinellas County since the beginning of the program in 1978 in the county, with the total paid equaling almost $1.4 billion. With a 100% participation rate it is clear that the NFIP is extremely important to Pinellas County. Furthermore, the county pays $154.4 million in insurance premiums each year to the NFIP, proving that Pinellas County is also

important to the NFIP program. For more information about the NFIP, please see the *Mitigation Strategy Section*.

Table 4.10: Pinellas County NFIP Policies by Jurisdiction, as of September 2024

Jurisdiction	Number of Policies	Insurance In-Force	Premium In-Force
Belleair	743	$203,068,000	$604,193
Belleair Beach	1,021	$260,355,000	$2,547,084
Belleair Bluffs	209	$50,695,000	$63,706
Belleair Shore	34	$11,130,000	$127,261
Clearwater	12,150	$3,098,282,000	$10,517,865
Dunedin	4,112	$1,002,567,000	$5,153,320
Gulfport	2,909	$713,679,000	$2,790,252
Indian Rocks Beach	2,814	$693,189,000	$4,434,024
Indian Shores	2,686	$608,970,000	$1,913,329
Kenneth City	208	$47,610,000	$158,591
Largo	2,859	$732,192,000	$3,053,322
Madeira Beach	3,200	$773,038,000	$4,922,958
North Redington Beach	1,260	$274,739,000	$1,599,228
Oldsmar	2,829	$814,668,000	$4,521,273
Pinellas Park	2,904	$829,930,000	$2,428,623
Redington Beach	726	$202,746,000	$2,053,033
Redington Shores	1,732	$435,788,000	$2,149,250
Safety Harbor	1,044	$312,719,000	$877,700
St. Petersburg	38,311	$9,588,007,000	$51,070,803
St. Pete Beach	6,761	$1,585,718,000	$11,180,721
Seminole	2,513	$600,684,000	$2,374,962
South Pasadena	2,976	$683,518,000	$2,819,179
Tarpon Springs	3,165	$845,102,000	$4,610,181
Treasure Island	5,224	$1,190,792,000	$7,789,130
Unincorporated	27,272	$7,117,631,000	$24,651,038
PINELLAS COUNTY TOTAL	**129,698**	**$32,676,817,000**	**$154,411,026**

Table 4.11: Pinellas County NFIP Claims by jurisdiction, 1978–2024

Jurisdiction	Total Number of Claims	Total Paid in Claims
Belleair	134	$1,681,584.00
Belleair Beach	704	$9,836,080.00
Belleair Bluffs	8	$89,610.00
Belleair Shore	51	$522,305.00
Clearwater	1,495	$15,092,847.00
Dunedin	814	$11,545,826.00
Gulfport	308	$2,125,348.00
Indian Rocks Beach	1,000	$6,369,952.00
Indian Shores	301	$2,586,973.00
Kenneth City	18	$1,461,262.00

Largo	286	$29,915,941.00
Madeira Beach	2,401	$1,991,874.00
North Redington Beach	233	$2,610,183.00
Oldsmar	337	$18,294,640.00
Pinellas Park	670	$4,196,522.00
Redington Beach	1,324	$978,770.00
Redington Shores	501	$1,259,307,129.00
Safety Harbor	88	$13,003,869.00
St. Petersburg	7,537	$53,244.00
St. Pete Beach	1,588	$821,200.00
Seminole	44	$9,018,181.00
South Pasadena	96	$15,304,867.00
Tarpon Springs	697	$1,681,584.00
Treasure Island	1,646	$9,836,080.00
Unincorporated	n/a	n/a
PINELLAS COUNTY TOTAL	**22,281**	$1,406,808,207.00

Repetitive Loss (RL) properties are the focus of strong mitigation programs. Mitigating RL and Severe Repetitive Loss (SRL) properties is strategic, because if there are properties that are known to flood, targeting them to mitigate will prevent flooding and losses in likely properties and give a high return on investment.

This table summarizes the losses incurred by RL properties in Pinellas County. In total, there are 1,810 RL properties in the county and 599 SRL properties that have experienced 7,765 losses.

Table 4.12: Pinellas County Repetitive Loss Properties Summary

Jurisdiction	Number of RL Properties	Number of SRL Properties	Total Loss Occurrences
Belleair	6	2	19
Belleair Beach	62	23	208
Belleair Bluffs	0	0	2
Belleair Shore	3	0	7
Clearwater	90	12	296
Dunedin	83	19	286
Gulfport	19	6	78
Indian Rocks Beach	37	5	125
Indian Shores	18	0	63
Kenneth City	0	0	0
Largo	15	0	67
Madeira Beach	205	76	1,080
North Redington Beach	10	3	40
Oldsmar	8	2	32
Pinellas Park	7	2	79
Redington Beach	129	50	608
Redington Shores	29	8	134
Safety Harbor	3	1	16

Jurisdiction	Number of RL Properties	Number of SRL Properties	Total Loss Occurrences
St. Petersburg	638	294	2,848
St. Pete Beach	92	27	390
Seminole	1	0	2
South Pasadena	5	1	22
Tarpon Springs	80	17	250
Treasure Island	140	33	599
Unincorporated	130	18	514
PINELLAS COUNTY TOTAL	**1,810**	**599**	**7,765**

This table shows the type of RL properties located in Pinellas County. In total, there are 1,710 residential RL properties, 92 commercial RL properties, totaling 1,802 Repetitive Loss properties in the county.

Table 4.13: Pinellas County Repetitive Loss Properties by Type

Jurisdiction	Residential	Commercial	Total
Belleair	6	0	6
Belleair Beach	59	3	62
Belleair Bluffs	0	0	0
Belleair Shore	3	0	3
Clearwater	81	9	90
Dunedin	82	1	83
Gulfport	11	1	12
Indian Rocks Beach	36	1	37
Indian Shores	18	0	18
Kenneth City	0	0	0
Largo	13	2	15
Madeira Beach	197	8	205
North Redington Beach	9	1	10
Oldsmar	8	0	8
Pinellas Park	4	3	7
Redington Beach	129	0	129
Redington Shores	29	0	29
Safety Harbor	2	1	3
St. Petersburg	628	10	638
St. Pete Beach	69	23	92
Seminole	0	0	0
South Pasadena	5	0	5
Tarpon Springs	71	9	80
Treasure Island	133	7	140
Unincorporated	117	13	130
PINELLAS COUNTY TOTAL	**1,710**	**92**	**1,802**

Furthermore, the NFIP's Community Rating System (CRS) is a voluntary incentive program that recognizes and encourages community floodplain management activities that exceed the minimum NFIP requirements. As a result of CRS, flood insurance premium rates are discounted to reflect the

reduced flood risk resulting from the community actions meeting the three goals of the CRS:

- Reduce flood losses
- Facilitate accurate insurance rating
- Promote the awareness of flood insurance

Currently, unincorporated Pinellas County is rated a Class 2, which provides a 40% discount on NFIP flood insurance premiums. This discount will provide an estimated total saving of $10 million for unincorporated NFIP policy holders. A Class 2 rating will be the highest CRS rating a Florida community has ever achieved and is in the top 1% nationwide.

The county as well as 22 of the municipalities are part of the Community Rating System.

Sea Level Rise

Florida is vulnerable to sea level rise given its extensive shoreline and low elevation. If sea levels do rise, a number of consequences including the salination of fresh water sources, land loss, and increases in storms and flooding could be observed.

Rising sea level affects the salinity of both surface water and ground water through salt-water intrusion. Shallow coastal aquifers such as those in Florida are at risk to this salt-water intrusion process. The freshwater Everglades currently recharges Florida's Biscayne aquifer, the primary water supply to the Florida Keys. As rising water levels submerge low-lying portions of the Everglades, portions of the aquifer would become saline.

Communities that withdraw water from aquifers in various parts of Florida, including the Biscayne Aquifer in southeastern Florida, the Floridian Aquifer along the northeastern coast and in the Florida panhandle, and the Tamiami Aquifer in southwestern Florida, have already experienced problems with saltwater intrusion.

As sea levels rise, water inundates and erodes coastal wetland ecosystems such as mangroves and salt marshes. Higher water levels wash away wetlands and flood previously dry land. These coastal wetland ecosystems are crucial to absorbing the impact of tropical storms and provide a breeding ground for a significant proportion of sea life.

Sea level rise would increase the vulnerability of coastal areas to flooding during storms. During a tropical storm or hurricane, storm surge would build up on top of a higher base of water resulting in damages that are more significant.

Additionally, shore erosion increases storm vulnerability by removing the dunes and beaches that otherwise provide a buffer between coastal property and storm waves and surge.

Lastly, sea level rise would result in an increase in coastal flooding from rainstorms because low areas drain more slowly as sea levels rise.

Potential Effects of Climate Change on Flooding

Inland and Riverine Flooding

A warmer atmosphere holds more water vapor and, therefore, can result in heavier and more long-

lasting rainfall events.[14] A possible global pattern is for arid areas to become drier and moist areas to become wetter. Where precipitation is enhanced, strong storms are expected to become stronger with the result that rainfall events with a given recurrence frequency, e.g. the 25-year storm, will happen more often.[15]

Coastal Flooding

A warmer atmosphere may influence three drivers of coastal flooding: rainfall intensity and frequency, storm surge intensity, and sea level. Rising sea levels would raise the base for coastal floods and storm surge resulting in greater flood depths within existing flood hazard zones; as well as landward expansion of coastal and tidal rivers and stream floodplains and storm surge zones in areas with relatively flat topography. The relationship between a given increase in sea level and the resulting expansion of a coastal flood hazard or storm surge zone depends on the slope of local coastal topography as well as the type of geologic substrate (sand, clay, gravel, rock, etc.), and the presence and type of vegetation.[16] The boundaries of coastal flood zones will expand more rapidly as the rate of sea level rise increases.[17]

If frequency of higher intensity tropical cyclones increases (see *Tropical Cyclone Hazard Profile*) coastal communities will experience the storm surge flooding associated with those stronger storms more often (Category 4 and 5 hurricanes).[18] However, storm surge height is not solely determined by hurricane intensity. It also is a function of the size and speed of the storm, the geometry and bathymetry of the coast, and the process by which the storm develops prior to landfall.[19] The effects of climate change on tropical storm size (radius of maximum wind and outer radius) have not yet been studied thoroughly.

2. Geographic Areas Affected by Flood

The entire state of Florida is particularly susceptible to flooding due to the large amounts of coastline, significant drainage systems, and the relatively low elevations. Many other factors contribute to flooding in Florida and therefore help to define the geographic area impacted by flooding. Areas along waterways, including lakes, rivers, streams and wetlands, are particularly susceptible to flooding due to heavy storms and rain or storm surge.

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[14] Peterson, T.C. et al. (2012). Explaining extreme events of 2011 from a climate perspective. Bulletin of the American Meteorological Society, July, 1044; http://journals.ametsoc.org/doi/full/10.1175/BAMS-D-12-00021.1; Williams et al. (2012). Physical climate forces. In, Burkett and Davidson (Eds.), Coastal impacts, adaptation and vulnerability: A technical input to the 2012 National Climate Assessment. http://www.coastalstates.org/wp-content/uploads/2011/03/Coastal-Impacts-Adaptation-Vulnerabilities-Oct-2012.pdf., p. 41.; http://www.ssec.wisc.edu/~kossin/articles/NCA_Coasts.pdf

[15] Knutson et al. (2010). Simulated reduction in Atlantic hurricane frequency under twenty-first-century warming conditions. Nature Geoscience, 1(6), 161.

[16] Williams et al.(2012), p. 30.

[17] AECOM (2013); Handmer et al. (2012). Changes in impacts of climate extremes: human systems and ecosystems. In, Field et al. (Eds.), Managing the risks of extreme events and disasters to advance climate change adaptation. A Special Report of Working Groups I and II of the Intergovernmental Panel on Climate Change. https://archive.ipcc.ch/pdf/special-reports/srex/SREX-Chap4_FINAL.pdf, p. 260.; https://archive.ipcc.ch/pdf/special-reports/srex/SREX-Chap4_FINAL.pdf

[18] Williams et al. (2012), pp. 29–30.

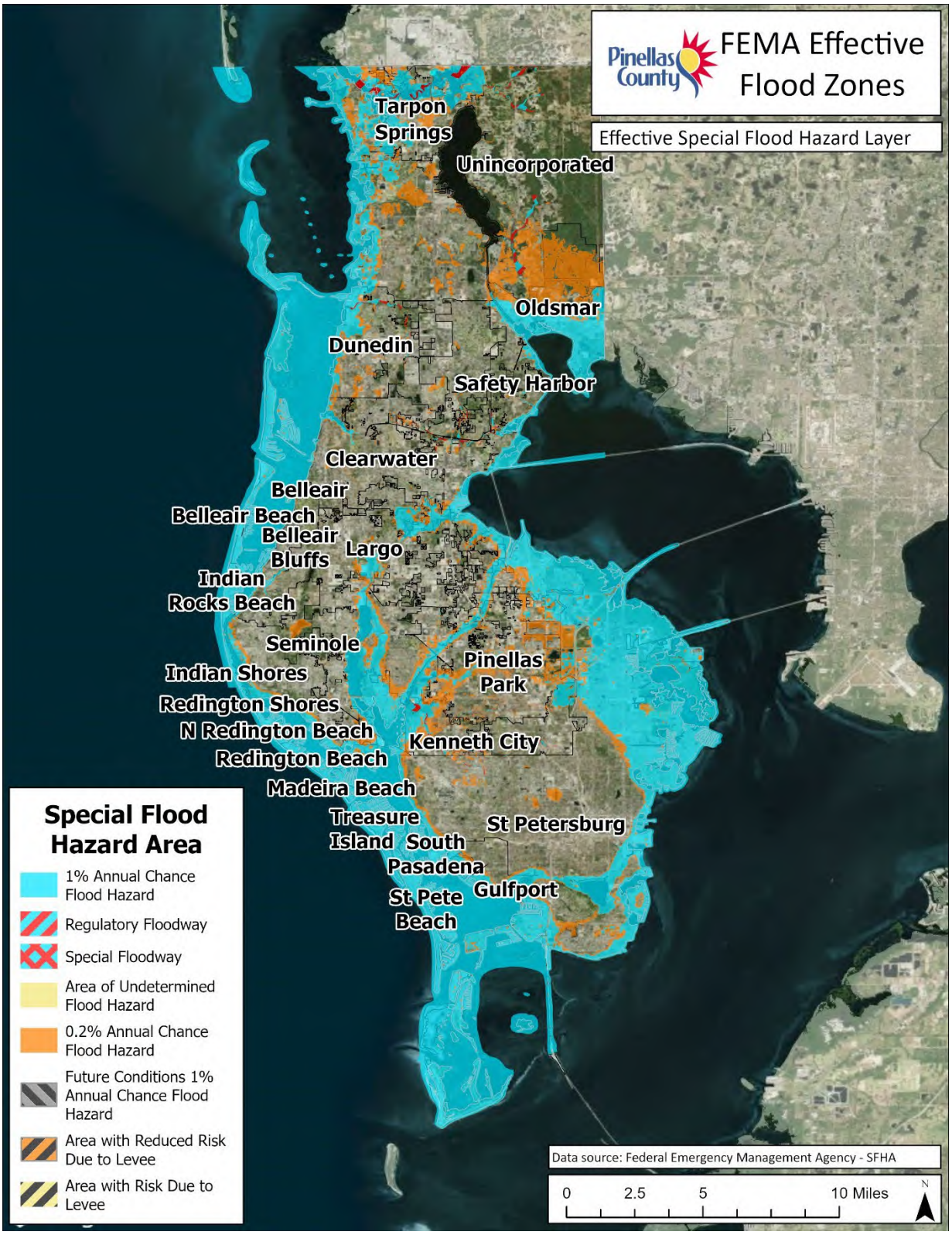
[19] Lin et al. (2012). Physically based assessment of hurricane surge threat under climate change. Nature Climate Change, 2, 462; Williams et al.(2012), p. 29.

A geographic assessment of the flooding hazard in Pinellas County was obtained using FEMA DFIRM floodplain data. This data is available for vulnerable counties in the state and it outlines the areas in the 100-year and the 500-year floodplains, with 1% annual probability and 0.2% probability of floods, respectively.

Below is a flood map showing the 100-year floodplain (including VE zones which are subject to additional hazards due to storm-induced velocity wave action) and the 500-year floodplain. The 500-year floodplain includes the areas in the 100-year floodplain, plus additional areas, which are shown in darker blue.

All communities in Pinellas are exposed to flood hazards and likely to be impacted frequently in the future. All communities have had flood insurance claims filed for damages in the past. All but two jurisdictions (Kenneth City and Seminole) have multiple repetitive loss properties. Variable climate impacts are likely to worsen exposure for coastal communities, but inland communities could also be impacted by more frequent, and higher volume precipitation events.

Figure 4.16: Pinellas County Municipalities and FEMA Effective Flood Zones



The following maps show the location of repetitive loss (RL) properties in Pinellas County. The first map displays the number of residential RL properties per jurisdiction while the second map displays commercial RL properties. These maps are based on data downloaded from the OpenFEMA Dataset: NFIP Multiple Loss Properties – v1. These maps highlight the degree at which jurisdictions are susceptible to repetitive flooding and are at risk to flood hazards.

Figure 4.17 Repetitive Loss Properties – Residential

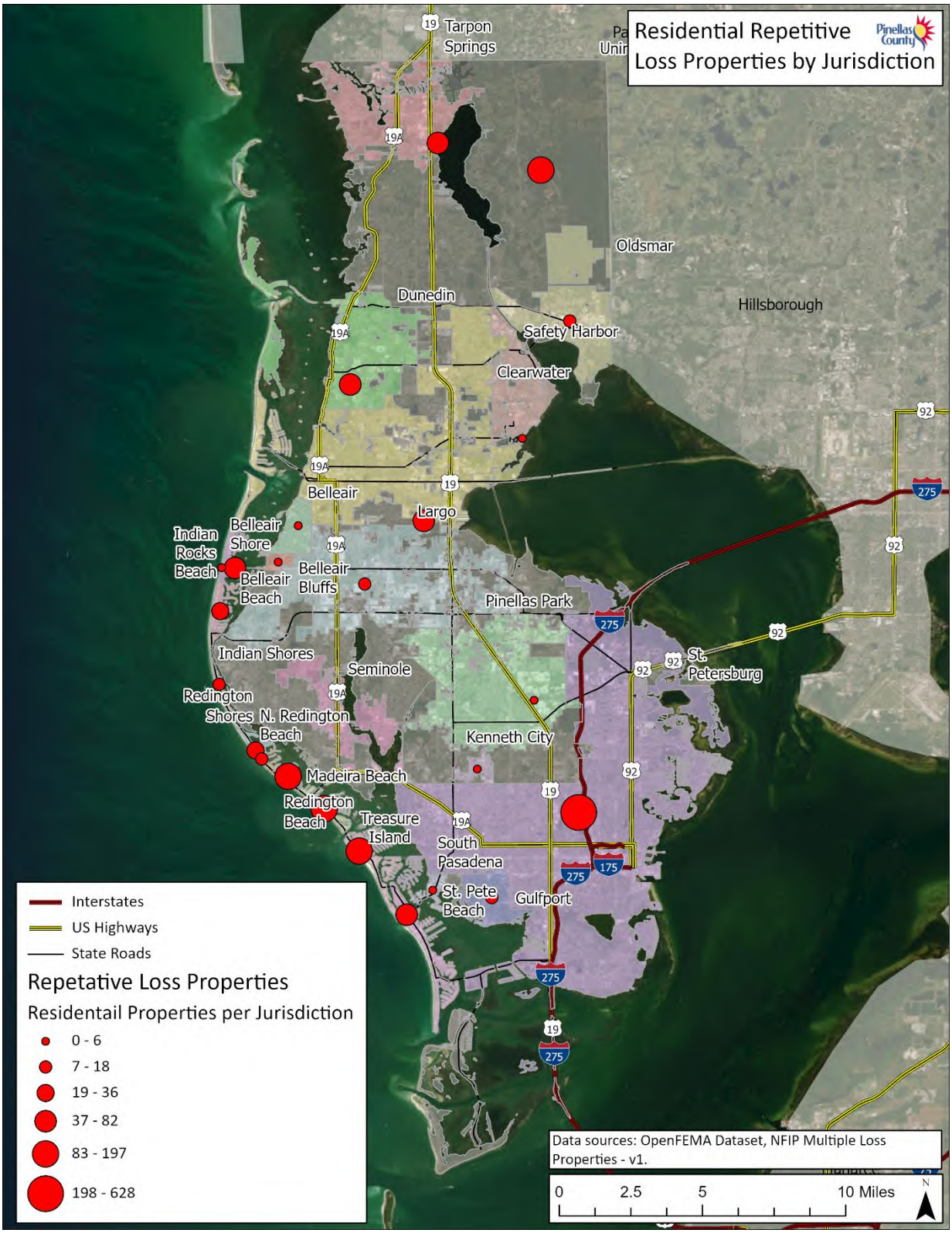
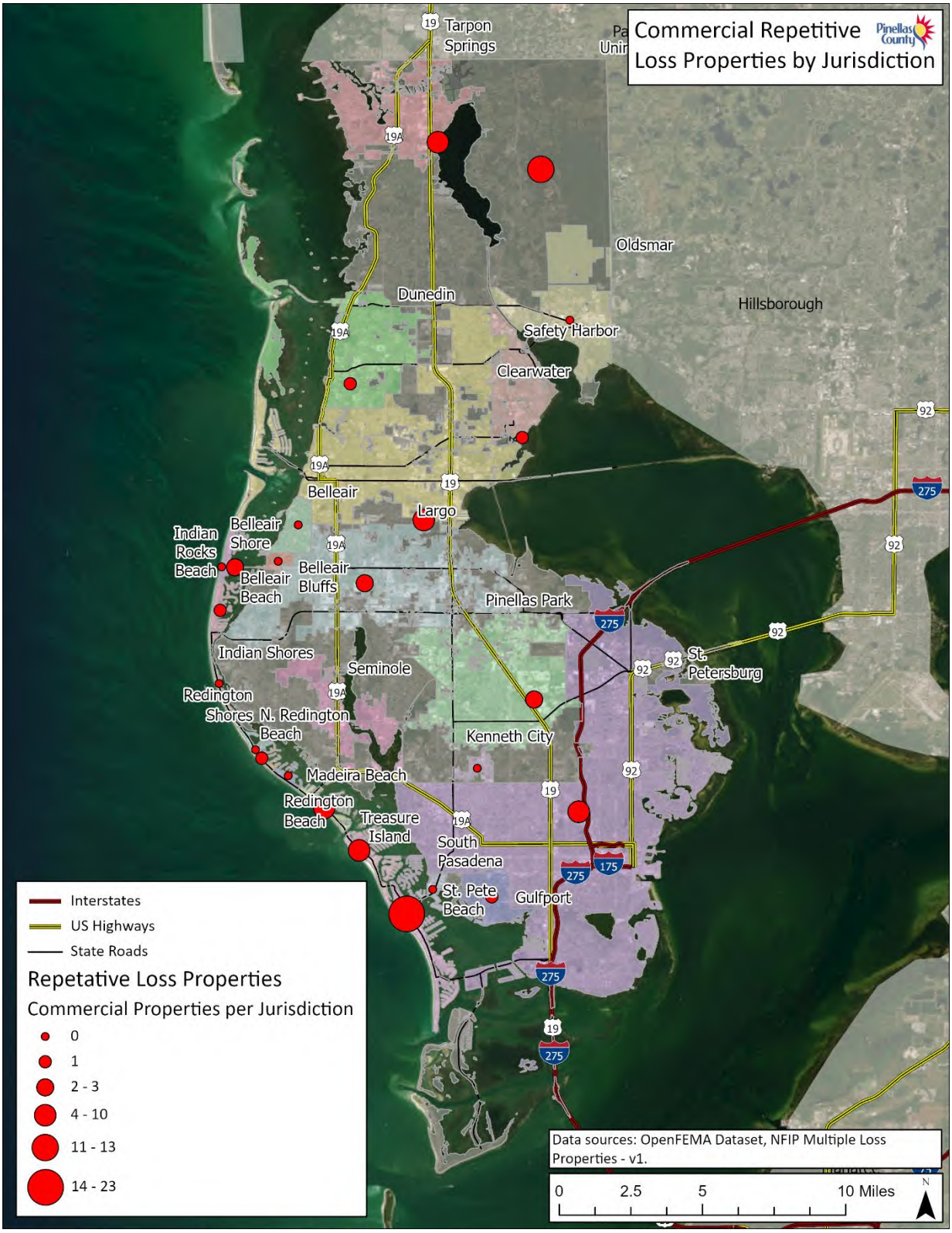


Figure 4.18: Repetitive Loss Properties – Commercial



Dam/Dike Failure Flooding

The specific locations of the dams are not provided in the plan due to security concerns.

Sea Level Rise

The maps below delineate areas that are vulnerable to potential sea level rise. They illustrate projected 1-feet, 4-feet, 7-feet, and 10-feet sea level rise as well as the depth of flooding associated with 1-f00t, 4- feet, and 7-feet sea level rise.

Figure 4.19: Projected Sea Level Rise

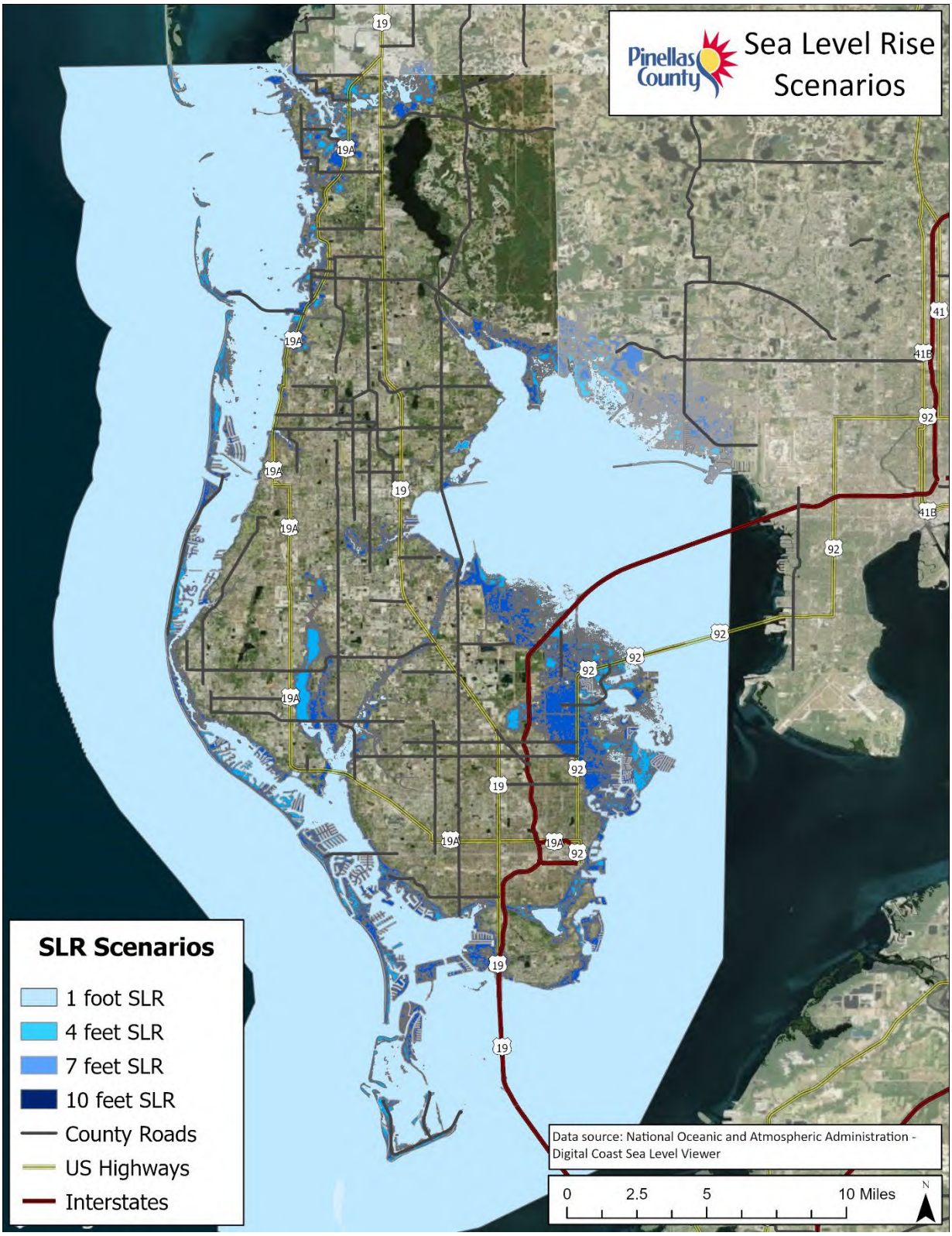


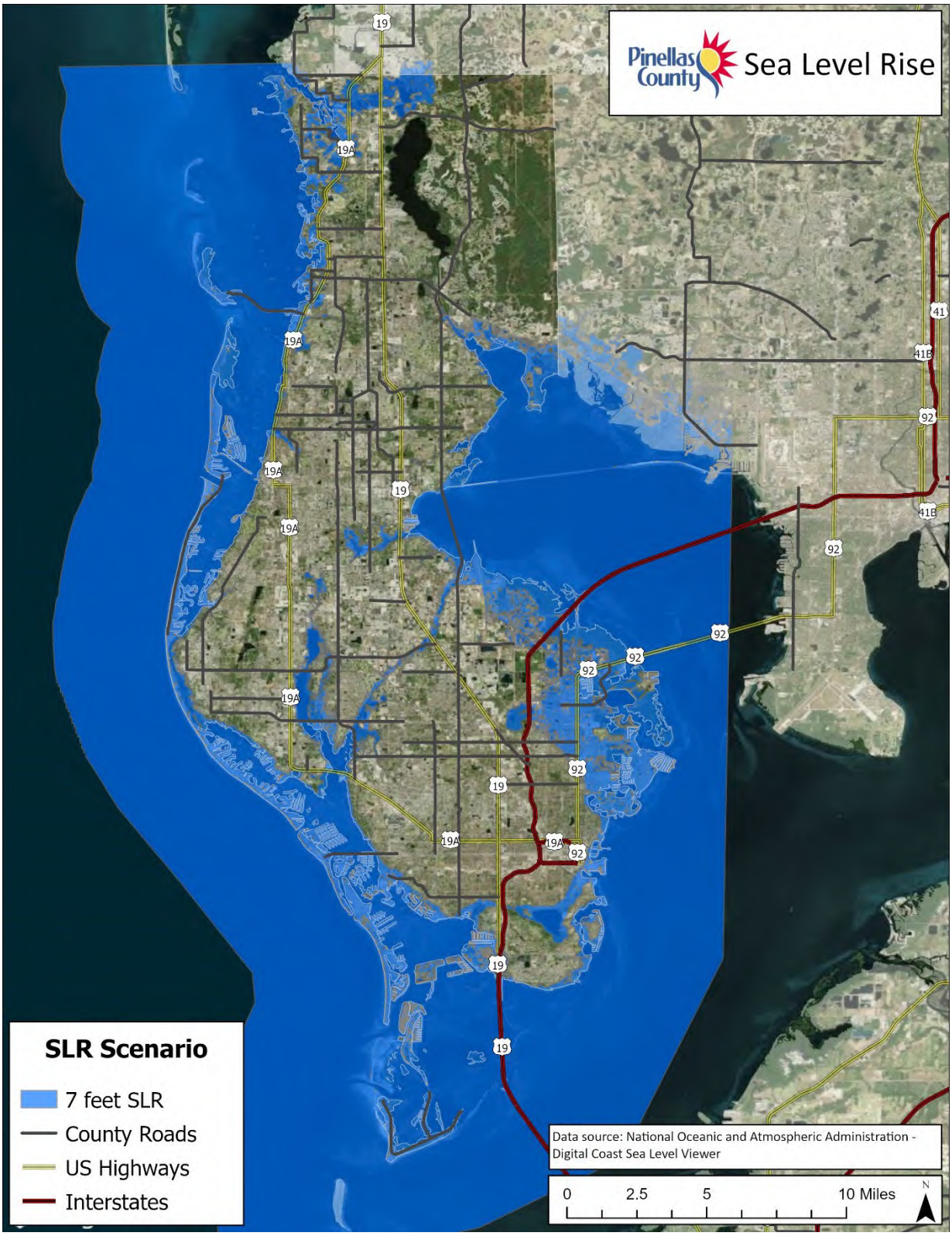
Figure 4.20: Projected Flooding with 1-foot Sea Level Rise



Figure 4.21: Projected Flooding with 4-foot Sea Level Rise



Figure 4.22: Projected Flooding with 7-foot Sea Level Rise



3. Historical Occurrences of Flood

Inland and Coastal Flooding

Pinellas County has experienced a number of damaging flood events in recent history. Below is a table highlighting the most significant events.

Table 4.14: Significant Flood Occurrences in Pinellas County

Date	Description
June 22–30, 1974	During the period of June 22 through June 30, 1974, Pinellas County received between 20 and 30 inches of rain. Damage to public and private property totaled more than $20 million.
May 8, 1979	Flooding occurred when 10–18 inches of rain fell in Pinellas County on May 8, 1979. The massive rain event led to three deaths in St. Petersburg. One woman drowned when her truck was swept down a flooded street. Another woman and her 12-year-old daughter were sucked into a drainage ditch. About 200 people were evacuated from their homes in Tyrone and St. Petersburg. 17.6 inches of rain fell in St. Petersburg during a 14-hour period. Shore Acres received 12.4 inches, while Seminole received 10.78 inches, and Tyrone received 8.7 inches. Several roads and bridges were washed out.[20]
September 1979	During the months of August and September 1979, central Florida, including Pinellas County, experienced the most significant period of rainfall in over three decades. In some areas, the two-month rainfall total was more than 40 inches.
September 1988	After a week of light to moderate rains, flooding began to occur countywide. Areas of Pinellas Park, Clearwater, and Dunedin were hardest hit. 13.25 inches of rain were recorded.
September 1997	Thirty-hour rainfall totals of 8 to 14 inches caused flooding of roads, highways, homes, commercial buildings, low-lying areas, and rivers over much of Pinellas and Hillsborough Counties. In St. Petersburg, a 13-year-old female was sept into a storm drain while playing in floodwaters at a city park on 36th Avenue N. and Eighth Street at 7 pm EST. She was dragged into raging waters underground for 2 blocks before she emerged and was rescued by firefighters. In St. Petersburg, floodwaters carried a 23-year-old woman twelve blocks underground in a drain before she was dumped into a retention pond with only minor injuries. Another woman was playing at Booker Creek under a wooden bridge with two children when she lost her footing and was carried off by the fast-moving flood waters. The heaviest rainfall and subsequent flooding occurred over the cities of Gulfport, Pinellas Park, and St. Petersburg in southern Pinellas County.[21]
February 3, 2006	February 3, 2006. Between 8 and 11 inches of rain fell in roughly a five-hour period in a five-mile-wide strip extending from Madeira Beach northeast through Pinellas Park, then across Old Tampa Bay to west Tampa, including

[20] *The Evening Independent*, 8/9/1979, and the National Weather Service.
[21] National Centers for Environmental Information Storm Events and the National Weather Service.

Date	Description
February 3, 2006, *cont.*	Tampa International Airport. The area of heaviest rain was so concentrated that downtown St. Petersburg, less than 10 miles away, recorded less than an inch of rain during the same period. The torrential rains caused flash flooding in the areas where more than eight inches fell. The flash flooding prompted the mayor of St. Petersburg to term the event a "hundred-year flood." In Lealman, an entire mobile home community was evacuated, and at least 69 of the homes were flooded. A partial roof collapse was reported at a big box store in St. Petersburg. Water pouring into the store washed out several cash register stands and injured on employee as he was washed into the parking lot. Another roof collapsed at Treasure Island. Hundreds of vehicles were stranded by the flood waters. Total property damage was estimated at $2.0 million. Rainfall amounts measured in Pinellas County include: Pinellas Park (Upper Highlands Canal): 11.7 inches; St. Petersburg/Clearwater International Airport: 8.20 inches; Seminole: 7.01 inches; Largo: 6.44 inches; and Clearwater: 5.81 inches.
July 2009	In July of 2009, a trough of low pressure was dissipating across the area with high pressure ridging across southern Florida. This kept west to southwest winds in place across the local area and allowed for numerous thunderstorms with heavy rains and a tornado. Heavy rains flooded roads in Tarpon Springs. One home on the 600 block of South Grosse Avenue was damaged as debris piled up in a nearby storm drain and caused flooding of three inches of water into the home and $20,000 in damage.
June 2012	In Pinellas County, widespread frequent wind gusts of 39 mph or stronger were reported on the 24th, the highest of which was a 56-mph wind gust at St. Petersburg Albert Whitted Airport on the morning of the 24th. Rainfall of at least 9 inches was reported across the entire county, with the highest storm total rain total of 15.26 inches near the Palm Harbor CoCoRaHS site. A total of 1,671 applications for individual assistance were filed, totaling $900,000. This value is a gross underestimate of the total damage but was the best number available at the time. The tide gauge at Clearwater Beach measured a peak tide of 5.43 feet MLLW on the afternoon of the 24th. Subtracting the predicted astronomical tide, the calculated highest storm surge was 3.10 feet on the evening of the 24th. The tide gauge at St. Petersburg measured a peak tide of 4.87 feet MLLW on the evening of the 25th. Subtracting the predicted astronomical tide, the highest storm surge was calculated as 3.56 feet late on the evening of the 25th. Significant street flooding was reported in Tarpon Springs and St. Petersburg. Along Dodecanese Boulevard in Tarpon Springs, street flooding was up to the foundations of several businesses. In Treasure Island, Gulf Boulevard between 107 Street South and St. John's Pass was flooded with cars stranded. In Clearwater, waves were splashing over the seawalls. In Gulfport, water rose up to the bumpers of cars and flooded streets. Damage to public beaches from erosion was estimated at $3 million. Heavy rain caused minor flooding in Indian Rocks Beach. A 71-year-old man died after suffering a heart attack while standing in less than a foot of water in his front yard and could not remove himself from the water. The medical examiner determined that the cause of death was drowning, with heart disease as a contributing factor.

Date	Description
July 3, 2013	On July 3, 2013, easterly winds and deep moisture allowed for a sea breeze collision just along the west coast of Florida, producing scattered to numerous thunderstorms. Some of the storms produced damaging thunderstorm wind gusts, lightning strikes, and heavy rain. Largo Police Department reported Belcher Road was closed from Ulmerton Road to 142nd Avenue with an estimated 2 feet of water on the road. Additionally, an estimated 3 feet of water covered Floral Drive and 36th Street Southeast. No damage, death, or injury reported.
September 1, 2013	On September 1, 2013, deep moisture allowed for sea breeze thunderstorms to develop in the afternoon. Some of these storms produced heavy rain and damaging lightning. Broadcast media relayed a report of street flooding up to the bumpers of cars in Clearwater near East Bay Drive and U.S. 19. No damage, death, or injury reported.
July 25, 2015	Pinellas County received heavy rain on the 24th and 25th, with a few sites in the northern parts of the county reporting nearly 9 inches of rain over the course of a few days. Water was reported on the roadways up to the bumpers of cars along portions of McMullen Booth Road.
August 3, 2015	A weak area of low pressure developed along a stationary frontal boundary across north Florida. This allowed for waves of showers and thunderstorms to move across the area for a few days causing flooding throughout much of the Tampa Bay area. The heaviest rainfall on the morning of the 3rd with some portions of Hillsborough, Pinellas and Pasco Counties receiving 6 to 8 of rain. This event was exacerbated from the flooding and saturated soils from multiple heavy rain events that occurred on August 1 and again during the last week of July. The Tarpon Woods subdivision near Palm Harbor was the hardest hit area in Pinellas County. 453 residences were impacted from the flooding as well as 224 condo units.
August 31, 2016	Excessive rainfall from a deeply moist environment ahead of Hurricane Hermine led to numerous reports of street flooding in southern and central Pinellas County. Cars were reported to be stalled in high water at 54th Avenue and Interstate 275, and additional flooding was reported in Saint Petersburg, Gulfport, and Indian Rocks Beach.
September 1, 2016	Heavy rain from Hurricane Hermine fell across Pinellas County, with the three-day total rainfall ranging from 6 to 20 inches. The highest rain accumulation recorded during the event was 22.11 inches at the CWOP station 1 mile SSE Baskin. The rain caused widespread street flooding and was reported to have inundated numerous homes and businesses. Damage from the flooding was roughly estimated to total $2.3 million.
January 22, 2017	A line of strong and fast-moving thunderstorms developed ahead of a cold front moving southeast through the Florida Peninsula. Breezy gradient winds were compounded by stronger thunderstorm wind gusts, some of which caused minor damage. Additionally, the persistent gradient winds caused minor coastal flooding. Water was observed to have risen 2.1 feet above the predicted high tide at Clearwater Beach. The city of Indian Rocks Beach also reported that beach erosion caused the loss of sand and damage to public signs and trash cans, totaling around $20,000 in damage.

Date	Description
December 17, 2023	A surface low pressure system developed over the south-central Gulf of Mexico and moved east-northeast across the Florida peninsula, preceded by strong south to southwest winds that lead to elevated water levels during high tide resulting in coastal flooding along the western Florida coast consisting mainly of inundated streets and roadways, although a few structures in Pinellas County reported water rising into them. Coastal gauge sites recorded maximum water levels that generally reached 2 to 4 feet above mean higher high water (MHHW) during high tide. 6 sites established new top-10 high water level values for their respective periods of record (East Bay: 3.6 ft - 3rd highest, Clearwater Beach: 3.43 ft - 3rd highest, Old Port Tampa: 3.4 ft - 4th highest, Saint Petersburg: 3.22 ft - 6th highest, Port Manatee: 3.06 ft - 6th highest, and Fort Myers: 2.87 ft - 9th highest). Multiple additional sites reached action to minor flooding stages.

Additionally, there have been several FEMA major disaster declarations in Pinellas County that are specifically related to flooding events. Please note that some of these events are also listed under Severe Storms and Tornadoes. Also, there are some events that are categorized by FEMA as tropical storms or hurricanes and not flooding, even though the event may have caused significant flooding.

Table 4.15: FEMA Major Disaster Declarations in Pinellas County, Flood, 1953–2024[22]

Disaster Number	Date	Name/Description
DR-586	May 15, 1979	SEVERE STORMS, TORNADOES & FLOODING
DR-966	October 3–4, 1992	SEVERE STORMS, TORNADOES & FLOODING
DR-982	March 12–16, 1993	TORNADOES, FLOODING, HIGH WINDS & TIDES, FREEZING
DR-1195	December 25, 1997–April 24, 1998	SEVERE STORMS, HIGH WINDS, TORNADOES, AND FLOODING
DR-4709	April 12, 2023–April 14, 2023	SEVERE STORMS, TORNADOES & FLOODING

According to the NCEI Storm Events Database, there were 49 reports of flood in Pinellas County from 1996 to 2024.[23] These flood events are only inclusive of those reported by NCEI from 1996 through 2024. Due to the limitations of how NCEI event history data is reported, it is likely that additional events have affected Pinellas County. One limitation is that storm data is more often only reported at the regional level, making a jurisdictional summary of the hazard history appear under-reported. As additional local data becomes available, this hazard profile will be amended.

[22] https://www.fema.gov/media-library/assets/documents/28318

[23] https://www.ncdc.noaa.gov/stormevents/listevents.jsp?eventType=%28Z%29%2BCoastal%2BFlood&eventType=%28C%29%2BFlash%2BFlood&eventType=%28Z%29%2BFlood&beginDate_mm=01&beginDate_dd=01&beginDate_yyyy=1950&endDate_mm=12&endDate_dd=31&endDate_yyyy=2018&county=PINELLAS%3A103&hailfilter=0.00&tornfilter=0&windfilter=000&sort=DT&submitbutton=Search&statefips=12%2CFLORIDA

Table 4.16: Summary of Flood Occurrences in Pinellas County

Location	Number of Occurrences	Deaths	Injuries	Property Damage (2024)*	Annualized Property Loss
Belleair	0	0	0	$0	$0
Belleair Beach	0	0	0	$0	$0
Belleair Bluffs	0	0	0	$0	$0
Belleair Shore	0	0	0	$0	$0
Clearwater	6	0	0	$275,815	$9,850
Dunedin	1	0	0	$38,082	$1,360
Gulfport	0	0	0	$0	$0
Indian Rocks Beach	1	0	0	$0	$0
Indian Shores	0	0	0	$0	$0
Kenneth City	1	0	0	$0	$0
Largo	2	0	0	$866,656	$30,952
Madeira Beach	1	0	0	$3,079,067	$109,966
North Redington Beach	0	0	0	$0	$0
Oldsmar	0	0	0	$0	$0
Pinellas Park	7	0	0	$363,505	$12,982
Redington Beach	0	0	0	$0	$0
Redington Shores	0	0	0	$0	$0
Safety Harbor	1	0	0	$$380,822.09	$13,600
St. Petersburg	6	0	0	$139,819	$4,993
St. Pete Beach	1	0	0	$50,603	$1,807
Seminole	1	0	0	$19,041	$680
South Pasadena	0	0	0	$0	$0
Tarpon Springs	5	0	0	$160,650	$5,737
Treasure Island	2	0	1	$5,801	$207
Unincorporated	15	0	0	$13,852,769	$494,741
PINELLAS COUNTY TOTAL	**50**	**0**	**1**	**$18,851,808**	**$686,875**

*Adjusted dollar values were calculated based on the Consumer Price Index for All Urban Consumers (CPI-U) U.S. city average series for all items, not seasonally adjusted. This data represents changes in the prices of all goods and services purchased for consumption by urban households. This monthly index value has been calculated every year since 1913. The 2024 dollar values were calculated based on buying power in April 2024.

Table 4.16 lists all reported instances of historical flooding for each jurisdiction in Pinellas County. Due to the limitations of how NCEI event history data is reported, it is likely that additional flood events have affected Pinellas County.

Table 4.17: Historical Flood Occurrences in Pinellas County

	Date	Type	Deaths	Injuries	Property Damage*	Crop Damage*
Belleair						
NONE REPORTED	--	--	--	--	--	--
Belleair Beach						
NONE REPORTED	--	--	--	--	--	--
Belleair Bluffs						
NONE REPORTED	--	--	--	--	--	--
Belleair Shore						
NONE REPORTED	--	--	--	--	--	--
Clearwater						
CLEARWATER	8/6/1996	Flood	0	0	$39,563	$0
CLEARWATER	8/12/1996	Flood	0	0	$0	$0
CLEARWATER	10/31/1997	Flood	0	0	$19,338	$0
CLEARWATER	7/10/1998	Flood	0	0	$95,206	$0
CLEARWATER	7/20/1998	Flood	0	0	$28,562	$0
CLEARWATER	9/6/1999	Flood	0	0	$93,148	$0
Dunedin						
DUNEDIN	2/28/1998	Flood	0	0	$38,082	$0
Gulfport						
NONE REPORTED	--	--	--	--	--	--
Indian Rocks Beach						
INDIAN ROCKS BEACH	8/31/2016	Flood	0	0	$0	$0
Indian Shores						
NONE REPORTED	--	--	--	--	--	--
Kenneth City						
KENNETH CITY	8/8/2022	Flood	0	0	$0	$0
Largo						
LARGO	12/27/1997	Flood	0	0	$773,508	$0
LARGO	9/7/1999	Flood	0	0	$93,148	$0
Madeira Beach						
MADEIRA BEACH	2/3/2006	Flash Flood	0	0	$3,079,067	$0
North Redington Beach						
NONE REPORTED	--	--	--	--	--	--
Oldsmar						
NONE REPORTED	--	--	--	--	--	--
Pinellas Park						
PINELLAS PARK	6/24/1996	Flood	0	0	$0	$0
PINELLAS PARK	9/26/1997	Flash Flood	0	0	$0	$0
PINELLAS PARK	7/1/1999	Flood	0	0	$93,148	$0
PINELLAS PARK	9/17/2000	Flash Flood	0	0	$270,357	$0
PINELLAS PARK	9/6/2002	Flood	0	0	$0	$0
PINELLAS PARK	12/13/2002	Flood	0	0	$0	$0
PINELLAS PARK	6/19/2003	Flash Flood	0	0	$0	$0

	Date	Type	Deaths	Injuries	Property Damage*	Crop Damage*
Redington Beach						
NONE REPORTED	--	--	--	--	--	--
Redington Shores						
NONE REPORTED	--	--	--	--	--	--
Safety Harbor						
SAFETY HARBOR	7/10/1998	Flash Flood	0	0	$380,822	$0
St. Petersburg						
ST. PETERSBURG	1/1/1996	Flood	0	0	$0	$0
ST. PETERSBURG	2/2/1996	Flood	0	0	$0	$0
ST PETERSBURG	8/13/1997	Flood	0	0	$96,688	$0
ST PETERSBURG	9/26/1997	Flood	0	0	$0	$0
ST PETERSBURG	12/24/2002	Flood	0	0	$43,131	$0
ST PETERSBURG	12/31/2002	Flood	0	0	$0	$0
St. Pete Beach						
ST PETERSBURG BEACH	4/26/2003	Flash Flood	0	0	$50,604	$0
Seminole						
SEMINOLE	8/22/1998	Flood	0	0	$19,041	$0
South Pasadena						
NONE REPORTED	--	--	--	--	--	--
Tarpon Springs						
TARPON SPRINGS	4/30/1996	Flood	0	0	$0	$0
TARPON SPRINGS	8/5/1996	Flood	0	0	$9,891	$0
TARPON SPGS	6/24/1997	Flood	0	0	$96,688	$0
TARPON SPGS	6/26/2000	Flood	0	0	$0	$0
TARPON SPGS	8/12/2000	Flood	0	0	$54,071	$0
Treasure Island						
TREASURE IS	4/26/1997	Flood	0	0	$5,801	$0
TREASURE IS	6/8/2002	Flood	0	1	$0	$0
Unincorporated						
COUNTYWIDE	12/13/1997	Flash Flood	0	0	$966,885	$0
COUNTYWIDE	2/2/1998	Flood	0	0	$9,521	$0
COUNTYWIDE	2/16/1998	Flood	0	0	$19,041	$0
COUNTYWIDE	2/19/1998	Flood	0	0	$57,123	$0
PASS A GRILLE BEACH	7/15/2000	Flash Flood	0	0	$1,802	$0
PINELLAS (ZONE)	7/23/2001	Flood	0	0	$175,251	$0
PASS A GRILLE BEACH	9/14/2001	Flash Flood	0	0	$613,379	$0
ANCLOTE	7/25/2015	Flood	0	0	$65,474	$0
ANCLOTE	8/3/2015	Flood	0	0	$4,583,194	$0
ANCLOTE	9/1/2016	Flood	0	0	$2,974,292	$0
PINELLAS (ZONE)	1/22/2017	Coastal Flood	0	0	$25,324	$0
FEATHER SOUND	11/11/2020	Flood	0	0	$0	$0
CAMPBELL PARK CAMPSITE	7/16/2022	Flood	0	0	$0	$0
Not reported	12/17/2023	Coastal Flood	0	0	$101,860	$0

	Date	Type	Deaths	Injuries	Property Damage*	Crop Damage*
Not reported	4/11/2024	Coastal Flood	0	0	$0	$0

*Adjusted dollar values were calculated based on the Consumer Price Index for All Urban Consumers (CPI-U) U.S. city average series for all items, not seasonally adjusted. This data represents changes in the prices of all goods and services purchased for consumption by urban households. This monthly index value has been calculated every year since 1913. The 2024 dollar values were calculated based on buying power in April 2024.

4. Probability of Future Flood Events

Based on historical knowledge and an understanding of floodplains, it is believed that Pinellas County will continue to experience flooding events on an annual basis. Specific probability is difficult to determine; however, 100-year and 500-year estimates help provide a baseline understanding. It is likely that Pinellas County will continue to be impacted by flooding due to any number of causes annually.

The maps included in the Geographic Areas Affected by Flood section shows the areas with a 1% annual probability of a flood, or the 100-year flood, as well as the areas with a 0.2% chance annual probability of a flood, or the 500-year flood.

Below is a figure depicting the flash flood risk in Florida. The potential of flash floods is difficult to predict. In 2003, subject matter experts developed the Flash Flood Potential Index (FFPI), which used the following equation where M represents Slope, L refers to Land Cover or Use, S represents Soil Type or Texture, and V equals the Vegetation Cover or Forest Density:

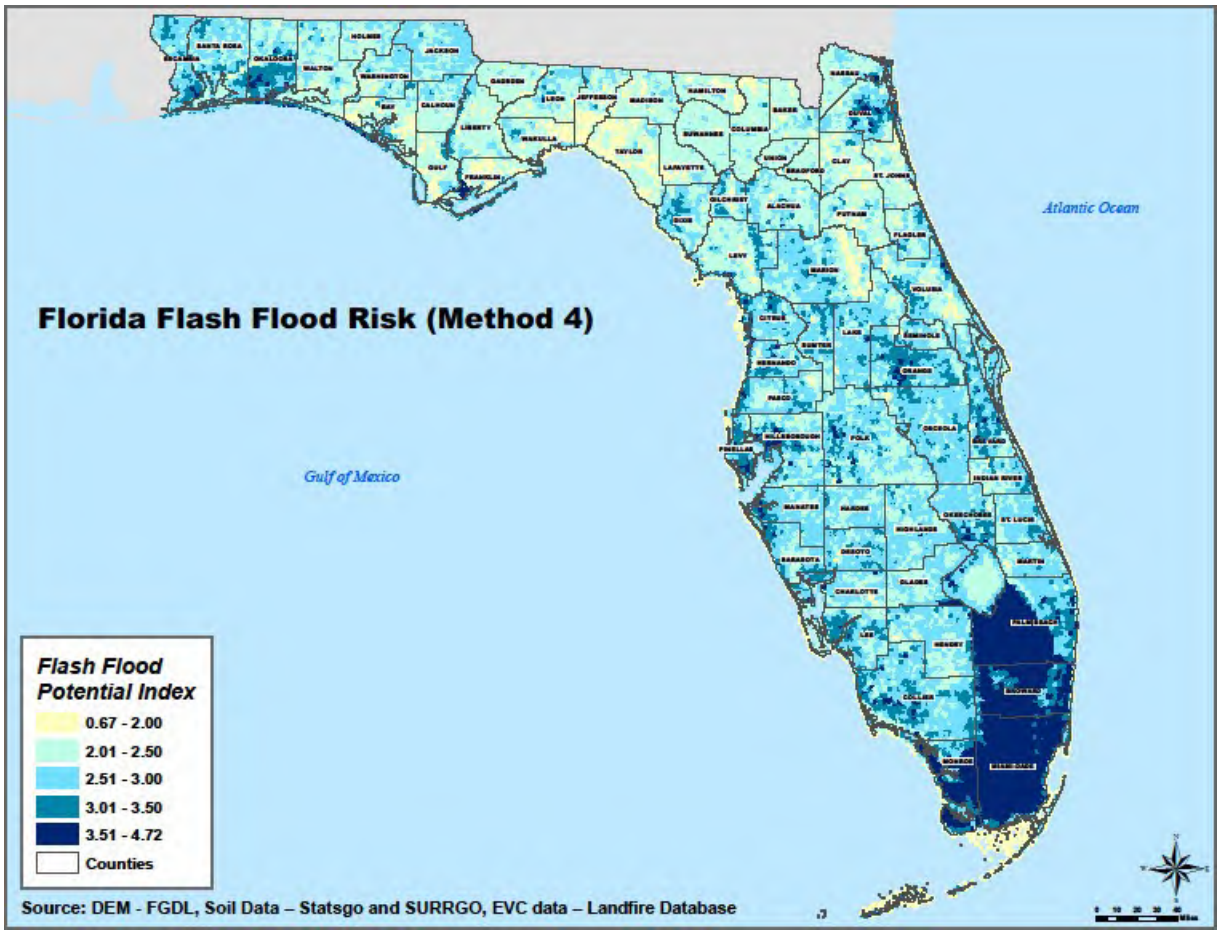
FFPI = (M+L+S+V)/N

Since 2003, this equation has been refined into four scenarios to more accurately represent specific areas and conditions. For the figure below, the equation used is referred to as Model 4:

FFPI = (2*M+S+2*LV)/5

More information about the FFPI can be found here: https://www.cbrfc.noaa.gov/papers/ffp_wpap.pdf.

Figure 4.23: Florida Flash Flood Risk



This map shows the areas of the state that are at risk for flash flooding based on various ground measures such as land use, soil type, vegetation cover, and the slope of the area. It indicates that most areas in Pinellas County have a flash flood potential that ranges between 2.01 and 4.72.

Probability Based on Historical Occurrences

An analysis of flood reports from 1996 to 2024 in Pinellas County from the NCEI Storm Events Database indicates that there will be less than one coastal floods, less than one flash flood, and one to two floods each year in Pinellas County. The probability of future flood impacts is high for all jurisdictions.

Table 4.18: NCEI Flood Reports 1996–2024[24]

Type of Flood	NCEI Reports	Average per Year
Coastal Flood	3	< 1
Flash Flood	9	< 1
Flood	38	1.4
TOTAL	**50**	**1.8**

Based on historical information, this hazard was determined to have a probability level of highly likely (100% annual probability). All communities in Pinellas are exposed to flood hazards and likely to be impacted frequently in the future. All communities have filed flood insurance claims for damages in the past. All but two jurisdictions (Kenneth City and Seminole) have multiple repetitive loss properties. Variable climate impacts are likely to worsen exposure for coastal communities, but inland communities could also be impacted by more frequent, and higher volume precipitation events.

The probability of future flood impacts is high for all jurisdictions.

5. Flood Impact Analysis

All communities in Pinellas could receive the following impacts due to flooding. Variable climate impacts are likely to worsen exposure for coastal communities, but inland communities could also be impacted by more frequent, and higher volume precipitation events.

- Public
  - Injury/death
    - Drowning
    - Vehicle accidents
    - Extended wait for emergency response
    - Become stranded on rooftop or trapped inside building or car
    - Exposure to hazardous materials or wastewater
  - Traffic
    - Panic to evacuation
    - Accidents from driving through flooded roads – car washed away, water deeper than expected
  - Damage to property
    - Mold infestation
    - Need to replace property damaged, furniture, clothes, etc.
    - Repairing damaged property
    - Issues with damage to uninsured property
- Responders

[24] https://www.ncdc.noaa.gov/stormevents/listevents.jsp?eventType=%28Z%29+Coastal+Flood&eventType=%28C%29+Flash+Flood&eventType=%28Z%29+Flood&beginDate_mm=01&beginDate_dd=01&beginDate_yyyy=1950&endDate_mm=12&endDate_dd=31&endDate_yyyy=2018&county=PINELLAS%3A103&hailfilter=0.00&tornfilter=0&windfilter=000&sort=DT&submitbutton=Search&statefips=12%2CFLORIDA

- Injury/death
  - Responding to calls during flooding, traversing flooded roads
  - Drowning
  - Dangerous rescue missions, from roofs, unstable buildings, stranded cars
  - Exposure to hazardous materials or wastewater
  - Power outage dangers, such as being electrocuted by live downed wires

- Continuity of Operations (including continued delivery of services)
  - Floodwaters may damage buildings, electrical systems, paperwork, etc. making continued operations difficult or impossible
  - Floodwaters may hinder access to buildings (roads or sidewalks) preventing employees and the public from entering a building
- Property, Facilities, Infrastructure
  - Property damage
    - Floodwaters can damage property or carry heavy debris that could cause damage
  - Infrastructure damage
    - If water overwhelms the drainage systems, it can backup and cause damage to drains or even result in wastewater release
- Environment
  - Release of wastewater could damage environment
  - Damage to habitat for plants and animals
  - Inundation of agricultural areas could destroy crops
  - Event-generated debris impacting waterway navigation and submerged wetland habitats
- Economic Condition
  - Closure or delay of businesses because of flooded roads or water damage, leads to loss in revenue
  - Crop damage or loss leads to decline in agricultural revenues
- Public Confidence in Jurisdiction's Governance
  - If floodwaters do not recede quickly, it appears as though the water utilities and government are not able to manage water properly, which calls into question the capability of the government
  - If public or government offices have to close because of restricted access due to floodwaters, people may think the government is not able to handle emergency events and lose confidence in their capabilities

6. Vulnerability Analysis and Loss Estimation by Jurisdiction

Historical Losses

The NCEI Storm Events Database information, presented in the Historical Occurrences section above, also contained property and crop damage dollar amounts, which is shown in the table below. This information, combined with values of structures in hazard areas and with projected losses from HAZUS-MH, can provide a more complete analysis than using only one data source.

Table 4.19: Flood Events in Pinellas County, by Type, (1996–2024)[25]

Type of Event	Number of Events	Deaths	Injuries	Property Damage (2024 dollars)	Crop Damage (2024 dollars)
Coastal Flood	3	0	0	$127,184	$0
Flash Flood	9	0	0	$5,362,917	$0
Flood	38	0	1	$9,482,912	$0
TOTAL	**50**	**0**	**1**	**$14,973,013**	**$0**

The information can be analyzed to provide the average amount of property and crop damage that is likely each year. This information is shown in the chart below.

Table 4.20: NCEI Floods, 1996–2024[26]

NCEI Storm Event (hazard)	Average Floods per Year	Annualized Property Loss (2024 dollars)	Annualized Crop Loss (2024 dollars)
All Types of Floods	1.78	$534,750.46	$0

According to the analysis, Pinellas County is historically vulnerable to over $425,900 in property damages and $0 in crop damages from roughly 2 flood events each year.

Exposure

To estimate exposure of improved property to flood, the approximate number of parcels and their associated improved valued located in the effective and preliminary floodplains was determined using GIS analysis.

Table 4.21: Estimated Exposure of Improved Property to Flood, Effective Floodplain

Location	Buildings and Parcels in Flood Risk Area								
	100-year floodplain			500-year floodplain			VE-Zone		
	No. of Parcels	No. of Bldgs	Improved Value	No. of Parcels	No. of Bldgs	Improved Value	No. of Parcels	No. of Bldgs	Improved Value
Belleair	612	172	$705,036,485	617	50	$435,961,384.00	473	1	$482,039,693
Belleair Beach	1380	852	$1,548,438,834	30	2	$21,517,846.00	116	0	$244,909,928
Belleair Bluffs	239	4	$147,645,558	147	3	$108,565,947.00	19	0	$68,976,686
Belleair Shore	60	61	$344,972,288	8	6	$45,458,268.00	60	3	$344,972,288
Clearwater	22325	6425	$16,273,156,935	10123	2585	$5,954,857,801.00	3429	40	$3,807,945,458
Dunedin	4686	2263	$2,867,242,354	4109	1908	$2,073,955,594.00	814	48	$703,354,043
Gulfport	3030	1219	$1,692,042,163	857	476	$404,548,929.00	741	34	$423,130,822
Indian Rocks Beach	3544	1728	$3,210,799,013	148	20	$142,543,808.00	406	21	$483,490,948
Indian Shores	2811	162	$2,182,035,038	36	4	$58,327,875.00	692	4	$652,449,490

[25] http://www.ncdc.noaa.gov/stormevents/listevents.jsp?beginDate_mm=01&beginDate_dd=01&beginDate_yyyy=2008&endDate_mm=12&endDate_dd=31&endDate_yyyy=2011&county=ALL&eventType=Coastal+Flood&statefips=12%2CFLORIDA

[26] http://www.ncdc.noaa.gov/stormevents/listevents.jsp?beginDate_mm=01&beginDate_dd=01&beginDate_yyyy=2008&endDate_mm=12&endDate_dd=31&endDate_yyyy=2011&county=ALL&eventType=Coastal+Flood&statefips=12%2CFLORIDA

Location	Buildings and Parcels in Flood Risk Area								
	100-year floodplain			500-year floodplain			VE-Zone		
	No. of Parcels	No. of Bldgs	Improved Value	No. of Parcels	No. of Bldgs	Improved Value	No. of Parcels	No. of Bldgs	Improved Value
Kenneth City	693	229	$202,445,849	1309	529	$314,082,851.00	0	0	$-
Largo	6958	4019	$3,536,517,014	7704	3000	$3,331,632,097.00	388	0	$225,881,669
Madeira Beach	4057	1901	$3,219,497,707	25	0	$9,366,601.00	1592	168	$1,433,081,620
North Redington Beach	1336	356	$1,235,418,355	0	0	$-	149	60	$244,752,603
Oldsmar	6048	3741	$2,681,804,278	5602	2430	$2,714,807,911.00	236	72	$184,221,989
Pinellas Park	8203	2877	$3,708,862,600	12129	6001	$5,272,112,976.00	0	0	$-
Redington Beach	1098	761	$1,207,959,472	0	0	$-	244	89	$461,185,430
Redington Shores	2083	815	$1,679,333,017	1		$104,652.00	215	56	$264,530,945
Safety Harbor	1089	598	$613,355,373	860	384	$591,134,874.00	167	26	$192,851,573
St. Petersburg	51651	31109	$32,082,116,778	17938	9147	$11,742,589,258.00	6090	247	$6,063,150,766
St. Pete Beach	7862	3692	$7,514,884,851	13	11	$23,963,571.00	1751	110	$2,525,777,100
Seminole	6633	3191	$3,080,802,784	4751	2107	$2,283,681,153.00	134	68	$199,054,445
South Pasadena	3180	722	$1,389,272,595	13	11	$5,243,078.00	806	40	$379,161,439
Tarpon Springs	8800	3821	$4,236,689,415	6657	3692	$3,168,378,820.00	628	40	$344,358,389
Treasure Island	6053	2375	$4,721,910,295	1	1	$797,300.00	1452	155	$1,247,509,862
Unincorp.	12314	8284	$7,660,781,108	8236	5342	$3,752,792,099.00	842	158	$1,199,829,450
PINELLAS COUNTY TOTAL	166745	81377	$107,743,020,159	81314	37709	$42,456,424,693.00	21444	1440	$22,176,616,636

To estimate the county population's exposure to flood, the effective and preliminary floodplains were intersected with census block data. As a result, these population estimates are going to be an overestimate of risk since the entire census block's population count will be included even if only a portion of the census block's area is located in a floodplain. However, these estimates still give an idea of the county population's risk to flood.

Table 4.22: Estimated Exposure of Population to Flood, Effective Floodplain

Location	Population in Flood Risk Area								
	100-year floodplain (effective)			500-year floodplain (effective)			VE-Zone (effective)		
	Total	< 18	> 65	Total	< 18	> 65	Total	< 18	> 65
Belleair	1,245	102	656	48	1	21	1,187	95	655
Belleair Beach	1,633	182	571	0	0	0	1,072	91	373
Belleair Bluffs	319	11	228	0	0	0	217	5	202
Belleair Shore	73	11	23	0	0	0	0	0	0
Clearwater	48,291	6,983	12,034	5,320	919	1,022	10,482	517	4596
Dunedin	12,661	1,403	4,349	10,449	1,061	3,877	2,403	112	1,086
Gulfport	5,018	374	2,352	1,348	118	385	2,403	112	1,086

Location	Population in Flood Risk Area								
	100-year floodplain (effective)			500-year floodplain (effective)			VE-Zone (effective)		
	Total	< 18	> 65	Total	< 18	> 65	Total	< 18	> 65
Indian Rocks Beach	3,673	368	1,183	0	0	0	893	58	343
Indian Shores	1,190	72	559	0	0	0	463	20	255
Kenneth City	4,035	572	1,365	93	14	17	0	0	0
Largo	20,350	2,653	6,065	7,043	896	2,252	1,468	183	409
Madeira Beach	3,895	280	1,233	0	0	0	2,393	166	819
North Redington Beach	1,495	121	531	0	0		832	75	330
Oldsmar	11,611	2,379	2,034	3,215	740	415	2,865	533	608
Pinellas Park	32,445	5,628	6,893	10,786	1,972	2,525	0	0	0
Redington Beach	1,376	159	434	0	0	0	707	65	247
Redington Shores	2,176	171	859	0	0	0	1,374	77	592
Safety Harbor	4,684	622	1,564	1,869	300	515	2,112	229	858
St. Petersburg	120,511	18,098	26,453	14,758	2,537	2,974	20,139	2,266	6,320
St. Pete Beach	8,879	571	3,421	0	0	0	3,382	186	1,483
Seminole	7,575	873	2,986	1,420	228	360	1,886	213	976
South Pasadena	5,386	193	3,252	0	0	0	3,592	95	2,260
Tarpon Springs	16,114	2,500	4,669	5,874	848	1,929	2,555	254	971
Treasure Island	6,584	375	2,468	0	0	0	3,373	129	1,374
Unincorp.	110,731	16,686	30,834	37,473	5,730	11,217	10,785	1,206	1,374
PINELLAS COUNTY TOTAL	**431,929**	**61,387**	**116,989**	**99,696**	15,364	**27,509**	**76,396**	**6,724**	**29,720**

Sea Level Rise

To estimate exposure of improved property to sea level rise, the approximate number of parcels and their associated improved valued located in the areas vulnerable to 1-foot, 4-foot, 7-foot, and 10-foot increments of sea level rise was determined using GIS analysis.

Table 4.23: Estimated Exposure of Improved Property to Sea Level Rise Risk Areas – 1-foot and 4-foot – Pinellas County Total

Location	Buildings and Parcels in Sea Level Rise Risk Areas					
	1-foot			4-foot		
	No. of Parcels	No. of Buildings	Improved Value	No. of Parcels	No. of Buildings	Improved Value
Belleair	306	0	$411,920,617	539	116	$649,376,685
Belleair Beach	227	0	$471,544,912	805	433	$1,108,448,338
Belleair Bluffs	20	0	$70,568,266	153	1	$148,179,370
Belleair Shore	14	0	$80,313,928	58	1	$333,594,110
Clearwater	6016	14	$5,208,764,712	11067	1369	$9,878,389,198
Dunedin	1125	3	$775,520,708	2010	776	$1,389,884,913
Gulfport	870	1	$647,553,455	2164	396	$1,171,657,526
Indian Rocks Beach	632	6	$626,578,359	2869	1222	$2,434,978,714
Indian Shores	916	0	$487,379,062	1484	42	$826,877,636
Largo	1706	7	$960,337,554	3682	265	$1,928,298,421
Madeira Beach	1099	18	$973,403,654	3720	1641	$3,003,140,069
North Redington Beach	142	1	$196,131,691	786	319	$718,326,563
Oldsmar	247	1	$143,912,675	789	240	$423,110,448
Pinellas Park	693	1	$318,185,927	792	14	$405,433,098
Redington Beach	139	0	$185,861,027	866	689	$957,183,662
Redington Shores	240	3	$240,772,962	1186	648	$1,016,868,748
Safety Harbor	222	1	$205,767,292	407	25	$402,241,636
St. Petersburg	618	2	$574,149,525	1971	128	$1,042,986,098
St. Pete Beach	1374	3	$659,087,968	2771	285	$1,249,217,297
Seminole	2104	8	$2,074,753,556	6109	2138	$6,034,100,169
South Pasadena	10772	52	$9,238,068,812	23204	5702	$17,210,626,979
Tarpon Springs	1917	19	$1,073,723,055	3872	1188	$1,932,541,356
Treasure Island	2137	12	$1,544,932,186	5386	1974	$4,115,986,737
Unincorp.	2061	31	$1,920,126,987	4395	1983	$3,286,167,796
Totals	35597	183	$29,089,358,890	81085	20243	$61,667,615,567

Table 4.24: Estimated Exposure of Improved Property to Sea Level Rise Risk Areas – 7-foot and 10-foot – Pinellas County Total

Location	Buildings and Parcels in Sea Level Rise Risk Areas					
	7-foot			10-foot		
	No. of Parcels	No. of Buildings	Improved Value	No. of Parcels	No. of Buildings	Improved Value
Belleair	742	160	$784,946,168	742	160	$784,946,168
Belleair Beach	1362	850	$1,526,395,834	1362	850	$1,526,395,834
Belleair Bluffs	250	4	$192,725,570	250	4	$192,725,570
Belleair Shore	60	59	$344,972,288	60	59	$344,972,288
Clearwater	17020	3938	$13,879,407,076	17020	3938	$13,879,407,076
Dunedin	3782	1676	$2,188,069,689	3782	1676	$2,188,069,689
Gulfport	2845	1013	$1,584,475,827	2845	1013	$1,584,475,827
Indian Rocks Beach	3544	1700	$3,210,799,013	3544	1700	$3,210,799,013
Indian Shores	2809	160	$2,176,295,498	2809	160	$2,176,295,498
Largo	5863	2464	$2,952,630,433	5863	2464	$2,952,630,433
Madeira Beach	4015	1930	$3,212,322,254	4015	1930	$3,212,322,254
North Redington Beach	1333	399	$1,233,151,356	1333	399	$1,233,151,356
Oldsmar	3086	1465	$1,377,698,160	3086	1465	$1,377,698,160
Pinellas Park	1375	360	$863,558,769	1375	360	$863,558,769
Redington Beach	1103	772	$1,214,326,523	1103	772	$1,214,326,523
Redington Shores	2092	848	$1,678,021,782	2092	848	$1,678,021,782
Safety Harbor	747	249	$578,205,508	747	249	$578,205,508
St. Petersburg	44402	25462	$28,507,244,229	44402	25462	$28,507,244,229
St. Pete Beach	7884	3680	$7,543,522,785	7884	3680	$7,543,522,785
Seminole	5379	1961	$2,500,427,816	5379	1961	$2,500,427,816
South Pasadena	3182	709	$1,387,596,455	3182	709	$1,387,596,455
Tarpon Springs	6328	2815	$2,976,124,293	6328	2815	$2,976,124,293
Treasure Island	6071	2386	$4,729,288,596	6071	2386	$4,729,288,596
Unincorp.	7146	3218	$5,072,735,218	7146	3218	$5,072,735,218
Totals	132420	58278	$91,714,941,140	132420	58278	$91,714,941,140

To estimate the county population's exposure to potential sea level rise, the areas vulnerable to 1-foot, 4-foot, 7-foot, and 10-foot increments of sea level rise were intersected with census block data. As a result, these population estimates are going to be an overestimate of risk since the entire census block's population count will be included even if only a portion of the census block's area is located in an inundation area. However, these estimates still give an idea of the county population's risk to sea level rise.

Table 4.25: Estimated Exposure of Population to Sea Level Rise Risk Areas – 1-foot and 4-foot Scenarios

Location	Estimated Exposure of Population to Sea Level Rise					
	1-ft Sea Level Rise Scenario			4-ft Sea Level Rise Scenario		
	Total	<18	>65	Total	<18	>65
Belleair	0	0	0	282	44	83
Belleair Beach	0	0	0	786	99	236
Belleair Bluffs	0	0	0	0	0	0
Belleair Shore	0	0	0	0	0	0
Clearwater	16	4	2	1,364	131	485
Dunedin	0	0	0	1,122	126	319
Gulfport	16	1	2	474	25	180
Indian Rocks Beach	0	0	0	2,924	314	870
Indian Shores	0	0	0	156	14	67
Kenneth City	0	0	0	0	0	0
Largo	506	64	136	1,795	124	856
Madeira Beach	0	0	0	3,270	251	921
North Redington Beach	0	0	0	781	91	208
Oldsmar	522	131	68	918	185	123
Pinellas Park	0	0	0	174	54	16
Redington Beach	0	0	0	1,138	143	306
Redington Shores	0	0	0	1,196	122	375
Safety Harbor	46	16	13	0	0	0
St. Petersburg	6,213	677	1,247	13,085	2,316	2,355
St. Pete Beach	0	0	0	4,362	335	1,510
Seminole	0	0	0	1,045	91	625
South Pasadena	0	0	0	825	47	379
Tarpon Springs	845	99	278	2,978	421	966
Treasure Island	2	0	0	3,357	212	1,236
Unincorporated	491	91	120	7,143	1,133	1,772
PINELLAS COUNTY TOTAL	**8,657**	**1,083**	**1,866**	**49,175**	**6,278**	**13,888**

Table 4.26: Estimated Exposure of Population to Sea Level Rise Risk Areas – 7-foot and 10-foot Scenarios

Location	Estimated Exposure of Population to Sea Level Rise					
	7-ft Sea Level Rise Scenario			10-ft Sea Level Rise Scenario		
	Total	<18	>65	Total	<18	>65
Belleair	74	12	22	305	6	201
Belleair Beach	847	83	335	0	0	0
Belleair Bluffs	271	5	202	0	0	0
Belleair Shore	0	0	0	73	11	23
Clearwater	9,564	793	3,587	4,129	447	1,410
Dunedin	3,669	242	1,725	1,170	133	360
Gulfport	3,084	227	1,547	917	97	424
Indian Rocks Beach	493	43	196	256	11	117
Indian Shores	921	54	435	113	4	57
Kenneth City	0	0	0	0	0	0
Largo	1,799	301	397	3,610	512	1,232
Madeira Beach	613	29	309	0	0	0
North Redington Beach	714	30	323	0	0	0
Oldsmar	3,945	859	562	5,421	1,042	1,175
Pinellas Park	600	110	99	3,003	334	607
Redington Beach	238	16	128	0	0	0
Redington Shores	980	49	484	0	0	0
Safety Harbor	418	70	109	690	78	212
St. Petersburg	59,755	8,843	13,236	22,179	3,116	4,914
St. Pete Beach	4,336	218	1,869	181	18	42
Seminole	2,657	295	1,005	1,395	226	363
South Pasadena	4,310	140	2,687	251	6	186
Tarpon Springs	3,841	639	954	4,645	684	1,328
Treasure Island	3,126	157	1,193	99	6	39
Unincorporated	19,502	2,325	7,225	34,678	5,287	9,511
PINELLAS COUNTY TOTAL	**125,757**	**15,540**	**38,629**	**83,115**	**12,018**	**22,201**

Hazus-MH

Hazus-MH 6.1 was used to estimate the direct economic loss for the county from a 100-year and 500-year flood as shown below. This analysis includes direct economic losses (full replacement value) to buildings, contents, inventory, relocation, income, rental, and wages.

Table 4.27: Direct Economic Loss from 100-year and 500-year Flood

	100-year Flood Event	500-year Flood Event
Building Loss	$74,005,000	$95,366,000
Contents Loss	$61,670,000	$78,550,000
Inventory Loss	$2,277,000	$2,362,000
Relocation Loss	$51,458,000	$69,969,000
Income Loss	$54,844,000	$69,698,000
Rental Income Loss	$20,245,000	$28,951,000
Wage Loss	$76,378,000	$97,201,000
TOTAL LOSS	**$340,962,000**	**$442,012,000**

Coastal Flooding

Please refer to the *Tropical Cyclone Hazard Profile* for vulnerability and loss estimates by jurisdiction due to coastal flooding and storm surge.

7. Vulnerability Analysis and Loss Estimation of Critical Facilities

To estimate exposure to flood for the critical facility analysis, floodplains were intersected with critical facility locations. Digital Flood Insurance Rate Map (DFIRM) data was used to delineate the effective and preliminary floodplains. The table below summarizes the critical facilities in the county that are located within an identified floodplain.

Table 4.28: Exposure of Critical Facilities to Flood Risk Areas

Location	Number of Critical Facilities in Flood Risk Area		
	Effective FIRM		
	100-year	500-year	VE-Zone
Belleair	10	0	0
Belleair Beach	4	0	0
Belleair Bluffs	0	0	1
Belleair Shore	0	0	0
Clearwater	22	10	0
Dunedin	31	20	0
Gulfport	10	1	0
Indian Rocks Beach	6	0	0
Indian Shores	9	0	0
Kenneth City	0	4	0
Largo	39	37	0
Madeira Beach	14	0	0
North Redington Beach	1	0	0
Oldsmar	43	32	0
Pinellas Park	16	16	0
Redington Beach	4	0	0
Redington Shores	4	0	0
Safety Harbor	0	1	0
St. Petersburg	87	23	0
St. Pete Beach	23	0	0
Seminole	11	4	0
South Pasadena	15	0	0
Tarpon Springs	49	51	0
Treasure Island	13	1	0
Unincorporated	60	31	5
PINELLAS COUNTY TOTAL	**471**	**231**	**6**

Sea Level Rise

Additional analysis was done to estimate the exposure of critical facilities to sea level rise. Areas vulnerable to potential 1-foot, 4-foot, 7-foot, and 10-foot increments of sea level rise were intersected with the critical facility locations. The table below summarizes the critical facilities in the county that are located within a potential sea level rise inundation area.

Table 4.29: Exposure of Critical Facilities to Sea Level Rise Risk Areas

Location	Number of Critical Facilities in Sea Level Rise Risk Area			
	1-foot	4-foot	7-foot	10-foot
Belleair	0	5	10	10
Belleair Beach	3	3	3	3
Belleair Bluffs	0	0	0	1
Belleair Shore	0	0	0	0
Clearwater	4	19	40	50
Dunedin	1	15	31	39
Gulfport	0	3	10	11
Indian Rocks Beach	0	3	3	3
Indian Shores	0	8	10	10
Kenneth City	0	0	0	0
Largo	6	14	31	46
Madeira Beach	0	10	13	13
North Redington Beach	0	1	1	1
Oldsmar	0	4	21	54
Pinellas Park	0	1	10	24
Redington Beach	0	4	4	4
Redington Shores	0	4	4	4
Safety Harbor	0	0	0	0
St. Petersburg	3	14	62	98
St. Pete Beach	0	15	27	27
Seminole	0	0	10	19
South Pasadena	0	3	17	17
Tarpon Springs	0	22	45	79
Treasure Island	0	10	17	17
Unincorporated	11	20	34	62
PINELLAS COUNTY TOTAL	**28**	**178**	**403**	**592**

Please refer to the *Tropical Cyclone Hazard Profile* for vulnerability and loss estimations of critical facilities due to coastal flooding and storm surge.

As seen throughout this profile, flood impacts are pervasive with potentially devastating impacts to people, built infrastructure, and the environment. When comparing vulnerabilities between communities, the relative vulnerability (low, medium, high) changes based on the metric (people, buildings, critical facilities, economic losses) and the flood hazard assessed (coastal, riverine, effective flood map risk areas, sea level rise, etc.). To simplify the comparison between communities, the quantifiable metric of structures within the special flood hazard area (SFHA) is being utilized. More specifically, the percentage of the buildings within the community that are identified as being in the SFHA compared to all buildings in the community.

Table 4.30: Each Jurisdictions Relative Vulnerability to Flood (Effective Floodplain)

		All SFHA (A and V Zones)			
NAME	Buildings in Jurisdiction	Count of Buildings Exposed	% of Jurisdiction	Relative Jurisdictional Impacts	% of County Wide at-Risk Exposure
UNINC	39,444	8,442	21%	Low	10.2%
BELLEAIR	1,456	173	12%	Low	0.2%
BELLEAIR BEACH	852	852	100%	High	1.0%
BELLEAIR BLUFFS	714	4	1%	Low	0.0%
BELLEAIR SHORE	61	64	100%	High	0.1%
CLEARWATER	48,004	6,425	13%	Low	7.8%
DUNEDIN	14,993	2,311	15%	Low	2.8%
GULFPORT	5,024	1,253	25%	Low	1.5%
INDIAN ROCKS BEACH	1,732	1,749	100%	High	2.1%
INDIAN SHORES	163	166	100%	High	0.2%
KENNETH CITY	1,439	229	16%	Low	0.3%
LARGO	40,350	4,019	10%	Low	4.9%
MADEIRA BEACH	1,935	2,069	100%	High	2.5%
NORTH REDINGTON BEACH	399	416	100%	High	0.5%
OLDSMAR	6,552	3,813	100%	High	1.0%
PINELLAS PARK	17,690	2,877	100%	High	1.1%
REDINGTON BEACH	772	850	9%	Low	0.8%
REDINGTON SHORES	854	871	15%	Low	3.9%
SAFETY HARBOR	7,198	624	100%	High	0.9%
SEMINOLE	22,055	3,259	100%	High	4.6%
SOUTH PASADENA	745	762	100%	High	37.9%
ST. PETE BEACH	3,720	3,802	28%	Low	4.7%
ST. PETERSBURG	104,456	31,356	100%	High	3.1%
TARPON SPRINGS	14,005	3,861	21%	Low	10.2%
TREASURE ISLAND	2,390	2,530	12%	Low	0.2%
Buildings in Risk Area		82,817			
All Buildings Countywide	337,003				
% of Risk Countywide		24.6%			

Jurisdictional Impact	% of Jurisdiction Impacted
No Exposure	0
Low	>0-30
Medium	30-60
High	60-85
Very High	85-100
	Highest Value of the Category

Furthermore, as flooding is the most prevalent hazard impacting the communities, there are additional, comprehensive sources of information within the appendices to supplement this section. These include the following: Appendix C - CRS 610; Appendix H – Program for Public Information; and Appendix I – Repetitive Loss Area Analysis. Appendix C covers the Flood Warning and Response Plan with detailed discussions on risk impacts to the community as well as language and demographic considerations for the flood vulnerable areas. Appendix H discusses all the mechanisms for communicating flood risk information to the community in both pre- and post-event situations. That documents also contains an assessment of the impacts to the jurisdictions to support the strategic development of risk communication initiatives for different audiences. Lastly, Appendix I provides a thorough assessment of watershed by watershed flood risks to identify the most at-risk (historically) geographies.

8. Overall Vulnerability

Each of the five PRI categories was assigned a value from 1 to 4 and the pre-determined weighting factor was applied to calculate a PRI score. PRI scores can range from 1.0 to 4.0 and the overall vulnerability ranking or high, moderate, or low was assigned based on the PRI scores.

Based on the probability, impact, spatial extent, warning time, and duration, the overall vulnerability of this hazard was determined to be high, with a PRI score of 3.3.

FLOOD			Overall Vulnerability	
Overview				
A flood or flooding refers to the general or temporary conditions of partial or complete inundation of normally dry land areas from the overflow of inland or tidal water and of surface water runoff from any source. While many people underestimate the severity of floods, loss of life and property from flooding are real threats in Pinellas. Pinellas County communities experience several different kinds of floods due to the effects of severe thunderstorms, hurricanes, seasonal rains and other weather-related events.			HIGH	
			PRI Score	
			3.3	
Probability	**Impact**	**Spatial Extent**	**Warning Time**	**Duration**
Highly Likely	**Critical**	**Moderate**	**6 to 12 hrs**	**< 1 week**

Tropical Cyclone Hazard Profile

1. Tropical Cyclone Description

A tropical cyclone is a rotating organized system of clouds and thunderstorms that originates over tropical or subtropical waters and has a closed low-level circulation. Tropical cyclones rotate counterclockwise in the Northern Hemisphere and clockwise in the Southern Hemisphere and have an average diameter of 200 to 400 miles across. These storms form when a developing center of low pressure moves over warm water and pressure drops (measured in millibars or inches of Mercury) in the center of the storm. As the pressure drops, the system becomes better organized and the winds begin to rotate around the low pressure, pulling in the warm and moist ocean air. This is what causes the wind and rain associated with a tropical cyclone. If all the conditions are favorable (warm ocean water and favorable high-altitude winds), the system could build to a point where it has sustained winds of 150 mph with gusts of up to 20 mph and could become catastrophic if it makes landfall in populated areas. Tropical cyclones act as a safety valve that limits the build-up of heat and energy in tropical regions by maintaining the atmospheric heat and moisture balance between the tropics and the poleward latitudes. As the storm system rotates faster, an eye forms in the center. Higher-pressure air from above flows down into the eye.

Tropical cyclones occasionally strengthen to become tropical storms or hurricanes. The following are descriptions of the four general levels of development for tropical cyclones:

- Tropical depression: The formative stages of a tropical cyclone in which the maximum sustained (1-min mean) surface wind is < 38 mph.
- Tropical storm: A warm core tropical cyclone in which the maximum sustained surface wind (1-min mean) ranges from 39 to 73 mph.
- Hurricane: A warm core tropical cyclone in which the maximum sustained surface wind (1-min mean) is at least 74 mph.
- Major Hurricane: A warm core tropical cyclone in which the maximum sustained surface wind (1- min mean) is at least 111 mph.

Hurricanes are further ranked by wind speed from Category 1 to 5, with 5 being catastrophic. The Saffir-Simpson Hurricane Wind Scale is shown in the table below.

Table 4.31: Saffir-Simpson Hurricane Wind Scale[27]

Category	Sustained Winds	Types of Damage Due to Hurricane Winds
1	74–95 mph	**Very dangerous winds will produce some damage:** Well-constructed frame homes could have damage to roof, shingles, vinyl siding and gutters. Large branches of trees 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 a few to several days.
2	96–110 mph	**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 (major)	111–129 mph	**Devastating damage will occur:** Well-built 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 (major)	130–156 mph	**Catastrophic damage will occur:** Well-built 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 (major)	157 mph 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.

Advisories

Below are the advisories and thresholds that the National Hurricane Center can issue during Tropical Cyclone events.[28]

- Tropical Storm
  - Tropical Storm Watch: issued when sustained winds of 39 to 73 mph are possible in the specified area within 48 hours in association with a tropical cyclone. These watches are issued 48 hours in advance of the anticipated onset of tropical storm force winds because preparedness activities become difficult and unsafe once winds reach tropical storm force.

[27] http://www.nhc.noaa.gov/aboutsshws.php
[28] http://www.nhc.noaa.gov/aboutgloss.shtml

  - Tropical Storm Warning: issued when sustained winds of 39 to 73 mph are expected in the specified area within 36 hours in association with a tropical cyclone. These warnings are issued 36 hours in advance of the anticipated onset of tropical storm force winds because preparedness activities become difficult and unsafe once winds reach tropical storm force.
  - Potential Tropical Storm: until 2017, the National Hurricane Center was only able to issue warnings when a storm was already formed. This is a problem because sometimes forecasting is certain enough to know that a disturbance will turn into a storm closer to landfall, but by the time a warning is sent out when a storm is close to land, it will be too late for protective actions. To remedy this issue, the NHC will now have the option to issue Potential Tropical Cyclone Warnings for areas of disturbance that are expected to develop into a tropical storm or hurricane and impact land within 48 hours.

- Hurricane
  - Hurricane Watch: issued when 74 mph winds or higher are possible in the specified area within 48 hours in association with a tropical cyclone. Because preparedness activities become difficult once winds reach tropical storm force, the hurricane watch is issued 48 hours in advance of the anticipated onset of tropical storm force winds
  - Hurricane Warning: issued when 74 mph winds or higher are expected in the specified area within 36 hours in association with a tropical cyclone. Because preparedness activities become difficult once winds reach tropical storm force, the hurricane warning is issued 36 hours in advance of the anticipated onset of tropical storm force winds
- Storm Surge
  - Storm Surge Watch: issued when there is the possibility of life-threatening inundation from rising water moving inland from the shoreline in the specified area, generally within 48 hours, in association with an ongoing or potential tropical cyclone.
  - Storm Surge Warning: issued when the danger of life-threatening inundation from rising water moving inland from the shoreline in the specified area, generally within 36 hours, in association with an ongoing or potential tropical cyclone.
  - Storm Surge Watches and Warnings may be issued earlier based on timing forecasts and may be issued for locations adjacent to expected life-threatening inundation areas.

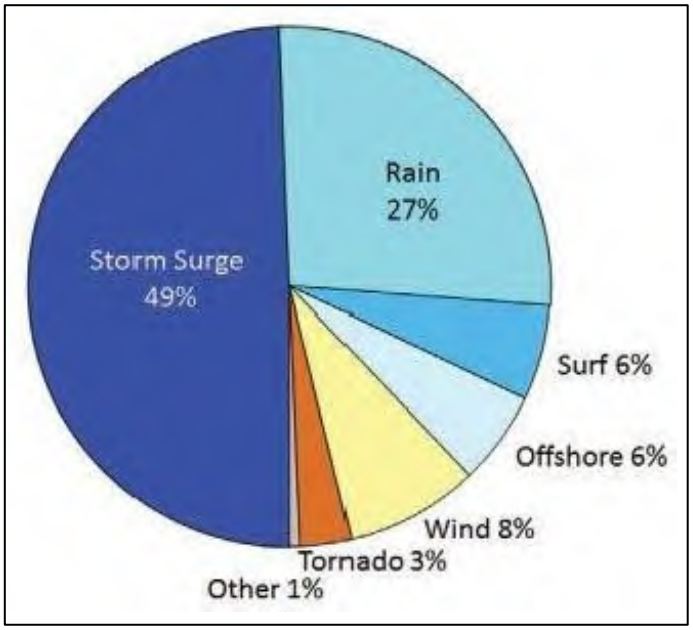
<u>Causes of Fatalities in Tropical Cyclone Storms</u>

There are two categories of causes of fatalities in tropical storms or hurricanes, direct and indirect. A direct death means that the fatality is attributable to forces of the storm, such as water or wind. An indirect death means that the fatality resulted from actions before, during, and after the storm.

In a study from the National Hurricane Center, from 1963 to 2012, there are an average of 40 to 50 direct deaths from tropical storms or hurricanes each year. According to the study, 90% of the deaths are due to water, either storm surge, freshwater flooding, or rainfall. Of course, there is a large storm-to-storm and year-to-year variability associated with that average. It was also determined that while 1

in every 5 tropical cyclones causes death in the United States, two thirds of direct deaths from tropical cyclones were from just six specific storms.[29]

Figure 4.24: Deaths in the United States Directly Attributable to Atlantic Tropical Cyclones, 1963–2012[30]



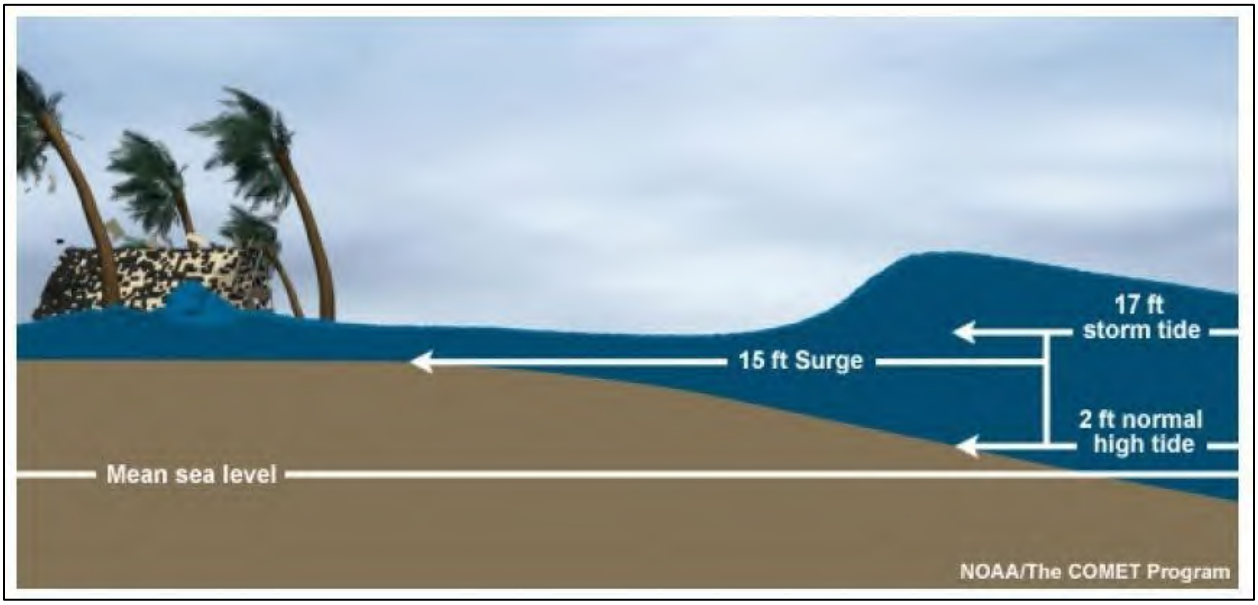
The study also examined indirect deaths and found that there is an average of 30 to 40 indirect fatalities from tropical storms or hurricanes each year. Additionally, those over age 70 were found to be 8 times as likely to be victims than those under age 21. The study found four primary contributing factors to indirect deaths, some of which occur in combination. The leading cause of indirect deaths is cardiovascular complications; in fact, one third of all indirect deaths are attributed to cardiovascular complications. The next factor is complications during evacuations, either during the evacuation or when the victim reaches the destination. Vehicle accidents are also a contributing factor to indirect deaths. Examples of vehicle accidents include hydroplaning, traffic lights out, and downed trees. Finally, indirect deaths are sometimes caused by power related complications, such as the improper use of generators leading to carbon monoxide poisoning or structure fires, electrocutions, and losing power to life sustaining medical equipment.

Storm Surge

Storm surge is perhaps the most dangerous aspect of a hurricane. It is a phenomenon that occurs when the winds and forward motion associated with a tropical cyclone pile water up in front as it moves toward shore. Below is a diagram to demonstrate storm surge.[31]

[29] http://journals.ametsoc.org/doi/pdf/10.1175/BAMS-D-12-00074.1
[30] http://journals.ametsoc.org/doi/pdf/10.1175/BAMS-D-15-00042.1
[31] http://www.nws.noaa.gov/om/hurricane/resources/surge_intro.pdf

Figure 4.25: Storm Surge Explanation



Storm surge heights are dependent upon the configuration of the continental shelf (narrow or wide) and the depth of the ocean bottom (bathymetry). In 2010, the National Hurricane Center separated storm surge from the Saffir-Simpson Hurricane Wind Scale because it did not accurately describe storm surge. For example, a Category 1 hurricane could have devastating storm surge, while a Category 5 hurricane could have minimal storm surge. Along most of the Atlantic coast of Florida, a narrow shelf, or one that drops steeply from the shoreline and subsequently produces deep water in close proximity to the shoreline, tends to produce a lower surge but higher and more powerful storm waves. The Gulf Coast of Florida has a long, gently sloping shelf and shallow water depths, leading to higher surge but smaller waves. South Miami-Dade County is somewhat of an exception to these general rules due to Biscayne Bay, which has a wide shelf and shallow depth. In this instance, a hurricane has a larger area to "pile up" water in advance of its landfall. Nowhere is the threat of storm surge more prevalent than in the Apalachee Bay Region, where storm surge can reach several feet above ground.

The National Hurricane Center forecasts storm surge using the SLOSH model, which stands for Sea, Lake, and Overland Surges from Hurricanes. The model is accurate to within 20%. The inputs include the central pressure of a tropical cyclone, storm size, the forward motion, its track, and maximum sustained winds. Local topography, bay and river orientation, depth of the sea bottom, astronomical tides, as well as other physical features are taken into account in a predefined grid referred to as a "SLOSH basin." Overlapping basins are defined for the southern and eastern coastlines of the continental United States.

The final output from the SLOSH model run will display the Maximum Envelope of Water, or MEOW, that occurred at each location. To allow for track or forecast uncertainties, usually several model runs with varying input parameters are generated to create a map of MOMs, or Maximum of Maximums. For hurricane evacuation studies, a family of storms with representative tracks for the region with varying intensity, eye diameter, and speed are modeled to produce worst-case water heights for any tropical

cyclone occurrence. The results of these studies are typically generated from several thousand SLOSH runs.[32]

Tornadoes

Tornadoes are a significant threat during tropical cyclones and have been associated with the majority that have affected Florida. Tornadoes tend to develop on the leading northwest edge relative to the forward motion (or on the right-front quadrant) of hurricanes, within thunderstorms and rain bands away from the center. The majority of tornadoes that occur with hurricanes are relatively weak and short lived. In recent years, much of the wind damage in hurricanes attributed to tornadoes has in reality been the result of down bursts, which are strong downdrafts causing damaging winds on or near the ground. For more information regarding tornadoes, please see the *Severe Storm Hazard Profile*.

High Winds

Tropical cyclones can produce very strong and destructive winds that can persist for great distance in area and duration even after landfall. Hurricane force winds are extremely dangerous and can cause severe damage and debris. This debris, including signs, pieces of structures not properly secured, and shallow rooted trees, is often then carried by the high winds and can cause further damage.

Rainfall

Tropical cyclones are capable of producing widespread and heavy rains, which can result in life-threatening and damaging floods. This flooding is actually the biggest threat from tropical cyclones for people who live inland. The rainfall can cause flash flooding and flooding on rivers and streams that can persist for several days after the storm. Rainfall amounts are related to the speed and size of tropical cyclones, not the intensity. This is because a slower moving and larger tropical cyclone has a longer and larger capacity to produce more rainfall.

Rip Currents

The strong winds associated with tropical cyclones can cause rip currents, which are a significant drowning threat to coastal residents and beachgoers. Rip currents are channeled currents of water flowing away from shore and can easily pull strong swimmers into the open water. These rip currents can occur at large distances from the storm.

The National Weather Service produces Rip Current Outlooks to alert beachgoers to the risk of rip currents at a particular beach. There are three levels of outlooks:[33]

- Low Risk: The risk for rip currents is low; however, life-threatening rip currents often occur in the vicinity of jetties, reefs, and piers.
- Moderate Risk: Life threatening rip currents are possible in the surf zone.
- High Risk: Life threatening rip currents are likely in the surf zone.

[32] http://www.nhc.noaa.gov/surge/slosh.php
[33] http://www.nws.noaa.gov/os/hurricane/resources/TropicalCyclones11.pdf

Potential Effects of Climate Change on Tropical Cyclones

A warmer atmosphere could influence two of the factors that affect the generation and strength of tropical cyclones: (1) increased thermal energy resulting from higher sea surface temperatures (SST) and (2) increased vertical wind shear.[34] These effects are likely to counteract each other to some degree. The exact role of increasing SST remains to be determined: tropical cyclone intensity, as measured by power dissipation indices,[35] may increase directly as a function of SST, or intensity may be a function of the difference between SST in the cyclone development region and mean global tropical SST.[36] Vertical wind shear disturbs the structure of a tropical cyclone and, therefore, increased shear can lead to system weakening.[37] Tropical cyclone intensity is one of the principal determinants of storm surge height; thus, the net effects of climate change on tropical cyclone intensity will also affect the magnitude of coastal flooding associated with these storms. Tropical cyclone tracks and, consequently, the number of systems that make landfall in Florida could be influenced by atmospheric steering currents and climate phenomena such as the El Niño-Southern Oscillation, North Atlantic Oscillation, Atlantic Meridional Mode, and Madden-Julian Oscillation.[38] As stated in the *Flood Hazard Profile*, higher rainfall intensity is likely as atmospheric moisture increases.[39]

2. Geographic Areas Affected by Tropical Cyclones

The entirety of Pinellas County is subject to the effects of tropical cyclones, but some areas are more vulnerable than others. This is due to its large areas of coastal shorelines on the Gulf Coast. The average diameter of hurricane force winds averages 100 miles, and tropical storm force winds extend out 300–400 miles;[40] while at the same time, no point within Pinellas County is more than 20 miles from the Gulf of Mexico. Tropical cyclones are random in distribution, so there is no specific region of Pinellas County that is more at risk than another. However, the coastal areas are more vulnerable to the effects that a tropical cyclone can produce due to their urban development, location, and the storm surge that can occur.

[34] Grinsted et al. (2013). *Projected Atlantic hurricane surge threat from rising temperatures. Proceedings of the National Academy of Sciences*, 110(14), 5369, https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3619316/; Grossman and Morgan (2011). *Tropical cyclones, climate change, and scientific uncertainty: What do we know, what does it mean, and what should be done?* Climatic Change, 108, 547.

[35] Power dissipation indices are "an aggregate compound of tropical cyclone frequency, duration, and intensity that measures total energy consumption by tropical cyclones," Seneviratne et al., 2012, p. 159. https://www.ipcc.ch/pdf/special-reports/srex/SREX-Chap3_FINAL.pdf

[36] Seneviratne et al. (2012). *Changes in climate extremes and their impacts on the natural physical environment. In Field et al. (Eds.), Managing the risks of extreme events and disasters to advance climate change adaptation*, p. 159. https://www.ipcc.ch/pdf/special-reports/srex/SREX_Full_Report.pdf

[37] Grossman and Morgan (2011). *Tropical cyclones, climate change, and scientific uncertainty: What do we know, what does it mean, and what should be done?* Climatic Change, 547.

[38] Kossin et al. (2010). *A globally consistent reanalysis of hurricane variability and trends.* Geophysical Research Letters, 34, 4. doi: 10.1029/2006GL028836.

[39] Knutson et al. (2010). *Simulated reduction in Atlantic hurricane frequency under twenty-first-century warming conditions.* Nature Geoscience,1(6), 161.

[40] http://www.hurricanescience.org/science/science/hurricanestructure/

As seen in the map below, tropical cyclones are random and affect all of Pinellas County. The image below depicts all the tropical cyclones to affect Pinellas County from 1852 to 2017. This graphic shows that all areas of the county can be affected by tropical cyclones.[41]

The additional maps that follow delineate areas that are vulnerable to the storm surge that can be produced by tropical cyclones and are not located in the effective floodplains.

The significance of this is that property owners outside of FEMA SFHA are not required to carry flood insurance (unless required per lender) and less likely to have a flood insurance policy. Properties without flood insurance in flood-prone areas place the local government and property owners at more economic and social risks.

[41] https://coast.noaa.gov/hurricanes/

Figure 4.26: Historical Tropical Cyclone Tracks, Pinellas County, 1842 to 2021

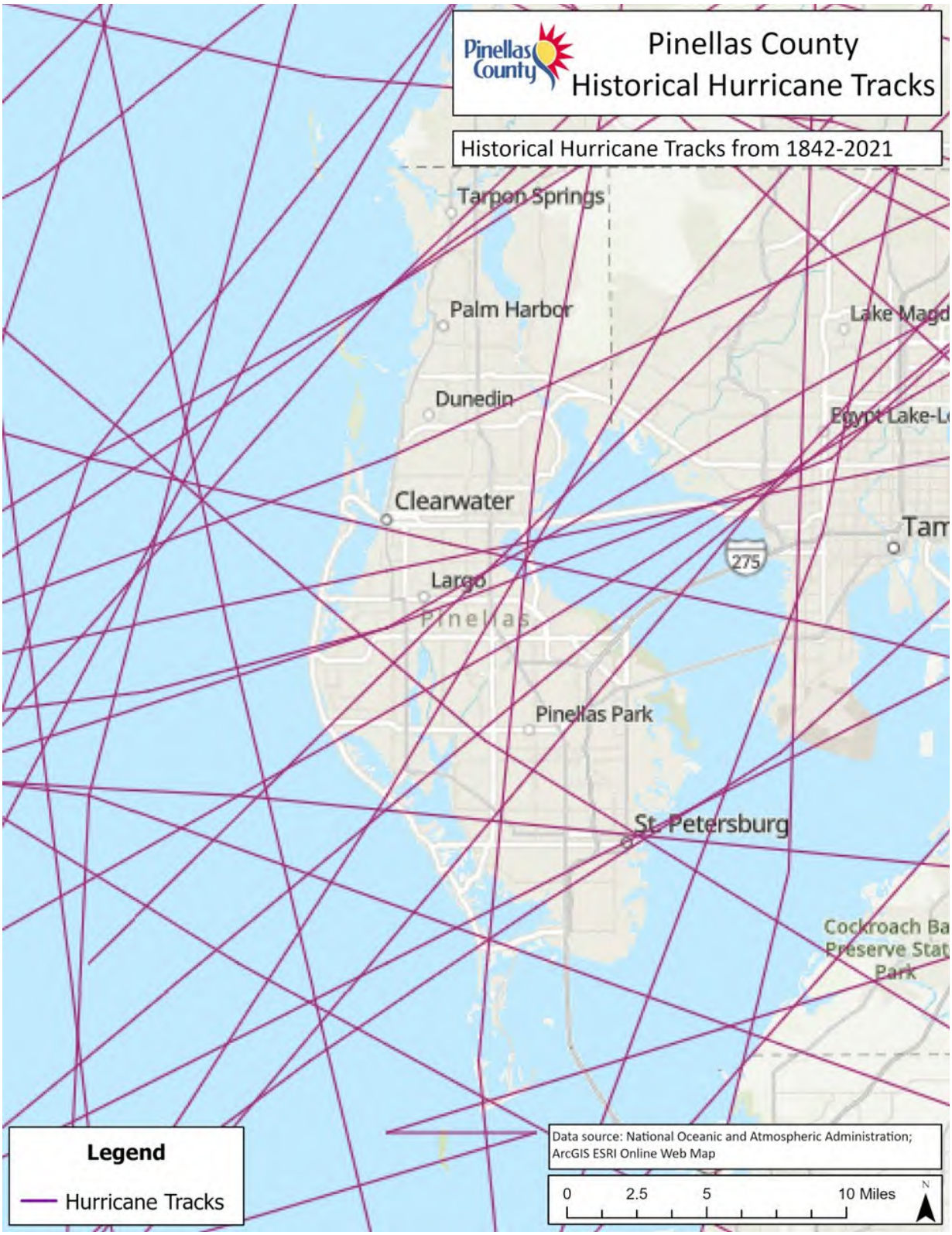


Figure 4.27: Storm Surge Zones – Not in Effective Flood Area

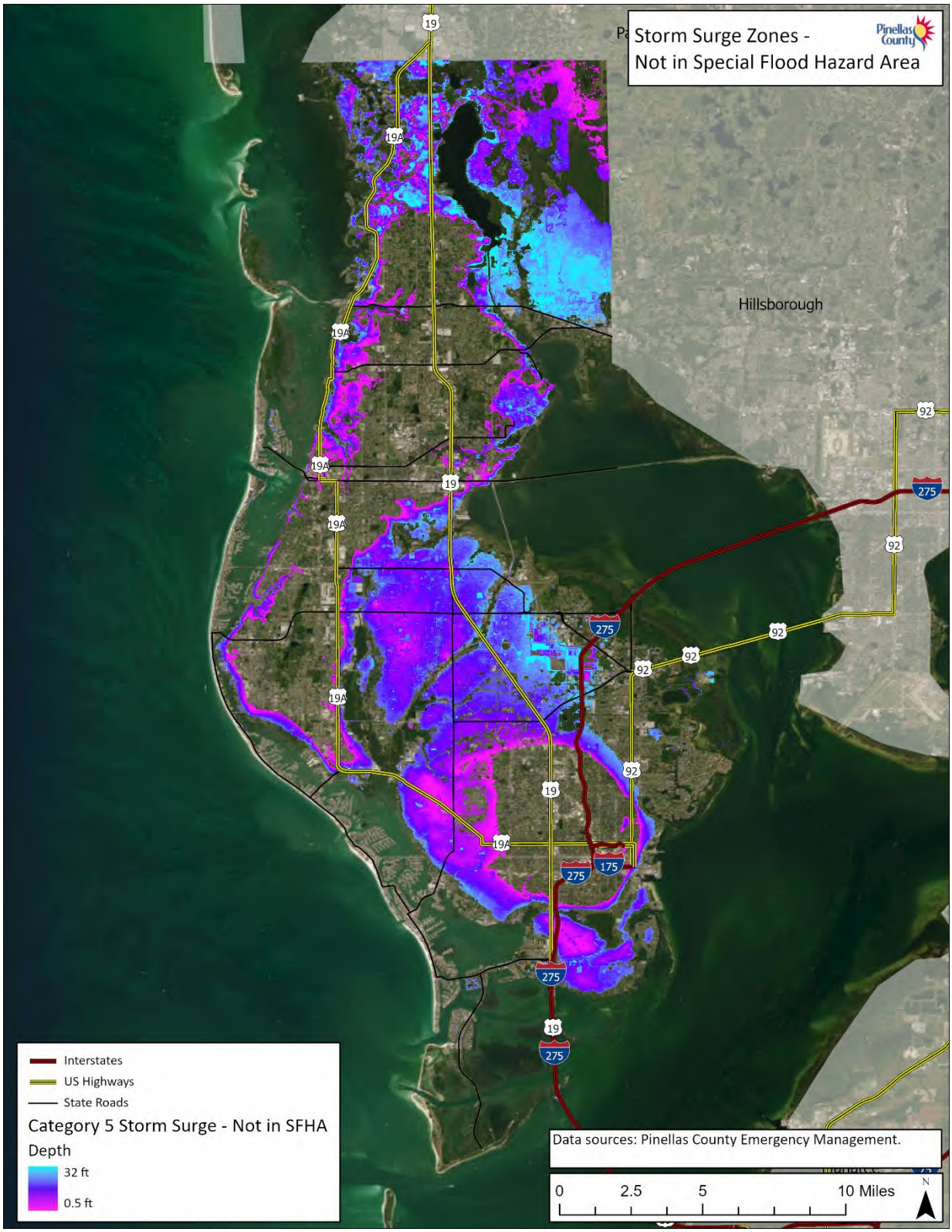


Figure 4.28: Storm Surge Zones – Category 1 Depth

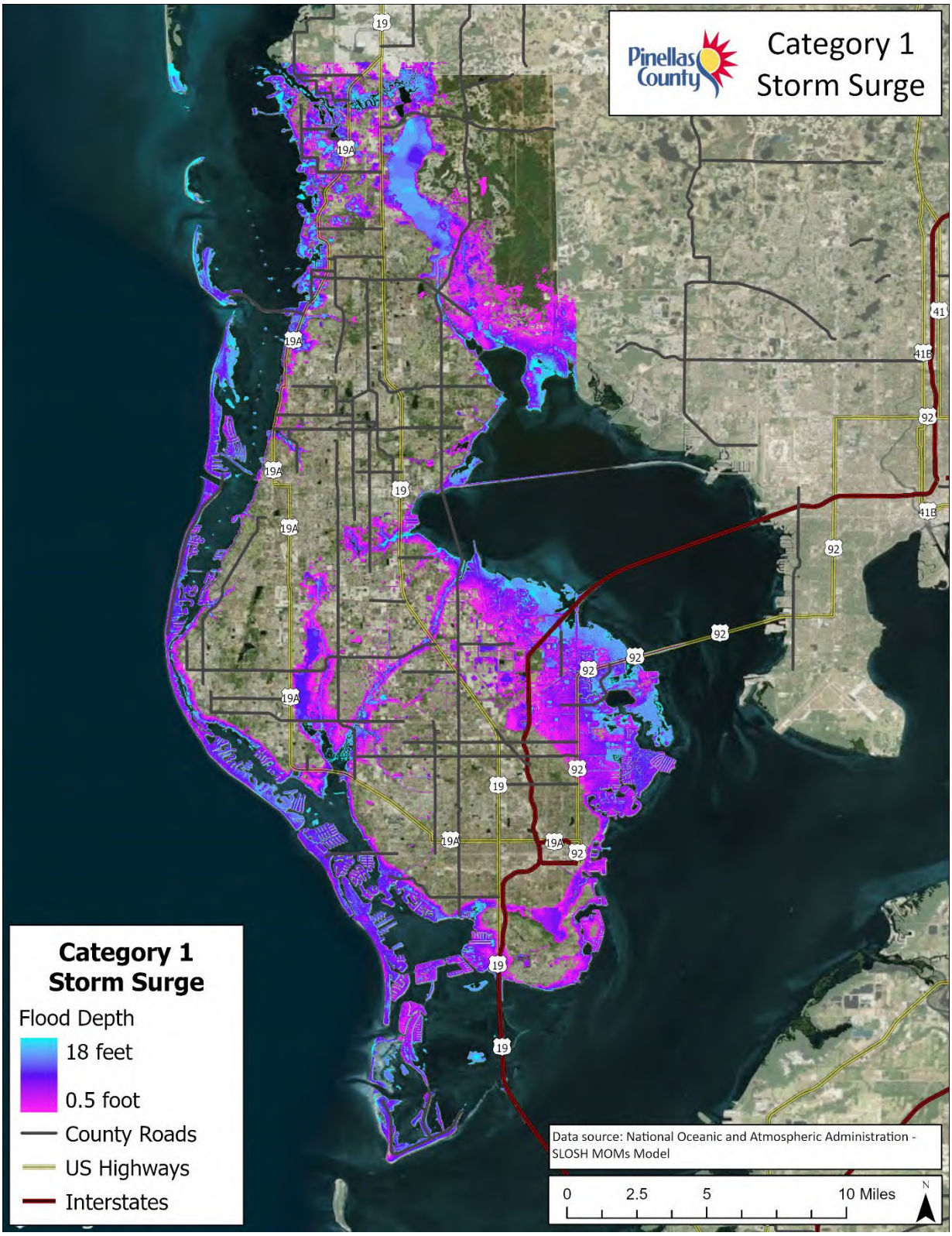


Figure 4.29: Storm Surge Zones – Category 3 Depth

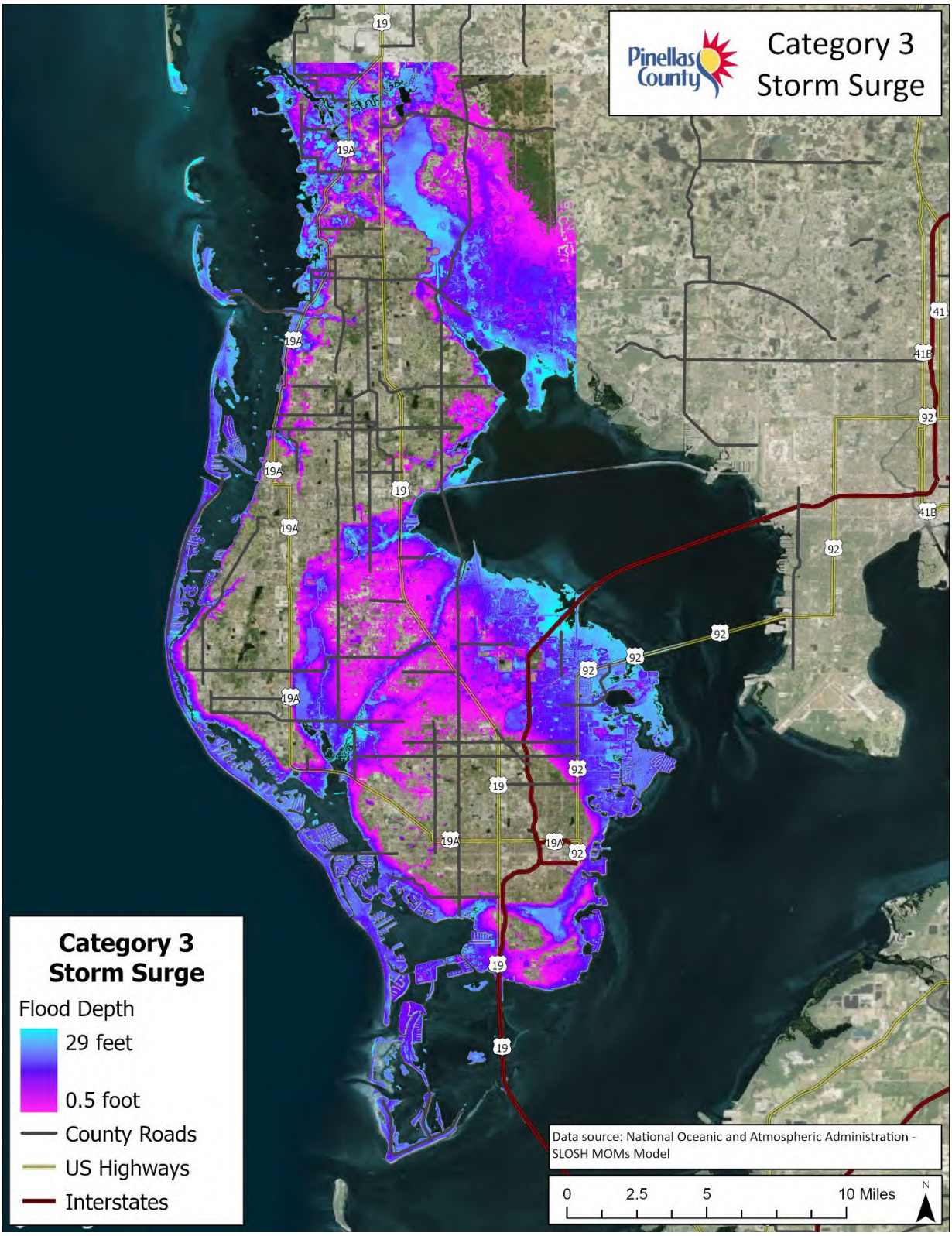
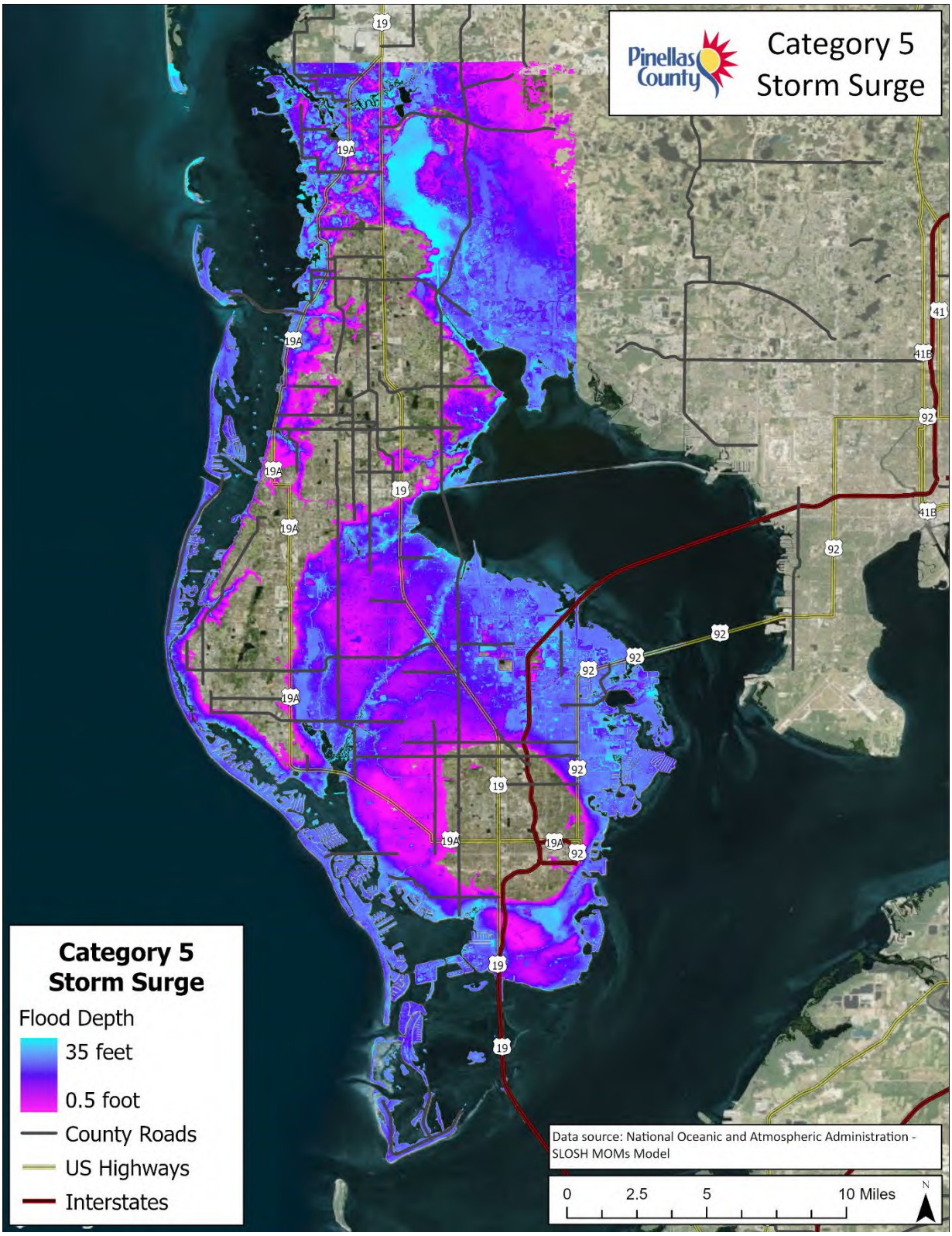


Figure 4.30: Storm Surge Zones – Category 5 Depth



3. Historical Occurrences of Tropical Cyclones

The table below lists the significant hurricanes and tropical storms that affected Pinellas County.

Table 4.32: Significant Tropical Cyclone Occurrences in Pinellas County[42]

Date	Description
1921	The hurricane of 1921 produced a storm surge of 10.5 feet which was the highest recorded since the hurricanes of 1848. Locally, it created both Longboat Pass (which now separates the City of Bradenton Beach and Longboat Key) and Hurricane Pass in Dunedin. Before the storm, Passage Key, located between Egmont Key and Anna Maria Island, was the home to a fishing village and fresh water lake. Following the storm and continuing today, Passage Key is a sandbar with little vegetation and a Natural Bird Sanctuary. This was the last major hurricane (a Category 3 when it hit the coast) to actually make landfall in Pinellas County.
September 1985	On Labor Day weekend 1985, Hurricane Elena threatened Pinellas County and approached within 80 miles of the coast. Evacuations in Louisiana, Mississippi, Alabama and Florida were of unprecedented proportions. Almost 1 million residents and visitors were affected in the initial evacuation orders in the Florida panhandle and coastal region of Alabama, Mississippi and Louisiana. Then, as the storm turned and the warnings shifted, 10 additional Florida counties including those in Tampa Bay were ordered to evacuate. The threat of Elena initiated an evacuation which forced over 500,000 to leave vulnerable areas in the Tampa Bay region and seek shelter. Many sought shelter in the homes of friends and relatives in inland areas of Florida and Georgia. Others went to hotels and motels – filling every room (and lobby) in the state particularly along the I-75 and I-4 corridors. More than 300,000 sought public shelter in the Tampa Bay Region alone – one of the largest evacuations and shelter operations in U.S. history. After stalling off the coast for two days, Hurricane Elena turned toward the Florida Panhandle again, forcing the evacuation of thousands of coastal residents just returning after the earlier round of evacuations, ultimately making landfall near Biloxi, Mississippi. Although it never made landfall, Pinellas County received approximately $118 million in damages.
August 1992	While Hurricane Andrew did not directly strike the Tampa Bay region, it did affect the entire state in many ways. Only two other hurricanes in history, both Category 5 storms – the Labor Day storm of 1935, Camille in 1969 – were stronger than Hurricane Andrew when they made landfall in the United States. It struck South Florida with a storm surge of over 16 feet and winds which gusted over 175 mph. The scale of the disaster was enormous and the massive recovery that ultimately ensued was of epic proportions. The damages were staggering – surpassing $50 billion – affecting emergency management policies and procedures, insurance industry and land development regulations (including the statewide building code).

[42] https://www.nhc.noaa.gov/

Date	Description
September 1998	Hurricane Georges threatened Central and Southwest Florida in the end of September 1998. From September 21st through the 30th, Hurricane Georges left a trail of destruction in the Caribbean region and across the southern U.S. Gulf coast. As the Hurricane threatened the Keys and Southwest Florida the potential threat to Pinellas County continued to develop. On Wednesday September 23rd the county activated the Citizens Information Center to answer the flood of calls from concerned citizens. On September 24th, preparedness and response actions and planning accelerated. A final meeting of the Disaster Advisory Committee was held at 9:30 AM. The County EOC was partially activated at 11:00 AM. The Board of County Commissioners met in Emergency Session at 11:30 AM and declared a State of Local Emergency and issued a Mandatory A Level Evacuation, to be effective at 6 AM on September 25th. At 6 PM the National Weather Service issued a Flood Watch and at 11PM the National Hurricane Center issued A Tropical Storm Warning. On September 25th the State of Local Emergency became effective at 6 AM. County Offices and schools were closed, and 55 Public Shelters were opened with a total capacity of 83,560 spaces. As the threat of Georges began to appear to lessen shelter operations were consolidated to relieve the load on first responders and management staff. By noon on the 25th of September the President of the United States declared a State of Emergency for Florida. On September 26th, the threat to West Central Florida continued to lessen. Tropical Storm Warnings and Tornado Watches for Pinellas County were canceled. The Mandatory A Level Evacuation Order was lifted and by noon the Shelters were closed and the EOC deactivated.
September 17, 2000	On September 17, 2000 Hurricane Gordon moved northeast across the eastern Gulf of Mexico and brought 30 to 40 mph sustained winds and 50 to nearly 70 mph tropical storm force wind gusts to mainly coastal areas of Southwest and West Central Florida throughout the daylight hours of the 17th. Hurricane Gordon produced maximum storm tides above mean sea level of 4 to 5.5 feet along the Pinellas and Hillsborough county coastlines. In Pinellas County, nearly a foot of water covered coastal roads from St. Pete Beach to Clearwater. The Courtney Campbell Parkway, separating Pinellas and Hillsborough counties, was closed for approximately 4 hours due to storm surge flooding. Beach erosion was minor to moderate over Pinellas County. In Pinellas County, 51 single-family homes, 32 mobile homes, 27 multi-family homes and 24 businesses sustained minor wind or water damage. Estimated cost of the damage in Pinellas County was $500,000 dollars.

Date	Description
September 14, 2001	Tropical Storm Gabrielle began to affect the Southwest Florida coast during the pre-dawn hours of September 14, 2001, with sustained winds of 40 to 50 mph along the coasts of Sarasota, Manatee, Charlotte and Lee counties. By sunrise, high end tropical storm force wind gusts of 60 to 70 mph were common from the mouth of Tampa Bay south to Charlotte Harbor. Gabrielle continued to move northeast and made landfall, south of Venice, in Sarasota County, between 6:45 and 7:00 a.m. EST. In Pinellas and Hillsborough counties, northeast wind gusts of 50 to 65 mph were common across most of Tampa Bay and the southern portions of the counties. Storm tide values of up to three feet were common on the Pinellas county side (west) of Tampa Bay, from the Gandy Bridge south to Pinellas Point. Most wind damage and flooding were minor across Pinellas and Hillsborough counties. The most significant impact for Pinellas County was overhead power distribution lines brought down by falling tree limbs particularly in the City of St. Petersburg.
August 9–14, 2004	Hurricane Charley strengthened rapidly just before striking the southwestern coast of Florida as a Category 4 hurricane on the Saffir-Simpson Hurricane Scale. Charley was the strongest hurricane to hit the United States since Andrew in 1992 and, although small in size, it caused catastrophic wind damage in Charlotte County, Florida. Serious damage occurred well inland over the Florida peninsula. In the Tampa Bay Region, dead center for the 24-hour forecast track, evacuations were ordered in all four counties. Charley was directly responsible for 10 deaths – primarily from flying debris and fallen trees. There were an additional 20 indirect deaths.
August 25– September 8, 2004	Hurricane Frances was a Cape Verde-type hurricane that reached a peak intensity of Category 4 on the Saffir-Simpson Hurricane Scale. It affected the Bahamas as a Category 3 hurricane and the Florida east coast as a Category 2 hurricane. The Tampa Bay Region experienced tropical storm and minimal hurricane force winds with some coastal and more extensive inland flooding caused by more than 10 inches of rainfall. Frances was directly responsible for seven deaths – five in Florida, one in the Bahamas, and one in Ohio. Three deaths were caused by wind, two by storm surge, one by freshwater flooding, and one by lightning. The hurricane was indirectly responsible for 42 deaths – 32 in Florida, 8 in Georgia, 1 in the Bahamas, and 1 in Ohio.
September 2–24, 2004	Hurricane Ivan was a classical, long-lived Cape Verde hurricane that reached Category 5 strength on the Saffir-Simpson Hurricane Scale (SSHS) three times. It was also the strongest hurricane on record that far south east of the Lesser Antilles. Ivan caused considerable damage and loss of life as it passed through the Caribbean Sea. Despite the unfavorable environmental conditions, the presence of cooler shelf water just offshore and eyewall replacement cycles, Ivan weakened only slowly and made landfall as a 105 kt hurricane (Category 3 on the SSHS) on September 16th, just west of Gulf Shores, Alabama. Ivan caused extensive damage to coastal and inland areas of the United States. Portions of the Interstate 10 bridge system across Pensacola Bay, Florida, were severely damaged in several locations as a result of severe wave action on top of the 10–15 ft storm surge. At one point, more than 1.8 million people were without power in nine states.

Date	Description
September 13–28, 2004	Hurricane Jeanne produced heavy rain over Guadeloupe, Puerto Rico and the Dominican Republic and caused an estimated 3000 or more deaths in Haiti, from torrential rainfall flooding. Finally, Jeanne hit the northern Bahamas and then the central Florida east coast as a Category 3 hurricane. Jeanne moved across central Florida while weakening and began to curve around the western periphery of the migratory ridge. The hurricane weakened to a tropical storm while centered about 30 mi north of Tampa September 26th and then weakened to a tropical depression about 24 hours later while moving northward across central Georgia accompanied by heavy rain. Winds were somewhat higher in the Tampa Bay Region for Hurricane Jeanne than Hurricane Frances resulting in wind damage and minimal coastal flooding. Areas still flooded from Frances (three weeks before) received additional flood waters.
August 2008	In 2008, Tropical Storm Fay resulted in resulted in approximately $20,000 in property damage in Pinellas County primarily from heavy rainfall. As it zigzagged from water to land, it became the first storm in recorded history to make landfall in Florida four times. Thirty-six deaths were blamed on Fay. The storm also resulted in one of the most prolific tropical cyclone related tornado outbreaks on record. A total of 81 tornadoes touched down across five states, three of which were rated as EF2. Damage from Fay was heavy in Florida, estimated at $560 million.
June 2012	In June 2012, Tropical Storm Debby, a minor tropical storm flooded many parts of the state including Pinellas County. In St. Petersburg, a gust of 45 mph (72 km/h) was observed, while 1.88 inches (48 mm) of rain fell in a one-hour period. With the substantial loss of beaches, tourism in the region is expected to suffer significantly. Portions of Upham Beach in Pinellas County were completely eroded up to the seawall and other areas in that county had lost 20 to 30 ft (6.1 to 9.1 m) of sand. On Treasure Island, coastal dunes were eroded by 10 to 15 ft (3.0 to 4.6 m). In Pass-a-Grille, Debby's storm surge flooded coastal hotels with ankle-deep water as the dunes were washed away. Throughout St. Pete Beach, 30–40 homes were damaged by a tornado spawned by Debby.

Date	Description
August–September 2016	Hermine formed in the Florida Straits south of Key West on August 28th. It remained a very disorganized tropical depression for a few days before the environment around it gradually became more favorable and it became a tropical storm late in the day on the 30th. Hurricane Hermine made landfall just east of St. Marks, Florida, around 0130EDT on September 2 as a Category 1 Hurricane with a minimum central pressure of 982 mb, and maximum sustained winds estimated at 70 knots (80 MPH). Heavy rainfall over West-Central and Southwest Florida began on August 31 and continued through September 2, with as much as 20 inches of rain falling in some locations. River flooding from this heavy rain impacted some areas through September 6th. Storm surge generally ranged from 2 to 7 feet above normal high tide, with the highest storm surge value recorded of 7.5 feet at Cedar Key. The collective effects of Hurricane Hermine during the period of September 1–6 resulted in just over $219M in property damage, and no fatalities or injuries across West-Central and Southwest Florida. In Pinellas County, the highest sustained wind speed recorded was 51 knots, with a peak gust of 68 knots in the afternoon of the 1st at a home weather station at Indian Shores Beach. Storm total rainfall ranged from 6 to 20 inches between the 31st and the 2nd, with the highest value recorded of 22.11 inches at the CWOP station 1 mile SSE Baskin. Storm surge generally ranged from 2 to 4 feet above normal high tide. At Clearwater Beach, the peak surge was 4.41 feet on the evening of the first, and when added to the normal astronomical tide cycle, the highest storm tide was 3.99 feet NAVD88 of total water. The total damage from Hermine in Pinellas County was estimated to be $ 7.3 million, which includes $ 4 million from coastal flooding, $2.3 million from inland flooding, and $1 million from wind damage. Combining all damage sources, a total of 867 residential properties had minor or affected damage, 3 had major damage, and 5 were reported destroyed in Pinellas County.
September 2017	In Pinellas County, the highest winds reported from Hurricane Irma was a gust to 77 knots at Pier 60 Park. Rainfall was generally around 4 inches or greater, with the highest rain total 5.98 inches at the GOES station BTRF1 in Tarpon Springs. The wind resulted in damage to numerous homes, as well as knocking over trees and power lines. Pinellas County Emergency Management reported that 77 homes or businesses were destroyed, 533 sustained major damage, 5761 had minor damage, and an additional 11,935 were affected by hurricane Irma throughout Pinellas County. The track of Irma resulted in a much stronger negative surge north of the eye, causing extremely low water levels in the Tampa Bay. No significant damage was reported from either the negative surge or the weak positive surge. The total damage from Irma in Pinellas County was estimated at $594.45 million, including $588.08 million in individual assistance claims and $6.37 million in public assistance claims, most of which was caused by wind damage. One indirect fatality was reported in Pinellas County from Hurricane Irma. A 53-year-old man was repairing cable lines in Feather Sound on the 16th when he fell 20 feet from a ladder. The medical examiner ruled that heart disease was a contributing factor.

Date	Description
November 2020	On Wednesday, October 28, the National Hurricane Center (NHC) began monitoring potential tropical cyclone formation in the southwestern Caribbean Sea. As several weather systems came together on Saturday, October 31, the NHC began issuing advisories on Tropical Depression #29. The Tropical Depression strengthened into Tropical Storm Eta on the same day. Eta was the 29th named storm of the 2020 hurricane season and the seventh named storm using the auxiliary Greek alphabet naming system, used after exhausting the normal naming list for the year. At 1600 Monday, November 9, Eta was no longer forecast to make landfall along the Florida west coast. Instead, the forecast began to trend toward a weaker storm, such as a tropical depression, slowly creeping northward toward the Florida Panhandle, or possibly even dissipating entirely. At 0400 Wednesday, November 11, the NHC issued a Hurricane Watch for Pinellas County, and resumed forecasting Eta to strengthen into a Category 1 Hurricane as it moved northward over the Gulf of Mexico. In addition, the Storm Prediction Center (SPC) issued a Tornado Watch and the NWS issued a High Surf Advisory and Rip Current Statement for Pinellas County shortly thereafter. At 0420 on Thursday, November 12, Tropical Storm Eta made landfall near Cedar Key in Levy County, Florida with maximum sustained winds of 50 MPH. As Eta continued to move inland over north Florida, weather conditions began to improve and Tropical Storm Warnings were discontinued for Pinellas County at 0700.
July 2021	On Tuesday, June 29, 2021, the National Hurricane Center (NHC) began monitoring a tropical wave in the central Atlantic Ocean for potential tropical development. As the area became increasingly organized, the NHC started issuing advisories on Potential Tropical Cyclone Five on Wednesday, June 30 as it quickly approached the Lesser Antilles. Shortly thereafter, the NHC upgraded the system to Tropical Depression Five after confirming the system had an organized structure. Pinellas County Emergency Management (PCEM) began monitoring the situation and activated the Emergency Operations Center (EOC) to a Level 3 – Enhanced Monitoring to begin coordinating protective actions and information, issuing the first situation report to partners the afternoon of July 1 to keep them apprised of the evolving situation, particularly ahead of the upcoming July 4 holiday weekend. At 0500 on Tuesday, July 6, the NHC issued a Hurricane Watch for Pinellas County in addition to the previously issued Tropical Storm Warning. The EOC activated to a Level 2 – Partial Activation with select EOC positions within the Emergency Services, Human Services, Infrastructure, and Recovery Branches that morning at 0700. The SPC issued a Tornado Watch for Pinellas County at 1347, and shortly thereafter, the NHC issued a Hurricane Warning for Pinellas County, explicitly forecasting Elsa to be a hurricane at landfall and as it moved past Pinellas County. At 1400, Pinellas County Government offices closed and remained closed into the following day. PCPCR and PCPW stopped sandbag operations, distributing 17,600 sandbags to residents over two days. Many municipal offices also closed around this time in preparation for Elsa, with several declaring a Local State of Emergency following the State and County declarations. At 1100, Tropical Storm Elsa made landfall in Taylor County, Florida with maximum sustained winds of 65 MPH. By 1400, both the shelters at the Lealman Exchange and Ross Norton Recreation Center closed after sheltering 171 residents (158 general population, 13 special needs, and 6 residents' pets). At 1700, after assessing reports received that indicated much of the county was unscathed, the EOC deactivated to a Level 4 – Normal Operations.

Date	Description
August 2021	On Wednesday, August 4, 2021 the National Hurricane Center (NHC) began monitoring a tropical wave over the central Atlantic Ocean for potential tropical development. The system continued to organize over the next few days as it moved slowly towards the west-northwest as it approached the Lesser Antilles, prompting the NHC to begin issuing advisories on Potential Tropical Cyclone (PTC) Six on Monday, August 9. This first advisory for PTC Six placed much of the Florida peninsula within the five-day forecast cone, and Pinellas County entered the five-day forecast cone for PTC Six later that night. On Sunday, August 15, the NHC reclassified Fred to a tropical storm, issuing Tropical Storm watches and warnings for the Florida panhandle. With the system reorganizing, the center reformed to the east. On Monday, August 16, Tropical Storm Fred made landfall in the eastern Florida panhandle near Cape San Blas with maximum sustained winds of 65 MPH. By 2200 that evening, all tropical storm warnings were discontinued for Florida by the NHC.
September 2022	Hurricane Ian formed in the central Caribbean Sea on September 23 and moved through the western Caribbean Sea, Gulf of Mexico and Western Atlantic making four separate landfalls. The first landfall was in the Pinar Del Rio Province of Cuba at 0830 UTC on September 27 with maximum sustained winds of 125 mph and a minimum pressure of 952 mb, before emerging into the Gulf of Mexico later that morning. Ian made its second landfall -- and first in Florida -- at 1905 UTC (2:05 PM EST) on September 28 near Cayo Costa with maximum sustained winds of 150 mph and a pressure of 940 mb, before making its third landfall -- and second in Florida -- less than 2 hours later at 2035 UTC (3:35 PM EST) just south of Punta Gorda, near Pirate Harbor with maximum sustained winds of 145 mph and a pressure of 942 mb. Ian made its fourth and final landfall in South Carolina on September 30 at 1805 UTC with maximum sustained winds of 85 mph and a pressure of 977 mb. The highest wind reported in Pinellas County from Hurricane Ian was a gust to 77 mph in Saint Petersburg at 3:46 PM EST on September 28. Rainfall generally ranged between 1.5 and 4 inches, with a maximum total of 3.34 inches at Albert Whitted Airport. 31 homes received major damage and another 86 reported minor damage. Offshore winds caused below normal tides of 4 feet on the gulf side of barrier islands, and up to 5 feet below normal in Tampa Bay near St. Petersburg, where the minimum reported water level of -3.94 feet below MLLW at 2:12 AM EST surpassed the previous minimum of -3.72 feet below MLLW, set during Hurricane Irma in 2017.

Date	Description
November 2022	Hurricane Nicole initially formed as a subtropical storm in the western Atlantic on November 7 between Bermuda and the Bahamas before becoming fully tropical on November 8. Tropical Storm Nicole then moved generally westward over the next few days, with the center moving through the Bahamas on November 9 and strengthened to a hurricane that evening, before ultimately making landfall on North Hutchinson Island just south of Vero Beach, Florida at 0800 UTC (3:00 AM EST) on November 10, with maximum sustained winds of 75 mph and a minimum pressure of 981 mb. Nicole quickly weakened to a tropical storm while moving west-northwest across the central Florida peninsula during the early morning into the afternoon hours, briefly partially emerged over the extreme northeast Gulf of Mexico north of Tampa during the afternoon, then straddled along the coast across Cedar Key before moving inland across the Florida Big Bend and weakening to a tropical depression during the evening the 10th. The highest wind reported in Pinellas County from Hurricane Nicole was a gust to 62 mph at the Clearwater-Saint Petersburg International Airport at 7:36 AM EST on November 10. Rainfall generally ranged from 2 to 5 inches with a maximum of 5.13 inches reported northwest of Saint Petersburg. Water levels generally peaked 1 to 2 feet above normal, and a peak water level of 1.75 feet above MHHW was reported at Old Port Tampa at 10:58 PM EST on November 10. Approximately 17,000 customers experienced power outages.
August 2023	Hurricane Idalia made landfall just to the north of the local area near Keaton Beach, FL in Taylor County in Florida's Big Bend as a category 3 hurricane and brought devastating storm surge and wind impacts all along the west Florida coast, especially in closer vicinity to the landfall area across the Nature Coast. Storm surge flooding reached into homes and businesses as far south as Lee County, and the surge inundation is the highest on record for the Cedar Key area. Surface observations indicate peak wind gusts generally between 60 to 70 mph, with a maximum gust of 61 mph at St. Petersburg-Clearwater International Airport at 3:43 AM EST on August 30. Rainfall ranged from 2 to 4 inches, with a maximum total of 3.83 inches near Feather Sound. A peak water level of 4.05 feet above MHHW was measured at Clearwater Beach at 6:00 AM EST on August 30. Peak water levels measured elsewhere along coastal Pinellas County generally ranged from 3 to 5 feet above MHHW. Over 70 water rescues were conducted, with nearly a dozen of those for pets, and 43 dogs and 29 cats were sheltered. Damage estimates currently total $23.4 million. 10 structures were destroyed, 45 inaccessible, 811 had major damage, 1,016 had minor damage, and 822 were affected. 27,000 were without power. The greatest impact was along the coastal areas of the county, including Shore Acres, Riviera Bay, Johns Pass to St. Pete Beach, and an area north of Dunedin.

Additionally, there have been 10 FEMA major disaster declarations in Pinellas County that are related to tropical cyclone events.

Table 4.33: FEMA Major Disaster Declarations in Pinellas County, Tropical Cyclone, 1953–2024[43]

Disaster Number	Date	Name/Description
DR-252	November 7, 1968	HURRICANE GLADYS
DR-337	June 23, 1972	TROPICAL STORM AGNES
DR-743	August 29–September 2, 1985	HURRICANE ELENA
DR-1141	October 7–21, 1996	TROPICAL STORM JOSEPHINE
DR-1539	August 11–30, 2004	TROPICAL STORM BONNIE AND HURRICANE CHARLEY
DR-1545	September 3–October 8, 2004	HURRICANE FRANCES
DR-1561	September 24–November 17, 2004	HURRICANE JEANNE
DR-4068	June 23–26, 2012	TROPICAL STORM DEBBY
DR-4280	August 31–September 11, 2016	HURRICANE HERMINE
DR-4337	September 4–October 18, 2017	HURRICANE IRMA
DR-4673	September 23–November 4, 2022	HURRICANE IAN
DR-4680	November 7–November 30, 2022	HURRICANE NICOLE
DR-4734	August 27–September 4, 2023	HURRICANE IDALIA

According to the NCEI Storm Events Database, there were 27 reports of tropical cyclone in Pinellas County from 1996 to 2023.[44] These tropical cyclone events are only inclusive of those reported by NCEI from 1996 through 2023, and events are only reported at the county level. It is likely that additional events have affected Pinellas County. As additional local data becomes available, this hazard profile will be amended.

Table 4.34: Summary of Tropical Cyclone Occurrences in Pinellas County

Location	Number of Occurrences	Deaths	Injuries	Property Damage (2024)*	Annualized Property Loss
PINELLAS COUNTY TOTAL	**27**	**0**	**1**	**$1,008,102,609**	**$37,337,133**

*Adjusted dollar values were calculated based on the Consumer Price Index for All Urban Consumers (CPI-U) U.S. city average series for all items, not seasonally adjusted. This data represents changes in the prices of all goods and services purchased for consumption by urban households. This monthly index value has been calculated every year since 1913. The 2024 dollar values were calculated based on buying power in January 2024.

[43] https://www.fema.gov/media-library/assets/documents/28318

[44] https://www.ncdc.noaa.gov/stormevents/listevents.jsp?eventType=%28Z%29+Hurricane+%28Typhoon%29&eventType=%28Z%29+Tropical+Depression&eventType=%28Z%29+Tropical+Storm&beginDate_mm=01&beginDate_dd=01&beginDate_yyyy=1950&endDate_mm=12&endDate_dd=31&endDate_yyyy=2018&county=PINELLAS%3A103&hailfilter=0.00&tornfilter=0&windfilter=000&sort=DT&submitbutton=Search&statefips=12%2CFLORIDA

Table 4.35: Historical Tropical Cyclone Occurrences in Pinellas County

Date	Type	Deaths	Injuries	Property Damage*	Crop Damage*
10/7/1996	Tropical Storm	0	1	$49,493,036	$0
9/2/1998	Hurricane (Typhoon)	0	0	$0	$0
9/25/1998	Hurricane (Typhoon)	0	0	$0	$0
11/4/1998	Tropical Storm	0	0	$0	$0
9/20/1999	Tropical Storm	0	0	$0	$0
9/17/2000	Hurricane (Typhoon)	0	0	$18,024	$0
9/17/2000	Hurricane (Typhoon)	0	0	$901,190	$0
9/14/2001	Tropical Storm	0	0	$1,314,385	$0
9/5/2004	Tropical Storm	0	0	$53,234,452	$0
9/26/2004	Tropical Storm	0	0	$47,648,121	$0
7/9/2005	Tropical Storm	0	0	$31,784	$0
10/24/2005	Tropical Storm	0	0	$303,536	$0
6/13/2006	Tropical Storm	0	0	$0	$0
6/2/2007	Tropical Storm	0	0	$0	$0
6/6/2013	Tropical Storm	0	0	$0	$0
6/6/2016	Tropical Storm	0	0	$6,466	$0
9/1/2016	Tropical Storm	0	0	$1,293,171	$0
10/7/2016	Tropical Storm	0	0	$0	$0
10/7/2016	Tropical Storm	0	0	$0	$0
10/7/2016	Tropical Storm	0	0	$0	$0
7/31/2017	Tropical Storm	0	0	$0	$0
9/10/2017	Hurricane	0	0	$752,690,301	$0
5/27/2018	Tropical Storm	0	0	$0	$0
11/9/2020	Tropical Storm	0	0	$0	$0
11/11/2020	Tropical Storm	0	0	$48,088,516	$0
7/6/2021	Tropical Storm	0	0	$0	$0
9/28/2022	Tropical Storm	0	0	$53,026,601	$0
11/10/2022	Tropical Storm	0	0	$53,026	$0

*Damage is reported in 2024 dollars. All damage may not have been reported.

Storm Surge

According to the NCEI Storm Events Database, there were 14 reports of storm surge in Pinellas County from 1998 to 2023.[45] These storm surge events are only inclusive of those reported by NCEI from 1996 through 2023, and events are only reported at the county level. It is likely that additional events have affected Pinellas County. As additional local data becomes available, this hazard profile will be amended.

[45] https://www.ncdc.noaa.gov/stormevents/listevents.jsp?eventType=%28Z%29+Storm+Surge%2FTide&beginDate_mm=01&beginDate_dd=01&beginDate_yyyy=1950&endDate_mm=12&endDate_dd=31&endDate_yyyy=2018&county=PINELLAS%3A103&hailfilter=0.00&tornfilter=0&windfilter=000&sort=DT&submitbutton=Search&statefips=12%2CFLORIDA

Table 4.36: Summary of Storm Surge Occurrences in Pinellas County

Location	Number of Occurrences	Deaths	Injuries	Property Damage (2024)*	Annualized Property Loss
PINELLAS COUNTY TOTAL	14	0	0	$13,660,611	$546,424

*Adjusted dollar values were calculated based on the Consumer Price Index for All Urban Consumers (CPI-U) U.S. city average series for all items, not seasonally adjusted. This data represents changes in the prices of all goods and services purchased for consumption by urban households. This monthly index value has been calculated every year since 1913. The 2024 dollar values were calculated based on buying power in January 2024.

Table 4.37: Historical Storm Surge Occurrences in Pinellas County

	Date	Type	Deaths	Injuries	Property Damage*	Crop Damage*
Pinellas County						
ANCLOTE	1/2/1999	Storm Surge/Tide	0	0	$372,593	$0
PINELLAS (ZONE)	9/6/2004	Storm Surge/Tide	0	0	$821,519	$0
PINELLAS (ZONE)	9/15/2004	Storm Surge/Tide	0	0	$0	$0
PINELLAS (ZONE)	9/26/2004	Storm Surge/Tide	0	0	$0	$0
PINELLAS (ZONE)	7/10/2005	Storm Surge/Tide	0	0	$3,178,392	$0
PINELLAS (ZONE)	8/28/2005	Storm Surge/Tide	0	0	$0	$0
PINELLAS (ZONE)	6/2/2007	Storm Surge/Tide	0	0	$0	$0
PINELLAS (ZONE)	9/10/2008	Storm Surge/Tide	0	0	$0	$0
PINELLAS (ZONE)	6/24/2012	Storm Surge/Tide	0	0	$4,055,463	$0
PINELLAS (ZONE)	6/6/2013	Storm Surge/Tide	0	0	$0	$0
PINELLAS (ZONE)	9/1/2016	Storm Surge/Tide	0	0	$5,172,682	$0
PINELLAS (ZONE)	11/11/2020	Storm Surge/Tide	0	0	$59,961	$0
PINELLAS (ZONE)	11/12/2020	Storm Surge/Tide	0	0	$0	$0
PINELLAS (ZONE)	7/7/2021	Storm Surge/Tide	0	0	$0	$0

*Damage is reported in 2024 dollars. All damage may not have been reported.

4. Probability of Future Tropical Cyclones

Since tropical cyclones are random in distribution, it is impossible to forecast whether Pinellas County will experience a tropical cyclone. However, because of the high frequency of tropical cyclones that have affected Florida in the past, it is reasonable to assume that Florida will experience tropical cyclones again in the future.

Probability Based on Historical Occurrences

An analysis of tropical cyclone reports from 1996 to 2018 in Pinellas County from the NCEI Storm Events Database indicates that there will be less than one tropical storm, less than one hurricane, and less than one storm surge event each year in Pinellas County.

Table 4.38: NCEI Tropical Cyclone Reports 1996–2023[46]

Type of Tropical Cyclone	NCEI Reports	Average per Year
Tropical Storm	24	< 1
Hurricane	5	< 1
Storm Surge	14	< 1
TOTAL	**43**	**1.6**

Based on historical information, this hazard was determined to have a probability level of likely (10 to 100% annual probability). The probability is high that all jurisdictions could be impacted by tropical cyclones. While communities along the Gulf of Mexico, Tampa Bay, and intercoastal waterways face potential storm surge conditions in addition to winds, even inland communities of Kenneth City and Pinellas Park can be devastated by wind impacts.

5. Tropical Cyclones Impact Analysis

All jurisdictions could receive the following impacts due to tropical cyclones. While communities along the Gulf of Mexico, Tampa Bay, and intercoastal waterways face potential storm surge conditions in addition to winds, even inland communities of Kenneth City and Pinellas Park can be devastated by wind impacts.

- Public
  - Injury/death
    - Car accidents because of flood waters, high winds, panic, traffic jams because of evacuations, no power after storm
    - Not receiving emergency response during storm, like ambulance
    - Delayed emergency response because of blocked roads, etc.
    - Drowning in flood waters
    - Hit or crushed by debris
    - Stranded on roof because of flooding
    - Exposure to hazardous materials
    - Illness from contaminated water
    - Pet and other animal deaths from all of the above
  - Damage to home or property
    - Power loss or damage to power connections on home
    - Mold damage causing the need for expensive mold remediation actions
    - Cost to replace damaged and destroyed items, such as furniture, flooring, etc.
    - Cost and labor to repair damaged homes and other structures to make the house inhabitable

[46] https://www.ncdc.noaa.gov/stormevents/listevents.jsp?eventType=%28Z%29+Hurricane+%28Typhoon%29&eventType=%28Z%29+Storm+Surge%2FTide&eventType=%28Z%29+Tropical+Depression&eventType=%28Z%29+Tropical+Storm&beginDate_mm=01&beginDate_dd=01&beginDate_yyyy=1950&endDate_mm=12&endDate_dd=31&endDate_yyyy=2018&county=PINELLAS%3A103&hailfilter=0.00&tornfilter=0&windfilter=000&sort=DT&submitbutton=Search&statefips=12%2CFLORIDA

        - If the property was uninsured, the cost falls upon the property owner
        - Hotel room fees or having to live in a shelter until damage is repaired or home is replaced
        - Damaged or washed-away vehicles
        - Lost wages because no way to get to work if roads are blocked or if car was damaged in storm or if employer experienced damage
        - Possibly forced to evacuate
            - Cost to travel
            - Cost to stay at hotel
            - Loss of wages if out of town
            - Loss of food if you cannot go back to get it
    - Power outage
        - Cost of generators and gas to run the generators
            - Risk of accidental fire or carbon monoxide poisoning is high
        - Loss of food in refrigerator and freezer
        - Difficulties travelling anywhere because of outages at traffic lights
        - Cost of purchasing disaster supplies such as flashlights
        - Hotel room fees or having to live in a shelter until power is restored
        - Lost wages because employer is experiencing power outage
    - Emotional or psychological toll of surviving
        - If a friend or family member dies in storm, individual may feel great sense of guilt or stress
        - If major damage occurs for an individual, they will likely experience stress and anxiety dealing with evacuating, staying in shelters, working to get insurance payments, working to get government assistance, etc.
        - Being forced to leave or forfeit a pet in an unsafe area during or after a tropical cyclone
- <u>Responders</u>
    - Injury/death
        - Responding during tropical storms is unsafe
        - Responding immediately after tropical storms is unsafe because of debris, unstable transportation infrastructure, unstable structures
        - Rescuing people from unstable buildings or by boat
        - Exposure to hazardous materials
    - Stress caused by severity of tasks such as rescuing people
    - Feelings of guilt for not being able to save people
    - Witnessing gruesome scenes of injured or dead
- <u>Continuity of Operations (including continued delivery of services)</u>
    - Loss of revenue if businesses cannot operate during or after event
    - Loss of wages if your employer's organization is damaged or destroyed and you cannot work

- Utility failures such as electric or gas may prevent businesses from opening even if there is no damage
- Utility failures may impede or prevent government offices from continuing daily services
- Severe damage and interruption to transportation systems and infrastructure like roads and bridges, communication systems, power, water, wastewater, etc.

- Property, Facilities, Infrastructure
  - Damaged or destroyed property, such as homes and other buildings
    - Roofing is particularly susceptible to damage from high winds
    - The first floor of many buildings, plus all the items on that floor, are susceptible to severe damage from flooding
  - Cost of repairing damage to property such as buildings
  - Cost of replacing items damaged such as furniture on the first floor of a flooded home
  - Crop damage or loss
  - Damage to transportation infrastructure, like a road being washed out or a bridge collapsing, and/or closure of major transportation networks
  - Inability to get clean water
  - Inability to control wastewater
  - Release of hazardous materials
- Environment
  - Beach and dune erosion
  - Downed trees
  - Eroded river banks
  - Release of hazardous materials can contaminate or damage the environment
  - Loss or damage to habitat for animals because of flooding or high winds
  - Crop damage or loss
  - Event-generated marine debris impacting waterway navigation and submerged wetland habitats
- Economic Condition
  - Damaged and destroyed businesses leading to long-term closures and possibly permanent closures
  - Delayed re-opening of businesses because of utility issues, road blockages, etc.
  - Crop damage or loss from flooding and high winds
  - Absenteeism from work
  - Loss of tourism because of eroded beaches or damaged attractions
- Public Confidence in Jurisdiction's Governance
  - Evacuations not ordered in time lead to decrease in public confidence
  - Shelters not opened or having little information
  - Warnings not communicated effectively
  - Communicating too much
  - Over exaggeration of possible storm impacts, especially if the storm does not have expected impacts

6. Vulnerability Analysis and Loss Estimation by Jurisdiction

Due to Pinellas County's geographic location, the entire county is vulnerable to damage from tropical cyclones. As the population of the county increases, so does the number of those who have not experienced the impact of a tropical cyclone or major hurricane.

The vulnerability of the county to hurricanes varies with the progression of the hurricane season. Early and late in the season (June and October), the region of maximum hurricane activity is in the Gulf of Mexico and the western Caribbean. Most of those systems that move into Florida approach the state from the south or southwest, entering the keys or along the west coast. Mid-season (August and most of September), tropical cyclones develop off the coast of Africa. These systems are known as Cape Verde Storms and approach the state from the east or southeast.

Historic Losses

The NCEI Storm Events Database information, presented in the Historical Occurrences section above, also contained property and crop damage dollar amounts, which is shown in the table below. This information, combined with values of structures in hazard areas and with projected losses from HAZUS-MH, can provide a more complete analysis than using only one data source.

Table 4.39: Tropical Cyclone Events in Pinellas County, by Type, (1996–2023)[47]

Type of Event	Number of Events	Deaths	Injuries	Property Damage (2024 dollars)	Crop Damage (2024 dollars)
Tropical Storm	24	0	1	$254,493,095	$0
Hurricane	5	0	0	$753,609,515	$0
Storm Surge	14	0	0	$13,660,611	$0
TOTAL	**43**	**0**	**1**	**$1,021,763,221**	**$0**

The information can be analyzed to provide the average amount of property and crop damage that is likely each year. This information is shown in the chart below.

Table 4.40: NCEI Tropical Cyclones, 1996–2023[48]

NCEI Storm Event (hazard)	Average Tropical Cyclones per Year	Annualized Property Loss (2024 dollars)	Annualized Crop Loss (2024 dollars)
All Types of Tropical Cyclones	1.6	$37,337,133	$0

According to the analysis, Pinellas County is historically vulnerable to over $37 million in property damages

[47] https://www.ncdc.noaa.gov/stormevents/listevents.jsp?eventType=%28Z%29+Hurricane+%28Typhoon%29&eventType=%28Z%29+Storm+Surge%2FTide&eventType=%28Z%29+Tropical+Depression&eventType=%28Z%29+Tropical+Storm&beginDate_mm=01&beginDate_dd=01&beginDate_yyyy=1950&endDate_mm=12&endDate_dd=31&endDate_yyyy=2018&county=PINELLAS%3A103&hailfilter=0.00&tornfilter=0&windfilter=000&sort=DT&submitbutton=Search&statefips=12%2CFLORIDA

[48] http://www.ncdc.noaa.gov/stormevents/listevents.jsp?beginDate_mm=01&beginDate_dd=01&beginDate_yyyy=2008&endDate_mm=12&endDate_dd=31&endDate_yyyy=2011&county=ALL&eventType=Coastal+Flood&statefips=12%2CFLORIDA

and $0 in crop damages from approximately 1.6 tropical cyclone events each year.

Exposure

Storm Surge

To estimate exposure of improved property to storm surge, the approximate number of parcels and their associated improved valued located in hurricane risk areas was determined using GIS analysis. The storm surge zones utilized are those areas not located in the effective or preliminary floodplains and the hurricane storm surge areas associated with various category hurricanes.

Table 4.41: Estimated Exposure of Improved Property to Hurricane Risk Areas – Storm Surge Zones

Location	Buildings and Parcels in Hurricane Risk Area		
	Category 5 Storm Surge Zones Not in Effective Floodplain		
	No. of Parcels	No. of Buildings	Improved Value
Belleair	1,763	1,253	$1,435,825,710.00
Belleair Beach			
Belleair Bluffs	1,135	707	$470,783,404.00
Belleair Shore			
Clearwater	47,366	39,790	$18,424,950,779.00
Dunedin	11,883	11,108	$5,188,892,411.00
Gulfport	3,349	3,381	$1,170,858,949.00
Indian Rocks Beach			
Indian Shores			
Kenneth City	716	783	$275,492,039.00
Largo	31,236	34,093	$12,053,475,457.00
Madeira Beach			
North Redington Beach			
Oldsmar	254	621	$114,451,559.00
Pinellas Park	9,061	10,157	$3,602,718,973.00
Redington Beach			
Redington Shores			
Safety Harbor	6,731	6,350	$3,363,287,921.00
St. Petersburg	67,452	66,008	$30,181,040,953.00
St. Pete Beach			
Seminole	20,410	17,097	$7,577,448,526.00
South Pasadena			
Tarpon Springs	6,208	7,190	$2,709,696,331.00
Treasure Island			
Unincorporated	22,016	27,032	$9,639,721,787.00
PINELLAS COUNTY TOTAL	229,580	225,570	$96,208,644,799.00

Table 4.42: Estimated Exposure of Improved Property to Hurricane Risk Areas – Hurricane Storm Surge (Category 1, 2, and 3) – Pinellas County Total

Location	Buildings and Parcels in Hurricane Risk Areas								
	Category 1			Category 2			Category 3		
	No. of Parcels	No. of Bldgs	Improved Value	No. of Parcels	No. of Bldgs	Improved Value	No. of Parcels	No. of Bldgs	Improved Value
Belleair	821	195	$824,259,875	837	223	$839,046,249	856	235	$852,445,057
Belleair Beach	1,345	849	$1,520,185,396	1,378	852	$1,548,158,649	1,378	852	$1,548,158,649
Belleair Bluffs	249	5	$192,725,485	250	10	$193,217,177	254	18	$194,969,115
Belleair Shore	60	61	$344,972,288	60	61	$344,972,288	60	61	$344,972,288
Clearwater	19,162	4,926	$15,002,380,284	22,313	7,318	$16,364,186,951	25,277	10,251	$17,540,094,783
Dunedin	4,633	2,437	$2,715,933,591	6,091	3,266	$3,289,854,712	6,867	3,880	$3,671,346,022
Gulfport	3,279	1,290	$1,780,669,926	4,028	1,937	$2,147,323,724	4,552	2,466	$2,394,837,116
Indian Rocks Beach	3,539	1,723	$3,207,220,442	3,542	1,732	$3,210,771,388	3,542	1,732	$3,210,771,388
Indian Shores	2,811	163	$2,182,046,113	2,811	163	$2,182,046,113	2,811	163	$2,182,046,113
Kenneth City	52	4	$25,536,057	115	4	$44,655,056	266	48	$104,623,590
Largo	9,676	4,358	$4,635,476,344	13,664	9,371	$6,982,361,949	20,890	18,221	$9,484,864,135
Madeira Beach	4,067	1,935	$3,231,958,051	4,075	1,935	$3,234,955,016	4,075	1,935	$3,234,955,016
North Redington Beach	1,347	399	$1,250,850,072	1,347	399	$1,250,850,072	1,347	399	$1,250,850,072
Oldsmar	8,885	4,184	$3,962,548,392	10,498	6,504	$4,712,373,232	10,515	6,552	$4,718,276,955
Pinellas Park	4,296	862	$2,769,220,610	12,503	4,297	$6,028,182,187	19,498	12,689	$8,441,722,657
Redington Beach	1,102	772	$1,214,312,473	1,102	772	$1,214,312,473	1,102	772	$1,214,312,473
Redington Shores	2,096	853	$1,696,036,876	2,096	854	$1,696,036,876	2,096	854	$1,696,036,876
Safety Harbor	1,186	562	$790,312,024	2,028	1,057	$1,177,051,877	3,988	2,482	$2,057,722,829
St Petersburg	48,988	28,230	$31,153,422,982	10,126	4,967	$4,334,197,821	12,812	7,268	$5,308,562,017
St Pete Beach	7,879	3,718	$7,545,065,102	3,189	745	$1,391,830,762	3,189	745	$1,391,830,762
Seminole	6,803	3,066	$3,258,252,523	7,879	3,719	$7,545,065,102	7,879	3,720	$7,545,065,102
South Pasadena	3,186	740	$1,390,867,770	58,422	36,183	$36,803,253,569	66,317	43,631	$40,223,689,289
Tarpon Springs	9,931	5,370	$4,551,313,897	12,497	8,169	$5,657,364,111	14,941	9,529	$6,704,090,186
Treasure Island	6,058	2,388	$4,729,270,710	6,057	2,390	$4,729,270,691	6,058	2,390	$4,729,270,710
Unincorporated	13,672	8,065	$8,323,895,517	17,674	12,253	$9,943,960,219	21,694	18,395	$11,851,148,353

Table 4.43: Estimated Exposure of Improved Property to Hurricane Risk Areas – Hurricane Storm Surge Total (Category 4 and 5) – Pinellas County

Location	Buildings and Parcels in Hurricane Risk Areas					
	Category 4			Category 5		
	No. of Parcels	No. of Buildings	Improved Value	No. of Parcels	No. of Buildings	Improved Value
Belleair	889	259	$891,697,275	922	280	$943,407,312
Belleair Beach	1,378	852	$1,548,158,649	1,378	852	$1,548,158,649
Belleair Bluffs	265	37	$203,242,738	316	54	$222,924,329
Belleair Shore	60	61	$344,972,288	60	61	$344,972,288
Clearwater	28,823	12,828	$18,891,239,992	31,702	14,923	$20,405,273,173
Dunedin	9,381	5,982	$4,810,923,741	10,975	7,389	$5,519,775,761
Gulfport	6,440	4,398	$2,992,345,197	6,842	4,699	$3,078,747,223
Indian Rocks Beach	3,542	1,732	$3,210,771,388	3,542	1,732	$3,210,771,388
Indian Shores	2,811	163	$2,182,046,113	2,811	163	$2,182,046,113
Kenneth City	1,589	740	$471,427,926	2,160	1,359	$622,313,085
Largo	24,812	23,361	$10,679,702,219	25,766	24,278	$11,033,871,630
Madeira Beach	4,075	1,935	$3,234,955,016	4,075	1,935	$3,234,955,016
North Redington Beach	1,347	399	$1,250,850,072	1,347	399	$1,250,850,072
Oldsmar	10,516	6,552	$4,718,434,680	10,516	6,552	$4,718,434,680
Pinellas Park	22,741	17,529	$9,429,652,857	22,768	17,640	$9,458,216,558
Redington Beach	1,102	772	$1,214,312,473	1,102	772	$1,214,312,473
Redington Shores	2,096	854	$1,696,036,876	2,096	854	$1,696,036,876
Safety Harbor	5,470	4,006	$2,770,973,152	6,088	4,660	$3,102,957,436
St Petersburg	13,765	8,448	$5,744,648,347	14,858	9,379	$6,166,037,669
St Pete Beach	3,189	745	$1,391,830,762	3,189	745	$1,391,830,762
Seminole	7,879	3,720	$7,545,065,102	7,879	3,720	$7,545,065,102
South Pasadena	79,056	55,160	$46,167,243,642	86,905	64,435	$49,382,888,075
Tarpon Springs	17,373	12,654	$7,910,280,757	17,881	13,558	$8,091,824,076
Treasure Island	6,057	2,390	$4,729,270,691	6,058	2,390	$4,729,270,710
Unincorporated	23,958	23,488	$12,970,370,764	25,206	24,655	$13,469,437,123

To estimate the county population's exposure to storm surge, areas of risk were intersected with census block data. As a result, these population estimates are going to be an overestimate of risk since the entire census block's population count will be included even if only a portion of the census block's area is located in a storm surge zone or hurricane storm surge area. However, these estimates still give an idea of the county population's risk to storm surge.

Table 4.44: Estimated Exposure of Population to Hurricane Risk Areas – Storm Surge Zones

Location	Population in Storm Surge Zones		
	Storm Surge Zones Not in Effective Floodplain		
	Total	< 18	> 65
Belleair	1,784	165	900
Belleair Beach	508	32	170
Belleair Bluffs	966	74	486
Belleair Shore	73	11	23
Clearwater	48,856	7,333	11,733
Dunedin	21,103	2,268	7,455
Gulfport	8,285	957	2,144
Indian Rocks Beach	348	28	146
Indian Shores	320	26	164
Kenneth City	4,739	721	1,461
Largo	57,132	7,587	16,253
Madeira Beach	582	38	227
North Redington Beach	0	0	0
Oldsmar	8,139	1,681	1,323
Pinellas Park	51,907	9,122	11,355
Redington Beach	0	0	0
Redington Shores	0	0	0
Safety Harbor	15,299	2,535	4,061
St. Petersburg	120,229	17,954	26,324
St. Pete Beach	989	57	353
Seminole	11,007	1,408	3,993
South Pasadena	584	29	342
Tarpon Springs	23,951	3,730	6,939
Treasure Island	0	0	0
Unincorporated	170,580	27,622	44,858
PINELLAS COUNTY TOTAL	**547,793**	**83,443**	**140,834**

Table 4.45: Estimated Exposure of Population to Hurricane Risk Areas – Hurricane Storm Surge (Category 1, 2, and 3) – Pinellas County Total

Location	Population in Hurricane Risk Areas								
	Category 1			Category 2			Category 3		
	Total	< 18	> 65	Total	< 18	> 65	Total	< 18	> 65
Belleair	562	71	183	562	71	183	562	71	183
Bellaire Shore	1,280	103	665	1,311	110	678	1,342	113	692
Belleair Beach	73	11	23	73	11	23	73	11	23
Belleair Bluffs	1,633	182	571	1,633	182	571	1,633	182	571
Clearwater	319	11	228	363	19	239	402	23	260
Dunedin	27,919	3,403	8,462	34,865	4,745	9,655	39,858	5,594	10,606
Gulfport	10,488	994	3,915	14,903	1,586	5,151	18,430	1,873	6,639

Location	Population in Hurricane Risk Areas								
	Category 1			Category 2			Category 3		
	Total	< 18	> 65	Total	< 18	> 65	Total	< 18	> 65
Indian Rocks Beach	5,437	419	2,466	7,024	548	2,898	8,563	707	3,306
Indian Shores	3,673	368	1,183	3,673	368	1,183	3,673	368	1,183
Kenneth City	1,190	72	559	1,190	72	559	1,190	72	559
Largo	1,729	145	837	2,014	220	895	2,522	314	984
Madeira Beach	30,860	4,012	8,400	46,219	6,234	12,727	52,088	7,010	14,803
North Redington Beach	3,895	280	1,233	3,895	280	1,233	3,895	280	1,233
Oldsmar	1,495	121	531	1,495	121	531	1,495	121	531
Pinellas Park	14,623	3,056	2,416	14,926	3,151	2,455	14,926	3,151	2,455
Redington Beach	23,128	3,619	5,590	40,936	6,897	9,524	51,746	9,108	11,417
Redington Shores	1,376	159	434	1,376	159	434	1,376	159	434
Safety Harbor	2,176	171	859	2,176	171	859	2,176	171	859
Seminole	7,173	1,041	2,226	11,072	1,740	3,038	13,423	2,109	3,643
South Pasadena	7,852	917	3,094	8,368	1,019	3,182	9,214	1,123	3,401
St. Pete Beach	5,386	193	3,252	5,386	193	3,252	5,386	193	3,252
St. Petersburg	8,879	571	3,421	8,879	571	3,421	8,879	571	3,421
Tarpon Springs	118,706	17,764	26,209	137,316	20,882	29,863	150,962	23,071	32,864
Treasure Island	22,370	3,410	6,673	24,614	3,821	7,106	25,112	3,904	7,252
Unincorporated	6,584	375	2,468	6,584	375	2,468	6,584	375	2,468
Totals	**117,637**	**17,579**	**33,341**	**144,147**	**22,500**	**39,393**	**161,058**	**25,730**	**43,520**

Table 4.46: Estimated Exposure of Population to Hurricane Risk Areas – Hurricane Storm Surge (Category 4 and 5) – Pinellas County Total

Location	Population in Hurricane Risk Areas					
	Category 4			Category 5		
	Total	< 18	> 65	Total	< 18	> 65
Belleair	562	71	183	562	71	183
Bellaire Shore	73	11	23	73	11	23
Belleair Beach	1,688	171	766	1,956	188	963
Belleair Bluffs	1,633	182	571	1,633	182	571
Clearwater	715	44	406	966	74	486
Dunedin	48,066	6,990	12,182	54,465	8,036	13,511
Gulfport	22,059	2,314	7,761	24,701	2,568	8,950
Indian Rocks Beach	11,137	1,066	3,815	11,583	1,143	3,915
Indian Shores	3,673	368	1,183	3,673	368	1,183
Kenneth City	1,190	72	559	1,190	72	559
Largo	4,907	761	1,510	4,915	761	1,513
Madeira Beach	56,824	7,588	16,263	58,928	7,869	16,751
North Redington Beach	3,895	280	1,233	3,895	280	1,233
Oldsmar	1,495	121	531	1,495	121	531
Pinellas Park	14,926	3,151	2,455	14,926	3,151	2,455

Location	Population in Hurricane Risk Areas					
	Category 4			Category 5		
	Total	< 18	> 65	Total	< 18	> 65
Redington Beach	52,431	9,224	11,529	52,431	9,224	11,529
Redington Shores	1,376	159	434	1,376	159	434
Safety Harbor	2,176	171	859	2,176	171	859
Seminole	14,539	2,369	3,898	15,542	2,585	4,125
South Pasadena	10,279	1,276	3,753	12,838	1,645	4,729
St. Pete Beach	5,386	193	3,252	5,386	193	3,252
St. Petersburg	8,879	571	3,421	8,879	571	3,421
Tarpon Springs	171,679	26,373	36,842	182,276	28,157	38,697
Treasure Island	25,394	3,959	7,327	25,394	3,959	7,327
Unincorporated	6,584	375	2,468	6,584	375	2,468
Totals	173,567	27,854	46,611	184,492	29,701	49,137

Hazus-MH

Wind

Hazus-MH was used to estimate the number of damaged buildings from a 100-year and 500-year hurricane event for the county as shown below. This analysis includes the number of buildings that sustain no, minor, moderate, severe, and complete damage from hurricane winds.

Table 4.47: Estimated Number of Buildings (Countywide) Damaged from 100-year and 500-year Hurricane Event Wind

	100-year Hurricane Event		500-year Hurricane Event	
	Number of Damaged Buildings	Percent of Total Building Stock	Number of Damaged Buildings	Percent of Total Building Stock
No Damage	187,784	69%	66,119	24%
Minor Damage	35,854	13%	55,244	20%
Moderate Damage	33,513	12%	82,304	30%
Severe Damage	14,666	5%	63,352	23%
Complete Damage	1,180	1%	5,978	2%
Total Building Count	272,997	--	272,997	--

Figure 4.31: At Least Moderate Loss, 100-year Return Period

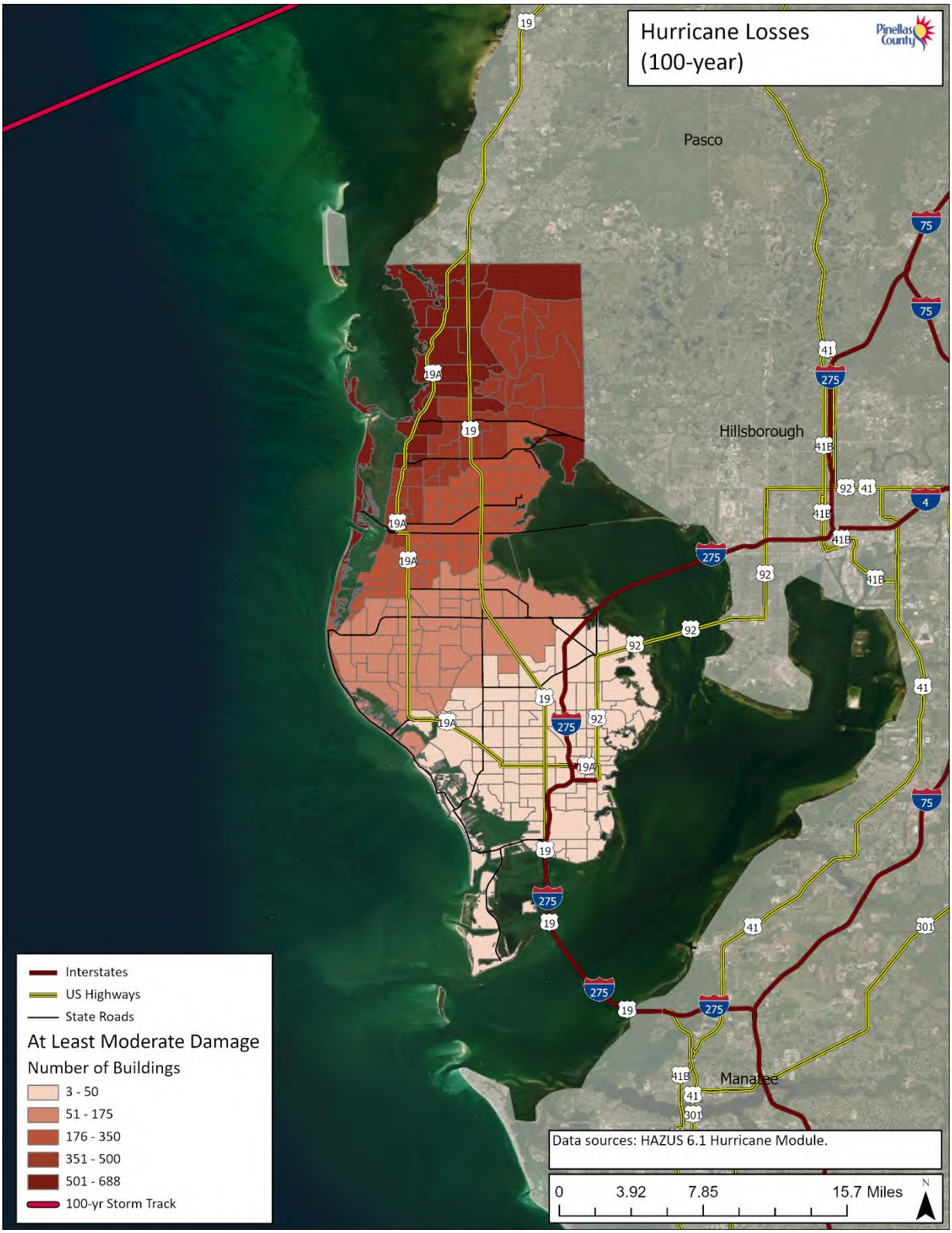


Figure 4.32: At Least Moderate Loss, 500-year Return Period

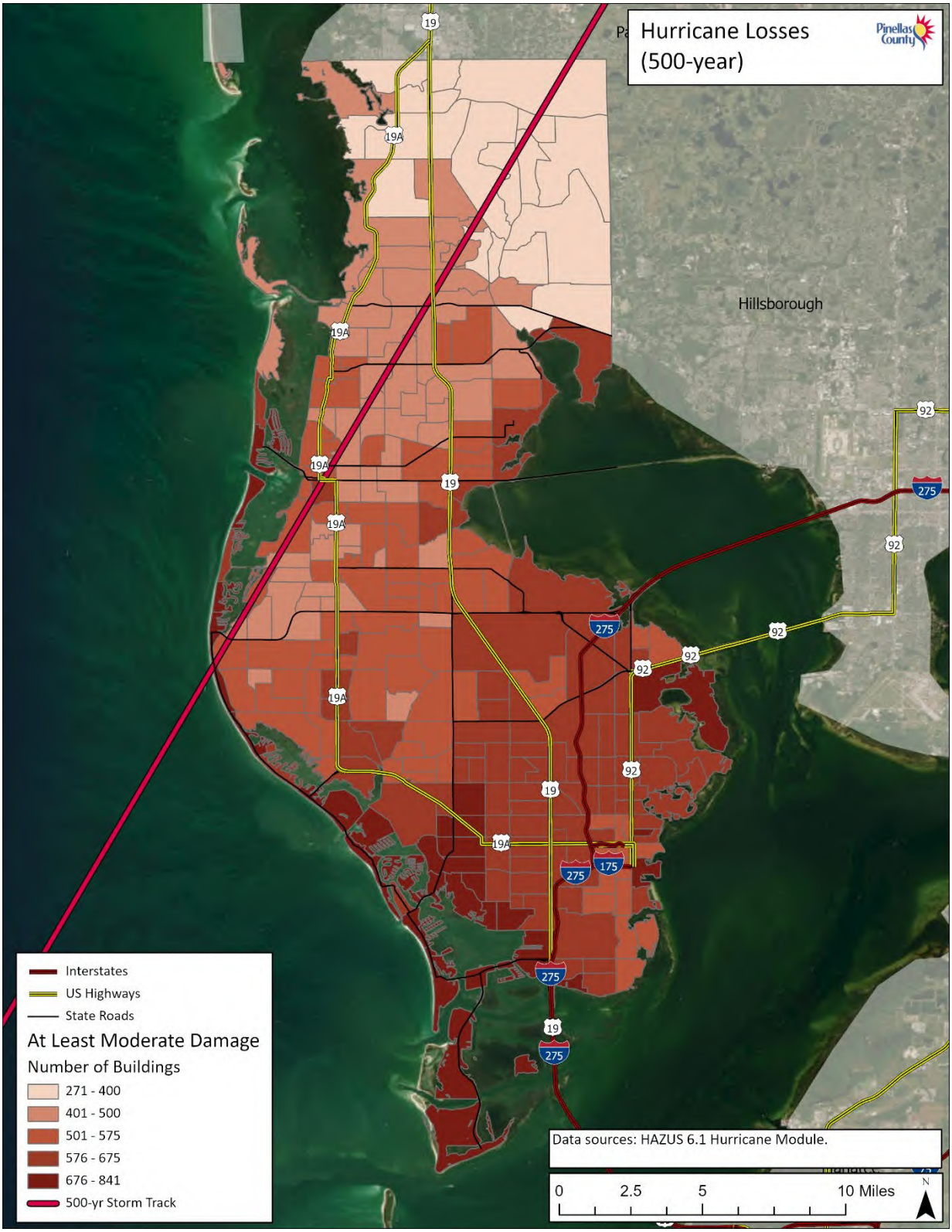


Figure 4.33: Total Loss, 100-year Return Period

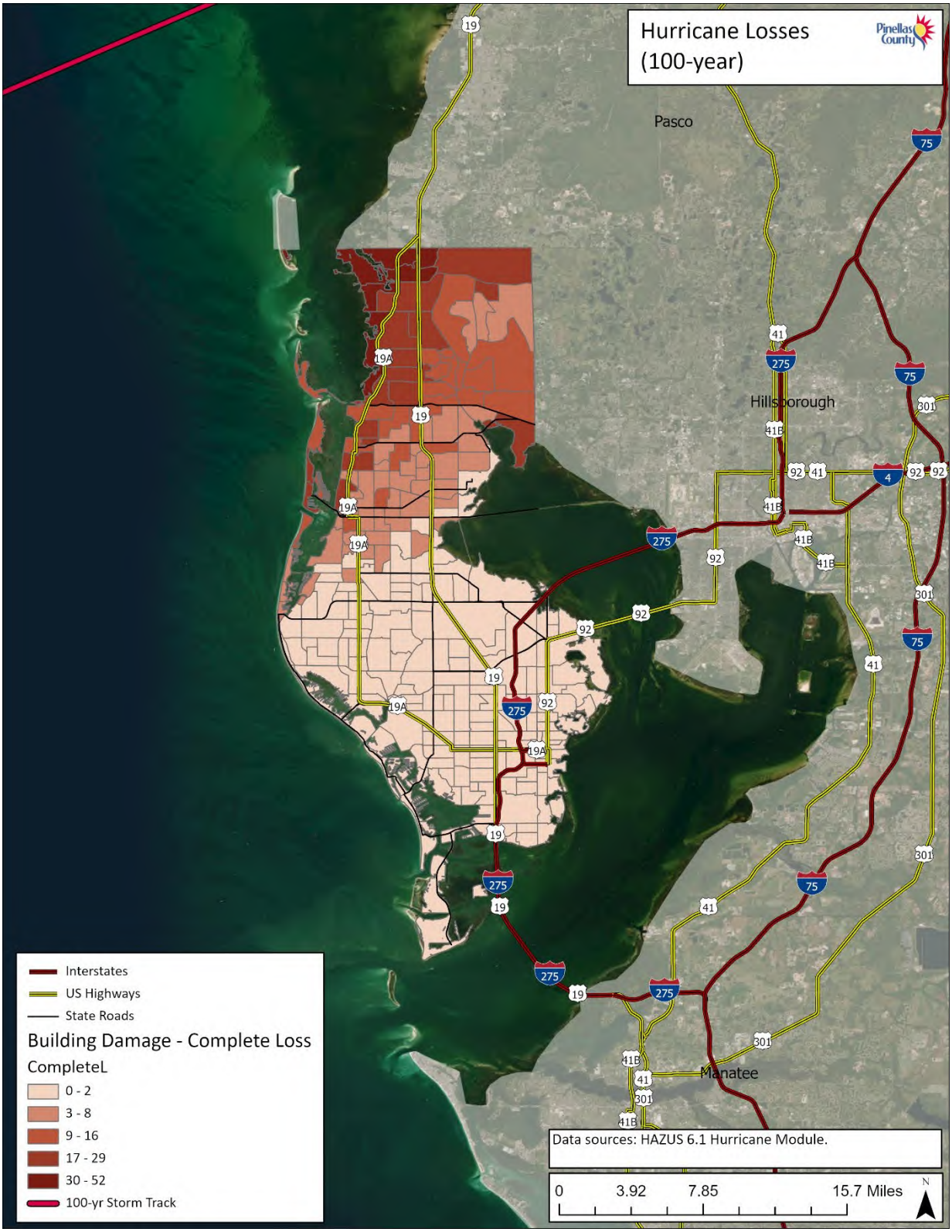
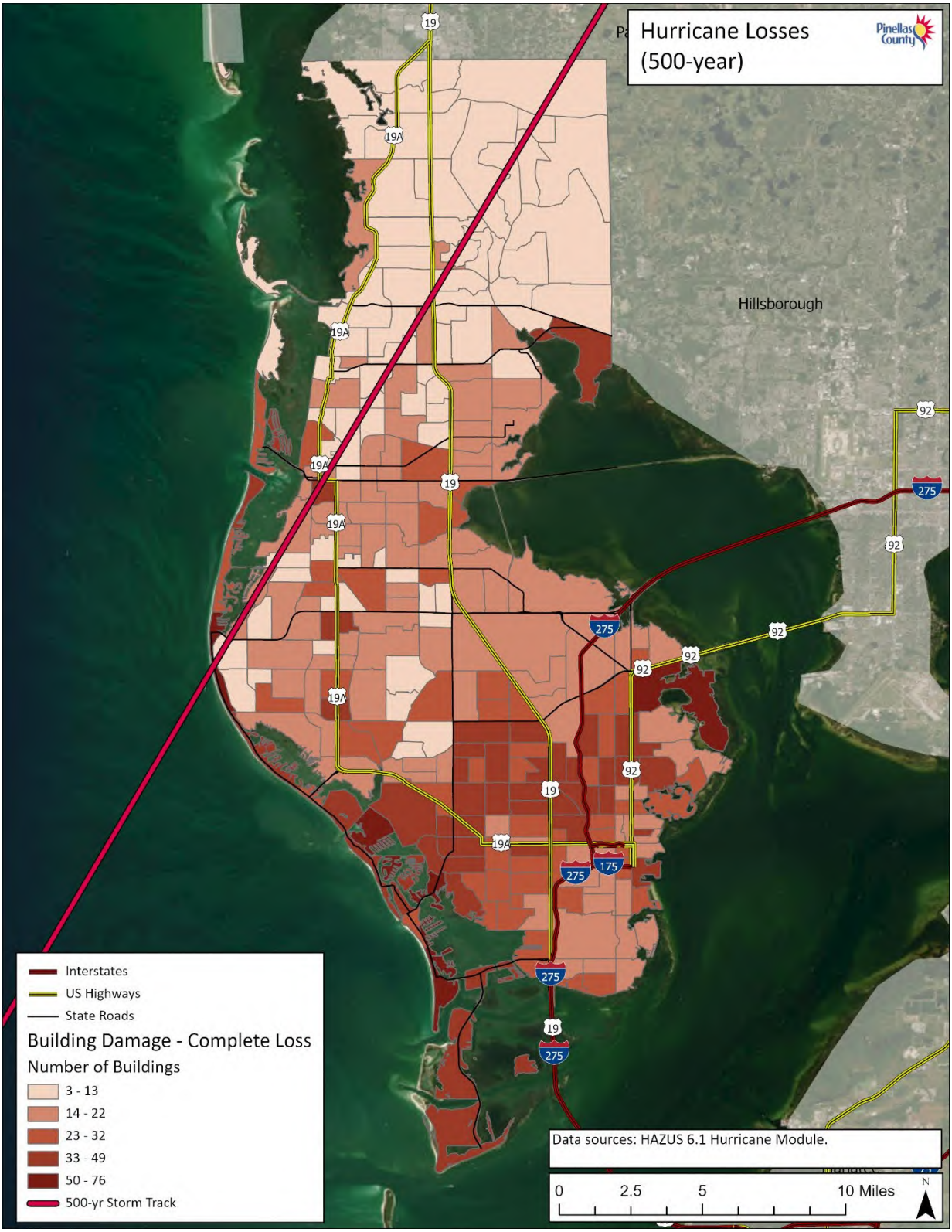


Figure 4.34: Total Loss, 500-year Return Period



Evacuation

Should a hurricane threaten the county, an evacuation order may be issued to get people away from the storm surge, the deadliest part of a hurricane. Evacuation zones are based on hurricane storm surge zones determined by the National Hurricane Center using ground elevation and the area's vulnerability to storm surge from a hurricane. However, all mobile homes, regardless of elevation, must be evacuated if an order is issued since they are vulnerable to the high winds of a hurricane and flying debris. The evacuation zones are marked from A through E (generally corresponding to limits of storm surge inundation from Category 1 through 5 storms, respectively), plus non-evacuation zones, and are shown in the map below.

Figure 4.35: Evacuation Zones

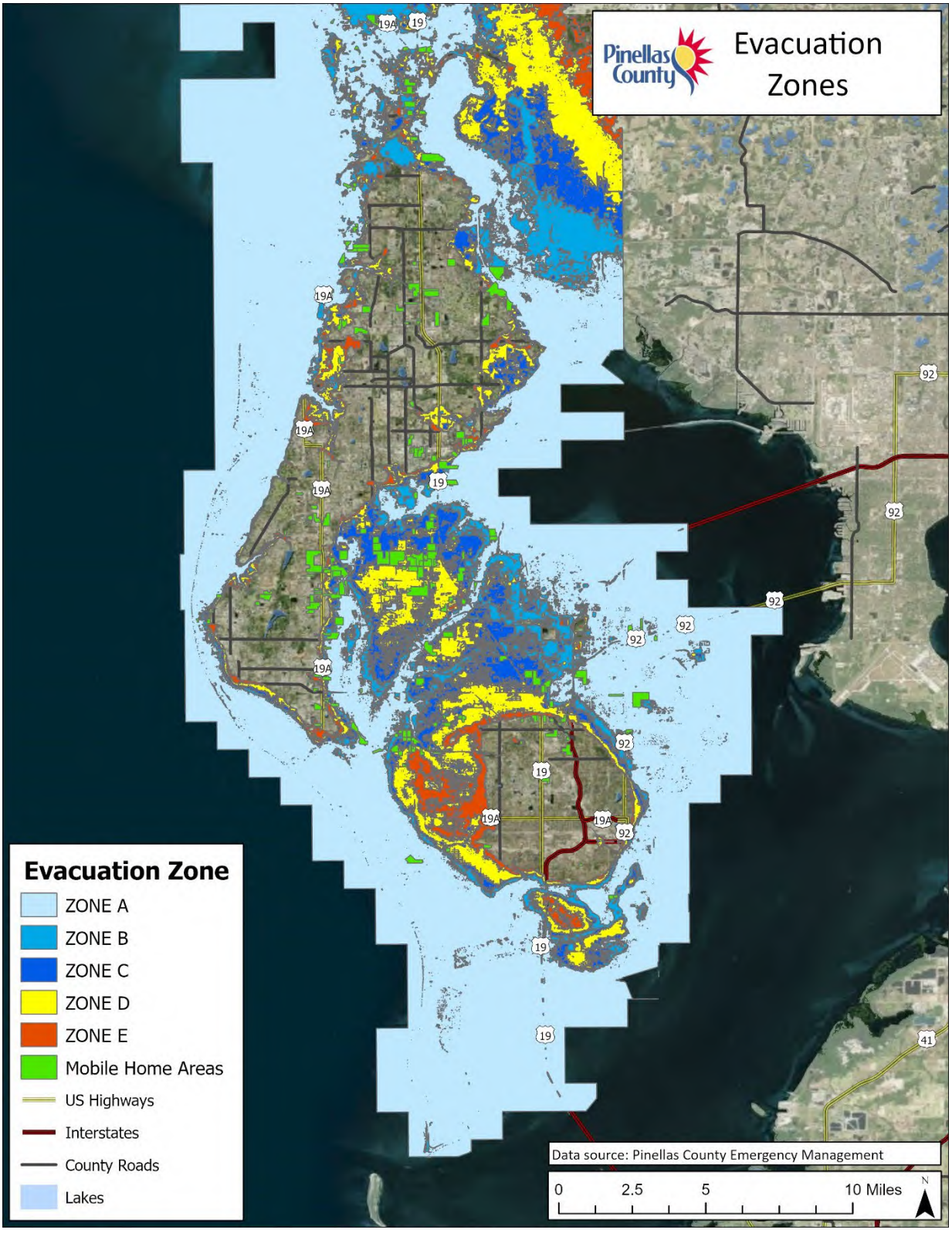


Table 4.48: Evacuation Analysis (Zones A, B, and C)

Location	Parcels and Buildings in Evacuation Zones								
	Zone A			Zone B			Zone C		
	No. of Parcels	No. of Bldgs	Improved Value	No. of Parcels	No. of Bldgs	Improved Value	No. of Parcels	No. of Bldgs	Improved Value
Belleair	817	197	$820,240,445	630	57	$464,958,815	529	52	$399,062,706
Belleair Beach	1,362	849	$1,526,395,834	155	32	$166,861,713	2	1	$3,665,148
Belleair Bluffs	122	4	$145,898,200	249	8	$190,068,172	158	15	$135,106,525
Belleair Shore	60	61	$344,972,288	24	18	$132,833,131	1	1	$7,890,191
Clearwater	18,169	4,867	$14,331,393,239	9,716	2,808	$7,141,845,965	6,875	3,859	$4,575,175,947
Dunedin	4,501	2,404	$2,566,450,030	1,697	1,137	$1,190,514,281	1,262	743	$884,545,225
Gulfport	3,280	1,292	$1,780,781,671	1,097	692	$536,266,235	944	773	$430,330,389
Indian Rocks Beach	3,544	1,732	$3,210,799,013	275	14	$263,594,527	7	-	$9,551,068
Indian Shores	2,809	163	$2,176,295,498	792	19	$626,892,025	6	1	$10,334,081
Kenneth City	2	3	$11,545,000	4	2	$12,209,684	119	48	$43,446,198
Largo	7,452	4,175	$3,769,852,060	10,207	4,805	$4,396,069,625	13,725	11,364	$6,009,722,176
Madeira Beach	4,069	1,935	$3,232,411,279	357	26	$387,581,590	89	5	$86,558,458
North Redington Beach	1,347	399	$1,250,850,072	397	7	$163,042,617	1	1	0
Oldsmar	8,052	4,052	$3,440,068,908	6,604	3,363	$3,284,096,083	1,062	332	$721,800,254
Pinellas Park	2,720	755	$1,450,532,739	9,959	3,359	$4,294,418,123	15,992	10,243	$6,774,838,698
Redington Beach	1,103	772	$1,214,326,523	17	10	$105,259,721	3	3	$14,151,108
Redington Shores	2,052	851	$1,621,891,992	698	30	$580,311,230	18	1	$52,049,409
Safety Harbor	1,135	562	$715,018,382	1,294	640	$828,687,092	2,786	1,600	$1,481,460,802
Seminole	6,440	2,976	$3,032,502,915	6,121	2,739	$2,787,201,220	6,397	2,797	$2,418,321,822
South Pasadena	3,189	741	$1,390,883,139	409	11	$166,630,330	33	1	$11,760,316
St Pete Beach	7,886	3,719	$7,545,118,933	792	33	$975,495,082	116	5	$374,313,830
St Petersburg	47,838	27,989	$30,579,240,120	25,475	11,021	$17,199,943,785	16,579	9,642	$9,984,876,048
Tarpon Springs	9,332	197	$4,266,072,089	7,888	4,651	$3,602,121,393	5,813	2,153	$2,642,737,750
Treasure Island	6,071	849	$4,729,288,596	457	9	$277,347,101	313	2	$190,199,256
Unincorporated	11,121	4	$7,223,200,837	9,775	3,284	$4,975,803,468	10,082	7,636	$4,627,547,960
Totals:	165,536	55,405	$109,599,230,639	104,826	55,443	$59,725,856,476	92,965	55,436	$46,516,993,325

Table 4.49: Evacuation Analysis (Zones D, E, and Mobile Homes)

Location	Parcels and Buildings in Evacuation Zones								
	Zone D			Zone E			Mobile Homes		
	No. of Parcels	No. of Bldgs	Improved Value	No. of Parcels	No. of Bldgs	Improved Value	No. of Parcels	No. of Bldgs	Improved Value
Belleair	531	46	$382,681,725	490	47	$366,265,310			
Belleair Beach	2	1	$3,665,148	-	-	$-			
Belleair Bluffs	173	28	$159,156,730	210	28	$148,089,378			
Belleair Shore	-	-	$-	-	-	$-			
Clearwater	6,453	3,579	$4,657,306,668	6,648	2,654	$3,644,852,665	3,178	5,971	$1,451,445,717
Dunedin	3,800	2,494	$1,826,322,133	3,689	1,848	$1,681,331,869	1,097	1,999	$341,875,965
Gulfport	2,224	2,083	$813,464,791	639	458	$187,286,123	158	151	$11,121,219
Indian Rocks Beach	-	-	$-	-	-	$-			
Indian Shores	1		$153,688	2		$193,222			
Kenneth City	1,436	706	$422,509,776	1,510	786	$427,591,128			
Largo	11,206	9,494	$5,219,806,139	5,091	1,288	$2,086,497,315	7,554	14,470	$2,154,402,412
Madeira Beach	16	1	$10,274,654	15	1	$9,117,636			
North Redington Beach	-	-	$-	-	-	$-			
Oldsmar	120	2	$92,940,384	10	1	$21,842,811	648	596	$113,753,014
Pinellas Park	10,594	7,508	$4,925,367,719	522	319	$678,977,467	1,683	2,577	$517,979,475
Redington Beach	2	2	$12,593,111	1	1	$8,123,963			
Redington Shores	1		$104,652	1		$104,652			
Safety Harbor	3,218	2,088	$1,713,017,204	1,499	910	$947,599,893	696	1,170	$269,446,850
Seminole	4,649	1,951	$1,923,905,178	1,878	1,160	$969,116,132	1,552	2,178	$574,991,888
South Pasadena	82	2	$34,867,630	49	1	$23,107,314	31	177	$61,130,925
St Pete Beach	7	3	$190,748,281	3	1	$141,359,198	1		$47,702
St Petersburg	20,938	13,703	$11,657,375,970	15,492	11,661	$8,988,458,576	4,267	8,239	$1,191,701,798
Tarpon Springs	7,133	3,942	$3,524,741,883	3,445	1,647	$1,792,352,882	1,221	1,782	$314,136,985
Treasure Island	-	-	$-	-	-	$-			
Unincorporated	8,786	7,148	$4,141,215,943	3,470	1,840	$1,828,050,985	2,273	2,626	$419,069,786
Totals:	90,086	58,538	$45,731,279,311	48,077	25,861	$25,668,921,316	24,329	41,785	$7,421,103,736

7. Vulnerability Analysis and Loss Estimation of Critical Facilities

Since all counties within Florida are vulnerable to the effects of tropical cyclones, all of the Pinellas County critical facilities are vulnerable to potentially damaging storm surge and hurricane force winds.

To estimate exposure to storm surge for the critical facility analysis, storm surge zones were intersected with critical facility locations. The tables below summarize the critical facilities in the county that are located within a hurricane risk area.

Table 4.50: Exposure of Critical Facilities to Hurricane Risk Areas – Storm Surge Zones

Location	Number of Critical Facilities in Hurricane Risk Area
	Cat 5 Storm Surge Zone Not in Effective Floodplain
Belleair	1
Belleair Beach	0
Belleair Bluffs	1
Belleair Shore	0
Clearwater	43
Dunedin	39
Gulfport	14
Indian Rocks Beach	0
Indian Shores	0
Kenneth City	8
Largo	155
Madeira Beach	0
North Redington Beach	0
Oldsmar	34
Pinellas Park	105
Redington Beach	0
Redington Shores	0
Safety Harbor	23
St. Petersburg	140
St. Pete Beach	0
Seminole	12
South Pasadena	0
Tarpon Springs	113
Treasure Island	1
Unincorporated	347
PINELLAS COUNTY TOTAL	**1036**

Table 4.51: Exposure of Critical Facilities to Hurricane Risk Areas – Hurricane Storm Surge

Location	Number of Critical Facilities in Hurricane Risk Area				
	Category 1 Storm Surge	Category 2 Storm Surge	Category 3 Storm Surge	Category 4 Storm Surge	Category 5 Storm Surge
Belleair	9	9	9	10	10
Belleair Beach	4	4	4	4	4
Belleair Bluffs	4	4	5	5	5
Belleair Shore	0	0	0	0	0
Clearwater	97	170	196	248	269
Dunedin	33	46	51	65	73
Gulfport	11	11	14	19	20
Indian Rocks Beach	12	12	12	12	12
Indian Shores	8	8	8	8	8
Kenneth City	0	0	0	1	6
Largo	38	63	118	223	229
Madeira Beach	9	10	10	10	10
North Redington Beach	1	1	1	1	1
Oldsmar	54	101	104	104	104
Pinellas Park	10	26	53	96	98
Redington Beach	3	3	3	3	3
Redington Shores	4	4	4	4	4
Safety Harbor	1	1	11	20	24
St. Petersburg	215	287	265	369	424
St. Pete Beach	14	14	14	14	14
Seminole	20	30	36	49	51
South Pasadena	10	10	10	10	10
Tarpon Springs	110	161	183	232	242
Treasure Island	5	5	5	5	5
Unincorporated	80	108	140	164	170
PINELLAS COUNTY TOTAL	**754**	**1,093**	**1,325**	**1,681**	**1,801**

While all county facilities are vulnerable to tropical cyclones, it is clear that there are coastal areas with significant numbers of critical facilities within storm surge zones.

8. Overall Vulnerability

Each of the five PRI categories was assigned a value from 1 to 4 and the pre-determined weighting factor was applied to calculate a PRI score. PRI scores can range from 1.0 to 4.0 and the overall vulnerability ranking or high, moderate, or low was assigned based on the PRI scores.

Based on the probability, impact, spatial extent, warning time, and duration, the overall vulnerability of this hazard was determined to be high, with a PRI score of 3.3.

TROPICAL CYCYLONE			Overall Vulnerability	
Overview				
A tropical cyclone is a rotating, organized system of clouds and thunderstorms that originates over tropical or subtropical waters and has a closed low-level circulation. These storms have been known to transform into tropical storms and even hurricanes. Florida is at risk of experiencing a tropical cyclone due to its tropical climate and vicinity to large bodies of water. There are chances of the effects reaching all parts of the state but, due to high levels of development and concentrated numbers of civilians, the coastlines are vulnerable to greater impacts.			HIGH	
			PRI Score	
			3.3	
Probability	**Impact**	**Spatial Extent**	**Warning Time**	**Duration**
Likely	**Catastrophic**	**Large**	**> 24 hrs**	**< 1 week**

Severe Storm Hazard Profile

1. Severe Storms Description

In this profile, Severe Storms refers to thunderstorms having one or more of these effects: lightning, flash floods, hail, straight-line winds, and tornadoes.

Thunderstorms are very prevalent in the state of Florida and Pinellas County. A thunderstorm forms when moist, unstable air is lifted vertically into the atmosphere. The lifting of this air results in condensation and the release of latent heat. The process to initiate vertical lifting can be caused by:

- Unequal warming of the surface of the Earth;
- Orographic lifting due to topographic obstruction of airflow; or
- Dynamic lifting because of the presence of a frontal zone.

A typical thunderstorm is 15 miles in diameter and lasts an average of 30 minutes. Despite their small size, all thunderstorms are dangerous. Of the estimated 100,000 thunderstorms that occur each year in the United States, about 10% are classified as severe.

The three key elements of a thunderstorm are wind, water, and lightning. The National Oceanic and Atmospheric Administration (NOAA) considers a thunderstorm severe if it produces hail at least one inch in diameter, winds of 57.5 mph or stronger, or a tornado.

Thunderstorms also vary in type, depending on size and organization. Below are the different types of thunderstorms:[49]

- Single-cell thunderstorms are small, brief, weak storms that grow and die within an hour or so. Single-cell storms may produce brief heavy rain and lightning.
- Multi-cell thunderstorms are clusters of individual cells. Individual cells usually last 30 to 60 minutes, while the system may last for many hours. Multi-cell storms may produce hail, strong winds, brief tornadoes, and/or flooding.
- A squall line thunderstorm is a group of storms in a line, which can extend laterally for hundreds of miles. Squall lines tend to pass quickly and are less prone to produce tornadoes than are supercells. Long-lived squall lines are known as “derechos” and can travel hundreds of miles, causing considerable damage along their path.
- Supercell thunderstorms are long-lived (greater than one hour) and highly organized storms feeding off an updraft (a rising current of air) that is tilted and rotating. Potentially the most dangerous form of all thunderstorm types, these have produced numerous long-lived strong and violent (EF2-EF5) tornadoes, along with damaging wind, hail, and flash floods.

[49] https://www.nssl.noaa.gov/education/svrwx101/thunderstorms/types/

Lightning

Lightning develops during the violent circulation of air within the cumulonimbus cloud. The friction causes the positive and negative charges within the storm to separate. Positive charged particles will rise while negative charge descend from bottom of the storm cloud to the ground. Positive charges on the ground connect with the negative charge from the cloud, resulting in an electrical transfer or lightning.

Lightning is the most lethal component of a thunderstorm. Vaisala's Total Lightning Statistics 2023 Report shows that even though Texas had the most lightning events, Florida ranks number one in lightning density at 112.6 events per km^2 in 2023. This is mostly due to Florida's geography, and the combination of warm temperatures, humidity, and sea breezes. In fact, with 120,998 lighting strokes, Miami-Fort Lauderdale was the most lightning prone U.S. metropolitan area in 2023. [50]

Heavy Rain and Flash Floods

Heavy rains are defined as intense large amount of rainfall in a short period. Because of this, flash floods often occur during slow moving thunderstorms. Other factors, such as the topography of the area, the soil conditions, and the ground cover can also affect flash flooding resulting from heavy rains. For example, if the ground is already waterlogged, new rainfall cannot filter into the ground, causing a flood.

As stated in the *Flood Hazard Profile*, flash flooding is a significant concern because of the rapid onset, the high-water velocity, the debris load, and the potential for channel scour. In addition, more than one flood crest may result from a series of fast-moving storms with heavy rainfall. Sudden destruction of structures and the washout of access routes may result in the loss of life. Furthermore, the rapid urbanization within the state of Florida has manifested itself in the form of increased impervious surface areas leading to less natural drainage and more flash flooding resulting from heavy rains.

Hail

Hail is frozen precipitation that can occur during a thunderstorm. Hail forms when raindrops freeze into balls of ice and usually range in size from 1/4 inch in diameter to 4 1/2 inches in diameter. Damage from hail increases with the size of the hail and can cause damage to vehicles, aircraft, and homes, and can be fatal to people and livestock. However, Florida thunderstorms do not often include hail because the hailstones usually melt before they reach the ground in generally warm temperatures.[51]

Straight-line Winds

Severe Storms often include strong winds that are called "straight-line" winds and are different than the winds in tornadoes. These damaging winds exceed 50–60 mph and can reach up to 100 mph. Damage from these winds is more common than damage form tornadoes in the continental United States. Straight- line winds form because of outflow from a thunderstorm downdraft.[52]

[50] https://www.xweather.com/annual-lightning-report
[51] http://www.nssl.noaa.gov/education/svrwx101/hail/
[52] http://www.nssl.noaa.gov/education/svrwx101/wind/

- Microburst: A downdraft that can affect an area of less than 2½ miles wide with peak winds lasting less than five minutes.

- Macroburst: A downdraft that can affect an area of at least 2½ miles wide and with peak winds lasting between five and twenty minutes. Intense macrobursts may cause tornado-force damage of up to F3 intensity.

Tornadoes

The NWS defines a tornado as a violently rotating column of air touching the ground, usually spawned from a thunderstorm. Wind speeds of a tornado can reach up to 300 mph and be more than one mile wide. In Florida, tornadoes typically form along a squall line ahead of an advancing spring cold front from the North, along the squall lines in areas where masses of warm air converge, from isolated local summer thunderstorms, and/or within a hurricane.

Tornadoes are measured by their intensity or their wind speed, and their area, using the Enhanced Fujita (EF) Scale. The scale ranges from EF 0, with minor damages from winds ranging 65–85 mph, to EF 5 with severe damages from winds in excess of 200 mph.

Table 4.52: Enhanced Fujita Scale[53]

EF Number	Estimated 3-Second Gust (mph)	Damage
0 (Gale)	65–85	Some damage to chimneys; branches broken off trees; shallow-rooted trees pushed over; damaged sign boards.
1 (Weak)	86–110	Surfaces peeled off roofs; mobile homes pushed off foundations or overturned; moving autos pushed off roads.
2 (Strong)	111–135	Considerable damage. Roofs torn off frame houses; mobile homes demolished; boxcars pushed over; large trees snapped or uprooted; light object missiles generated.
3 (Severe)	136–165	Roof and some walls torn off well-constructed houses; trains overturned; most trees in forests uprooted.
4 (Devastating)	166–200	Well-constructed houses leveled; structures with weak foundations blown off some distance; cars thrown and large missiles generated.
5 (Incredible)	200+	Strong frame houses lifted off foundations and carried considerable distances to disintegrate; automobile sized missiles fly through the air in excess of 100 meters; trees debarked; steel reinforced concrete structures badly damaged.

Advisories

Below are the advisories that the NWS issues regarding flooding hazards:

[53] http://climatecenter.fsu.edu/topics/tornadoes

- Severe Thunderstorm Watch: issued when conditions are favorable for severe thunderstorms to develop in and near the watch area.
- Severe Thunderstorm Warning: issued when severe thunderstorms are occurring or are imminent in the warning area.
- Tornado Watch: issued when conditions are favorable for severe thunderstorms and tornadoes to develop in and near the watch area.
- Tornado Warning: issued when a tornado is sighted or imminent.
- Flash Flood Watch: issued when conditions are favorable for flash flooding.
- Flash Flood Warning: issued when a flash flood is imminent or occurring, referring to a sudden violent flood that can take minutes to hours to develop. It is even possible to experience a flash flood in areas not receiving rain.

Causes of Fatalities

All aspects of Severe Storms, including lightning, flooding, tornadoes, and winds, can be life-threatening.

Potential Effects of Climate Change on Severe Storms and Tornadoes

Higher temperatures and humidity may increase atmospheric instability associated with the generation of severe thunderstorms and tornadoes. However, vertical wind shear could also decrease, resulting in fewer or weaker severe thunderstorms and tornadoes.[54] However, decreases in vertical wind shear are most likely to occur when convective available potential energy (CAPE) is high in spring and summer months, which could result in more frequent severe storms. Furthermore, days with high CAPE are also likely to occur during times of the year with strong low-level wind shear, increasing the likelihood of the most severe storm events, including tornadoes.[55]

2. Geographic Areas Affected by Severe Storms

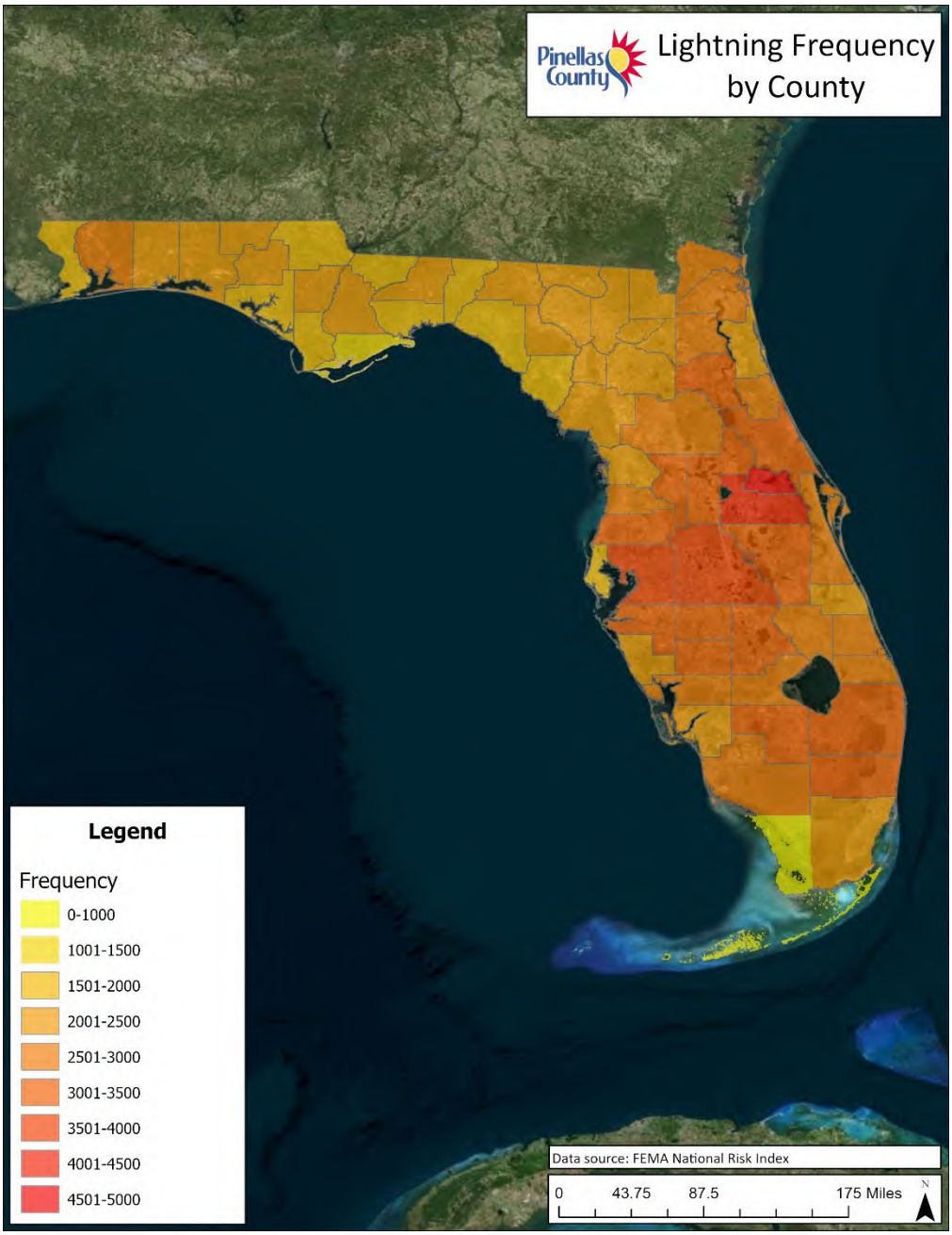
Severe thunderstorms and tornadoes can occur anywhere in Florida. As the number of structures and the population increases, the probability that a severe storm or tornado will cause property damage or human casualties also increases. Florida experiences more thunderstorms per km^2 each year than any other state in the United States.

Below is a map depicting the average number of severe storm warnings per year in Florida.

[54] Seneviratne et al. (2012). *Changes in climate extremes and their impacts on the natural physical environment*. In Field et al. (Eds.), *Managing the risks of extreme events and disasters to advance climate change adaptation*, p.159. https://www.ipcc.ch/pdf/special-reports/srex/SREX_Full_Report.pdf., pp. 151–155; National Oceanic and Atmospheric Administration (NOAA) (2013). *Tornadoes, climate variability, and climate change. State of the science fact sheet*.

[55] Diffenbaugh et al. (2013), http://www.pnas.org/content/110/41/16361.full., p. 1.

Figure 4.36: Florida Lightning Risk by County



According to the data, Pinellas County is expected to have 2 to 8 severe storm warnings per year. Most storm warnings are concentrated in the southern central part of the county.

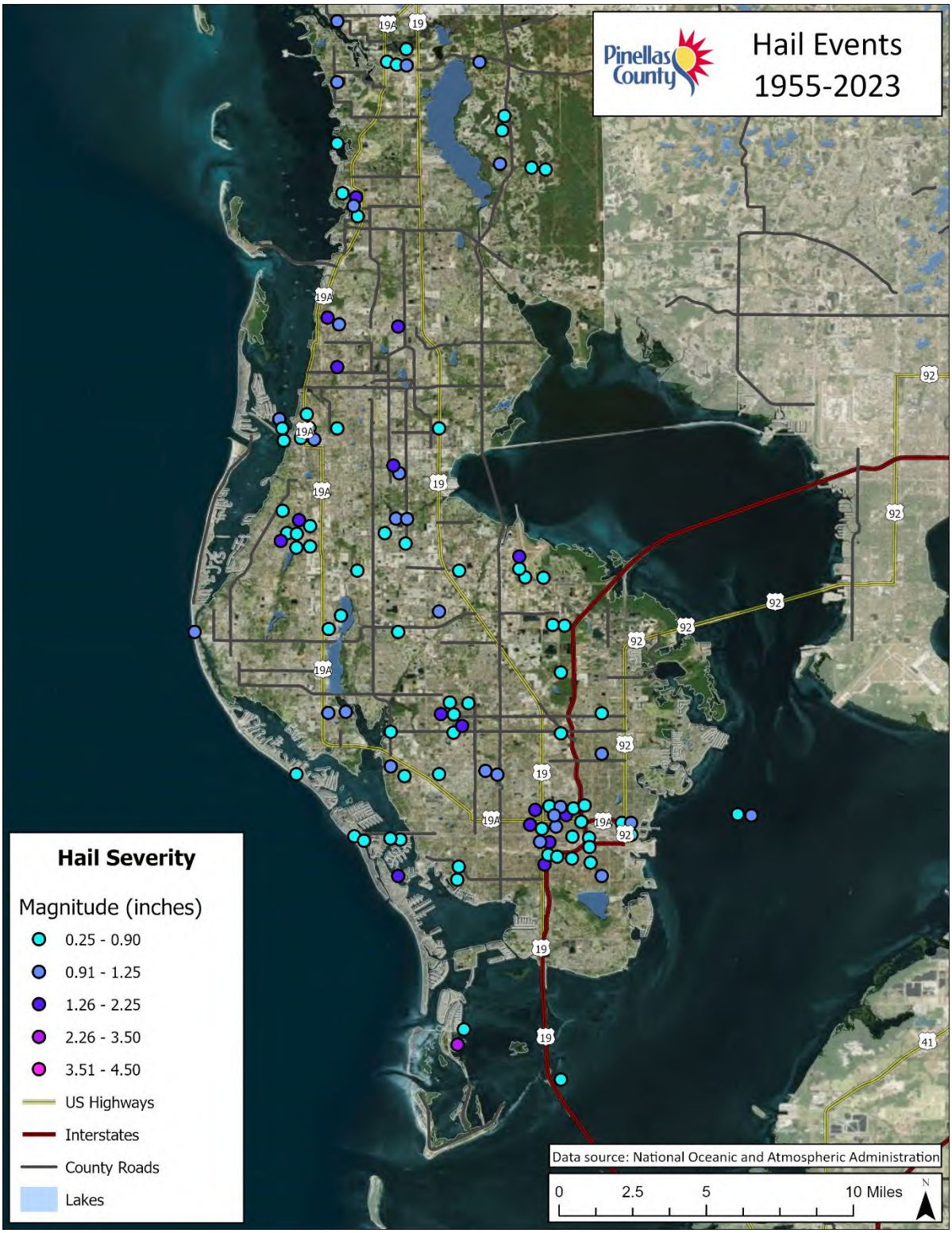
Heavy Rain

Heavy rain is produced by severe storms, so their locations and spatial extents coincide. Therefore, heavy rain is expected to occur more often in the southern central part of the county.

Hail

Hailstorms frequently accompany severe storms, so their locations and spatial extents coincide. Therefore, hailstorms are expected to occur more often in the southern central part of the county. With that in mind, the map below shows the location of hail events that have impacted Pinellas County based on historical data from 1955 to 2017.

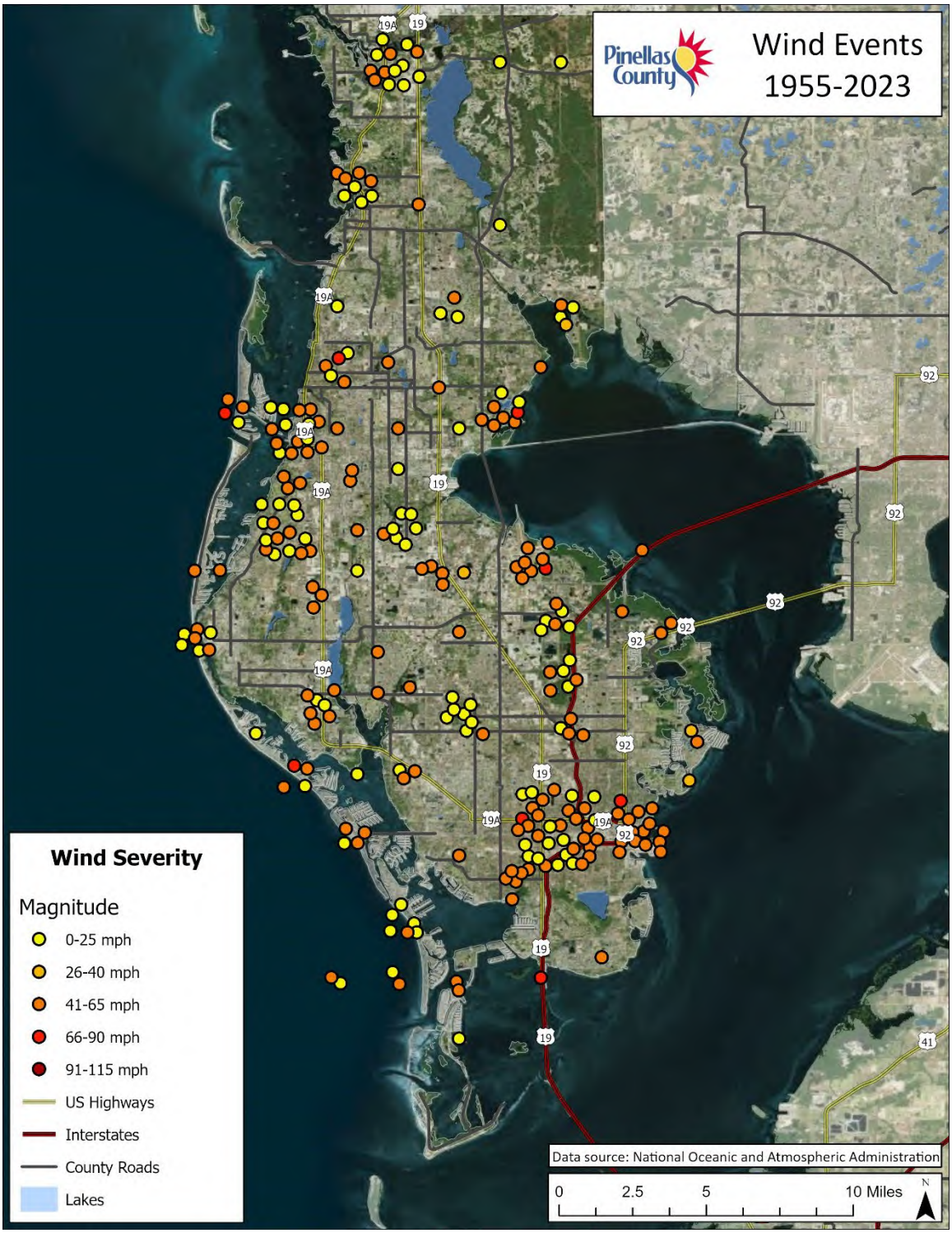
Figure 4.37: Pinellas County Hail Events, 1955–2023



Wind

Winds frequently accompany severe storms, so their locations and spatial extents coincide. Therefore, wind events are expected to occur more often in the southern central part of the county. With that in mind, the map below shows the location of wind events that have impacted Pinellas County based on historical data from 1955 to 2023.

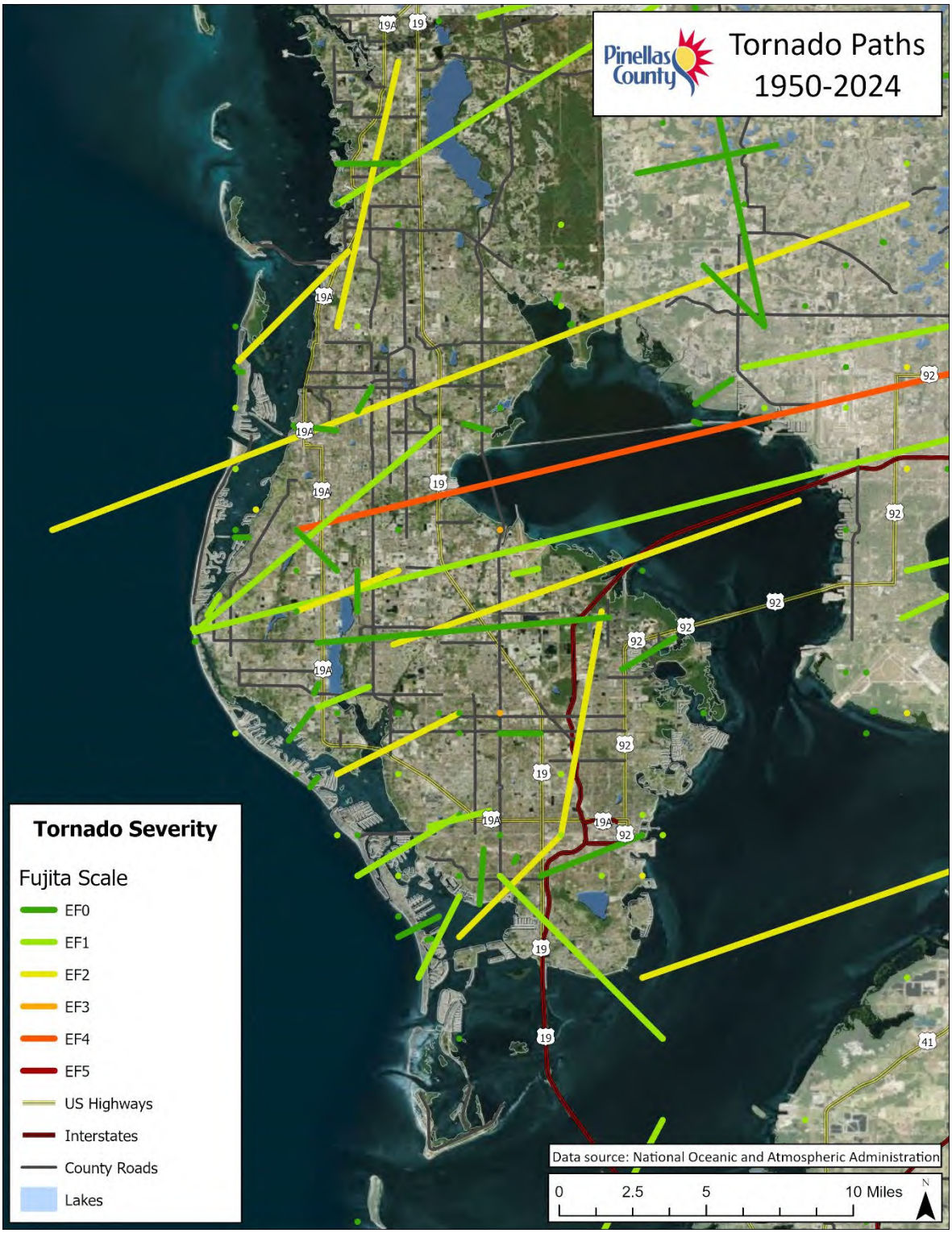
Figure 4.38: Pinellas County Wind Events, 1955–2023



Tornado

Tornadoes occur throughout the state of Florida and thus are possible in Pinellas County. Tornadoes typically impact a relatively small area, but damage may be extensive. Tornadoes are associated with severe storms, so their locations and spatial extents coincide. Therefore, tornadoes are expected to occur more often in the southern central part of the county. With that in mind, the map below shows tornado track data for many of the major tornado events that have impacted Pinellas County based on historical occurrences of tornadoes from 1950 to 2023.

Figure 4.39: Pinellas County Tornado Events, 1950–2024



From this map, it is possible to understand that lower strength tornadoes, EF-0 through EF-2, are common across the county, while stronger tornadoes like EF-3 and EF-4 are uncommon but have occurred. According to this data, there has not been an EF-5 tornado in Pinellas from 1950 to 2024.

3. Historical Occurrences of Severe Storms

The table below lists significant severe storms and tornadoes that affected Pinellas County.

Table 4.53: Significant Severe Storm Occurrences in Pinellas County, 1993-2024[56]

Date	Description
May 28, 1993	Thunderstorm Wind – Strong downburst winds moved a four-ton air conditioner unit on the roof of a store about one foot. Several nearby mobile homes suffered roof and carport damage.
June 23, 1998	Heavy Rain – Heavy rain caused significant water damage to property of three businesses that were undergoing renovation in the Northeast Shopping Center near U.S. Highway 92 (4th Street N.) and County Road 184 (38th Avenue N.). Water damage from the heavy rain caused rug, floor tile and ceiling tile damage to the buildings.
May 3, 2001	Hail – Tea cup (three inch) to dime sized hail was reported by Skywarn Spotters from Tierra Verde northwest to St. Pete Beach in southern Pinellas county. The three-inch hail busted windows and damaged the paint of several vehicles at the Don Cesar Hotel near the intersection of Gulf Boulevard (State Road 699) and 35th Avenue in St. Pete Beach.
June 8, 2002	Tornado – Damage survey showed path from Boca Ciega Isle to McPherson Bayou with damage to 40 homes, 10 of which were uninhabitable due to water damage. The tornado ripped off parts of roofs, crumbled pool cages, and toppled trees.
April 25, 2003	Thunderstorm Wind – The canopy over the gas pumps at a local station overturned and a roof collapsed at a nearby restaurant.
June 28, 2005	Heavy Rain – Heavy rains of 4.46 inches in Seminole and 3.58 inches in Tarpon Springs caused widespread minor flooding in Pinellas county. About 20 people were displaced in an apartment complex in Saint Petersburg as water trapped on the roof began to drain through the walls. A clogged drain caused the Bayfront Hospital Emergency Room to close for a short time due to flooding.
July 20, 2005	Tornado – The tornado, which touched down along Ulmerton Road just east of Seminole Boulevard, moved northwest for about 1/2 mile and caused damage at five mobile home parks. Much of the damage occurred at the Palm Hill Country Club mobile home park. In all, 51 mobile homes were damaged, 25 with heavy damage. No injuries or fatalities were reported. About 25,000 residents of the area lost power after the event.

[56] https://www.ncdc.noaa.gov/stormevents/listevents.jsp?eventType=%28C%29+Flash+Flood&eventType=%28C%29+Hail&eventType=%28C%29+Heavy+Rain&eventType=%28C%29+Lightning&eventType=%28C%29+Thunderstorm+Wind&eventType=%28C%29+Tornado&beginDate_mm=05&beginDate_dd=01&beginDate_yyyy=2000&endDate_mm=05&endDate_dd=31&endDate_yyyy=2024&county=PINELLAS%3A103&hailfilter=0.00&tornfilter=0&windfilter=000&sort=DT&submitbutton=Search&statefips=12%2CFLORIDA

Date	Description
June 23, 2009	Thunderstorm Wind – A microburst with winds of about 60mph occurred in a mobile home park along 62nd Avenue North in Lealman. Fifteen mobile homes incurred damage, with four homes sustaining major damage, mainly to carports and portions of the roof where the carport was attached. One tree and numerous limbs were also downed just to the northwest of the mobile home park along 27th Street North from 59th Avenue North to 62nd Avenue North
June 25, 2010	Lightning – Lightning struck a tree and caused it to fall on a house on Flora Road. There was significant damage to the house.
January 25, 2011	Thunderstorm Wind – Straight-line winds estimated at 90mph caused damage across a few blocks of St. Petersburg. A parked car and gas station canopy were blown on their side at a gas station on the corner of 28th Street North and 30th Avenue North. The canopy fell on top of the toppled car, trapping a female inside the car. She was rescued and transported to the hospital with minor injuries. The bases of the canopy supports were rusted. A nearby commercial building on Morris Street North had a portion of the wood roof ripped off, and across the street from this building, there was an uprooted tree, a power pole blown down, portions of a wooden fence destroyed, and large garbage bins blown several feet down the street. Finally, on Xenia Street North between 31st and 32nd Avenues North, a large tree split near the base and fell in the front yard of a home onto a vehicle.
March 31, 2011	Thunderstorm Wind – Thunderstorm winds gusts snapped small tree trunks, pushed over shallow rooted trees, and caused damage to around 150 homes and mobile homes over a one-mile square area near Ulmerton Road. A 200-foot communication tower collapsed midway up the tower. Wind damage to trees at the surface suggested wind gusts at 60 MPH, while winds at the top of the tower were estimated at over 110 MPH. Downburst and tornadic wind damage occurred along an 11-mile path from Indian Rocks Beach to the Saint Petersburg/Clearwater International Airport. A small hanger was destroyed with debris damaging vehicles and small airplanes. The observation station on the north side of the airport recorded a wind gust of 55 MPH. Tornado – A waterspout moved onshore as a tornado and destroyed the second floor of a 3,600 square foot multiple occupancy home. Power lines and poles were snapped adjacent to the home. The tornado lifted before reaching the intercostal. Power poles and lines were snapped, with at least 10 trees down in the area. Roof debris from industrial buildings was spread along the path. Monetary damage is a conservative estimate.
May 19, 2012	Thunderstorm Wind – The Lealman Fire Department reported damage to an older hotel on the 4800 block of 34th Street North. The corner of the roof was taken off and damaged five cars in the parking lot. Damage in the area was isolated to this building.

Date	Description
June 24, 2012	Tornado – A tornado damaged 21 structures including mobile homes, car ports, billboards and trees. One block home lost part of the roof and debris blocked Walsingham Road near Hamlin Boulevard. A waterspout moved onshore and destroyed the top floor of a tourist rental building. No one was in the top units and no injuries were reported in the bottom units. The tornado caused moderate damage to the Pass-A-Grille Marina. Heavy Rain – Heavy rain caused roadway flooding with several cars stranded. Heavy rain caused minor flooding in Indian Rocks Beach. A 71-year-old man died after suffering a heart attack while standing in less than a foot of water in his front yard and could not remove himself from the water. The medical examiner determined that the cause of death was drowning, with heart disease as a contributing factor. A 51-year-old male was found in a creek under a bridge on 150th Avenue in Largo. The creek was swollen due to heavy rains from Tropical Storm Debby. The date and time of the death was estimated to be on the 24th. The body was found on the 27th.
July 9, 2012	Lightning – A lighting strike sparked a fire at a 5,700 square foot home in Tarpon Springs. Over 30 fire crews were called to the scene and the fire took several hours to put out.
July 21, 2012	Thunderstorm Wind – Six homes were damaged at a mobile home park on Alt Keene Road in Largo, mostly with roof damage. Two of the homes had major damage and the other 4 sustained minor damage. There were also downed power lines in the area.
September 5, 2013	Thunderstorm Wind – Broadcast media relayed a report of wind damage to homes and an apartment building around Bay Street SE and 20th Avenue in Indian Rocks Beach. A section of roof was blown off the apartment building on Bay Street SE and onto a road, and several trees and telephone poles were knocked down. Additionally, property damage reported on 20th Avenue included a porch, a lanai, a roof, and a stop sign. Time was estimated based off radar.
September 27, 2014	Heavy Rain – A CoCoRaHS observer south of Clearwater measured 5.9 inches of rain during the 4-day period. A CoCoRaHS observer three miles southwest of St. Petersburg measured 6.30 inches of rain during the 4-day period. A CoCoRaHS observer south of Pasadena measured 7.82 inches of rain during the 4-day period. A CoCoRaHS observer near Gulfport measured 8.28 inches of rain during the 4-day period.

Date	Description
April 20, 2015	Thunderstorm Wind – Daytime heating combined with a potent upper level system allowed for strong to severe storms to develop throughout the area. Many were sub-severe however a few reached severe limits causing damage to homes, trees, and power lines. A tree was reported down in the Palm Harbor area. Pinellas County Emergency Management relayed a report of widespread damage along 78th Avenue near Pinellas Park. Numerous trees were down along the street. A few homes sustained roof damage including a tree falling through a roof of one home. One home also had a porch collapse. Local broadcast media reported several downed trees around Starkey Rd. in Seminole. Parking lot lights were knocked down at a Target shopping center near U.S. Highway 19 and Park Boulevard in Pinellas Park.
June 19, 2015	Lightning – Florida Emergency Management reported that an 81-year-old man was struck and killed while walking near his home in Largo.
August 17, 2016	Lightning – Lightning struck a house and started a fire in the attic. The fire smoldered for an hour or so before flames ensued and ultimately the house was destroyed. The structure never collapsed but the inside of the house has been gutted.
December 8, 2017	Thunderstorm Wind – A cold front moved southeast through the Florida Peninsula on the evening of the 8th through early morning on the 9th. Thunderstorms developed along and ahead of the front, one of which produced a damaging wind gust. A large oak tree fell on a house in Safety Harbor, causing significant damage to the house.
July 26, 2018	Lightning – A lightning strike hit a home in Palm Harbor, leaving a burn mark in a bathroom ceiling. Sparks from the strike also caused minor burns to a resident laying in a bed in the home. No fire was caused by the lightning strike. A fire reported at a bank in Dunedin was suspected to be caused by a lightning strike. A fire reported at a house in Palm Harbor that was suspected to be caused by a lightning strike.
November 2, 2018	Tornado – A strong cold front pushed through the Florida peninsula during the afternoon hours on the 2nd. A squall-line associated with the front produced widespread damaging wind gusts along with multiple tornadoes embedded within the fast-moving line. Widespread damage was observed in two mobile home parks, and a condominium roof was torn off in addition to numerous downed trees and branches. One minor injury was reported in the area.
May 5, 2019	Tornado – Strong winds created an area of widespread damage in Madeira Beach. Trees and large branches snapped off. A large tree fell on a car in St. Peterburg.
July 21, 2019	Lightning – A lightning strike killed one and injured seven at Clearwater Beach.
October 18, 2019	Tornado – A tornado caused damage and power loss but there were no reported injuries. The tornado damaged some mobile homes, downed power lines, and knocked out traffic lights.
February 6, 2020	Tornado – Strong winds created a tornado that uprooted trees, damaged homes, and toppled a crane onto I-275.

Date	Description
December 16, 2020	Tornado – A tornado caused damages to houses, downed trees, and caused 14,000 people in Pinellas County to lose power at one point. This event caused about $16 million in property damages.
August 25, 2021	Lightning – A man was killed by lightning while golfing in St. Peterburg.
December 15, 2022	Tornado – A squall line ahead of a strong cold front produced damaging winds and tornadoes. The event damaged houses, downed trees, and flooded areas.
August 23, 2023	Lightning – A 73-year-old woman was killed after being struck by lightning in Clearwater.
October 11-12, 2023	Tornado – Six tornadoes affected Western Florida. The event represents the 8th most tornadoes in any single event for the area and is tied for 15th when ranking events by total number of tornadoes. No fatalities or significant injuries were reported.
May 14, 2024	Thunderstorm Wind – Wind gusts of up to 50 mph hit Point West Mobile Park. No injuries were reported, but the widespread thunderstorm caused $750,000 in property damages.
July 25, 2024	Lightning – Four teenagers, ages 16 and 17, were injured after being struck by lightning in St. Peterburg. One went into cardiac arrest and died a month later, and another teenager suffered burns.[57]

There have been 5 major disaster declarations from FEMA for severe storms and tornadoes in Pinellas County.

Table 4.54: FEMA Major Disaster Declarations in Pinellas County, Severe Storm, 1953–2024[58]

Disaster Number	Date	Name/Description
DR-586	May 15, 1979	SEVERE STORMS, TORNADOES & FLOODING
DR-966	October 3–4, 1992	SEVERE STORMS, TORNADOES & FLOODING
DR-982	March 12–16, 1993	TORNADOES, FLOODING, HIGH WINDS & TIDES, FREEZING
DR-1195	December 25, 1997–April 24, 1998	SEVERE STORMS, HIGH WINDS, TORNADOES, AND FLOODING
DR-4794	May 5, 2024	SEVERE STORMS, STRAIGHT-LINE WINDS, AND TORNADOES

While severe storms may seem to be lesser threat to life safety than a hurricane, severe storms can be deadly. From 2019 to 2024, severe storms killed three people, all three from lightning.

[57] https://www.wtsp.com/article/news/local/pinellascounty/teen-dies-struck-by-lightning-st-pete/67-a9f39f95-4fd9-47f8-82e5-34e6f59fdede

[58] https://www.fema.gov/data-visualization/disaster-declarations-states-and-counties

Lightning

According to the NCEI Storm Events Database, there were 14 reports of lightning in Pinellas County from 2019 to 2024.[59] These lightning events are only inclusive of those reported by NCEI from April 2019 through May 2024. It is likely that additional events have affected Pinellas County. As additional local data becomes available, this hazard profile will be amended. Prior lightning events in the county are available in previous versions of the LMS.

Table 4.55: Summary of Lightning Occurrences in Pinellas County, 2019-2024

Location	Number of Occurrences	Deaths	Injuries	Property Damage Estimate
Belleair	0	0	0	$0
Belleair Beach	0	0	0	$0
Belleair Bluffs	0	0	0	$0
Belleair Shores	0	0	0	$0
Clearwater	5	2	10	$10,000
Dunedin	0	0	0	$0
Gulfport	0	0	0	$0
Indian Rocks Beach	0	0	0	$0
Indian Shores	0	0	0	$0
Kenneth City	0	0	0	$0
Largo	0	0	0	$0
Madeira Beach	0	0	0	$0
North Redington Beach	0	0	0	$0
Oldsmar	1	0	0	$25,000
Pinellas Park	0	0	0	$0
Redington Beach	0	0	0	$0
Redington Shores	0	0	0	$0
Safety Harbor	2	0	1	$5,000
St. Petersburg	2	1	0	$25,000
St. Pete Beach	1	0	2	$0
Seminole	0	0	0	$0
South Pasadena	0	0	0	$0
Tarpon Springs	0	0	0	$0
Treasure Island	1	0	0	$25,000
Unincorporated	2	0	0	$125,000
PINELLAS COUNTY TOTAL	**14**	**3**	**13**	**$215,000**

[59] https://www.ncdc.noaa.gov/stormevents/choosedates.jsp?statefips=12%2CFLORIDA

Table 4.56: Historical Lightning Occurrences in Pinellas County, 2019-2024

	Date	Type	Deaths	Injuries	Property Damage Estimate
Belleair					
NONE REPORTED	--	--	--	--	--
Belleair Beach					
NONE REPORTED	--	--	--	--	--
Belleair Bluffs					
NONE REPORTED	--	--	--	--	--
Belleair Shore					
NONE REPORTED	--	--	--	--	--
Clearwater					
CLEARWATER	7/21/2019	Lightning	1	7	$0
CLEARWATER	7/5/2020	Lightning	0	2	$0
CLEARWATER	8/13/2021	Lightning	0	1	$0
CLEARWATER	8/5/2022	Lightning	0	0	$10,000
CLEARWATER	8/23/2023	Lightning	1	0	$0
Dunedin					
NONE REPORTED	--	--	--	--	--
Gulfport					
NONE REPORTED	--	--	--	--	--
Indian Rocks Beach					
NONE REPORTED	--	--	--	--	--
Indian Shores					
NONE REPORTED	--	--	--	--	--
Kenneth City					
NONE REPORTED	--	--	--	--	--
Largo					
NONE REPORTED	--	--	--	--	--
Madeira Beach					
NONE REPORTED	--	--	--	--	--
North Redington Beach					
NONE REPORTED	--	--	--	--	--
Oldsmar					
OLDSMAR	8/5/2023	Lightning	0	0	$25,000
Pinellas Park					
NONE REPORTED	--	--	--	--	--
Redington Beach					
NONE REPORTED	--	--	--	--	--
Redington Shores					
NONE REPORTED	--	--	--	--	--
Safety Harbor					
SAFETY HARBOR	7/31/2019	Lightning	0	0	$5,000
SAFETY HARBOR	8/13/2021	Lightning	0	1	$0

	Date	Type	Deaths	Injuries	Property Damage Estimate
St. Peterburg					
ST. PETERSBURG	8/25/2021	Lightning	1	0	$0
ST. PETERSBURG	4/11/2024	Lightning	0	0	$25,000
St. Pete Beach					
ST. PETE BEACH	8/12/2021	Lightning	0	2	$0
Seminole					
NONE REPORTED	--	--	--	--	--
South Pasadena					
NONE REPORTED	--	--	--	--	--
Tarpon Springs					
NONE REPORTED	--	--	--	--	--
Treasure Island					
TREASURE ISLAND	4/11/2024	Lightning	0	0	$25,000
Unincorporated					
UNINCORPORATED	5/14/2024	Lightning	0	0	$25,000
UNINCORPORATED	9/3/2022	Lightning	0	0	$100,000

Heavy Rain

According to the NCEI Storm Events Database, there was four reports of heavy rain in Pinellas County from 2019 to 2024 (this includes three flood events that were caused by heavy rain).[60] These heavy rain events are only inclusive of those reported by NCEI from April 2019 through May 2024. It is likely that additional events have affected Pinellas County. As additional local data becomes available, this hazard profile will be amended. Prior heavy rain events in the county are available in previous versions of the LMS.

Table 4.57: Historical Heavy Rain Occurrences in Pinellas County, 2019-2024

	Date	Type	Deaths	Injuries	Property Damage Estimate
ST. PETERSBURG	8/12/2019	Heavy Rain	0	0	$0
ST. PETERSBURG	7/16/2022	Heavy Rain	0	0	$0
ST. PETERSBURG	8/8/2022	Heavy Rain	0	0	$0
UNINCORPORATED	11/11/2020	Heavy Rain	0	0	$0

[60] https://www.ncdc.noaa.gov/stormevents/choosedates.jsp?statefips=12%2CFLORIDA

Hail

According to the NCEI Storm Events Database, there were three reports of hail in Pinellas County from 2019 to 2024.[61] These hail events are only inclusive of those reported by NCEI from April 2019 through May 2024. It is likely that additional events have affected Pinellas County. As additional local data becomes available, this hazard profile will be amended. Prior hail events in the county are available in previous versions of the LMS.

Table 4.58: Historical Hail Occurrences in Pinellas County, 2019-2024

	Date	Type	Magnitude	Deaths	Injuries	Property Damage Estimate
ST. PETERSBURG	6/28/2019	Hail	1	0	0	$0
ST. PETERSBURG	8/8/2022	Hail	1	0	0	$0
UNINCORPORATED	6/26/2019	Hail	.88	0	0	$0

Wind

According to the NCEI Storm Events Database, there were 30 reports of thunderstorm winds/high winds in Pinellas County from 2019 to 2024.[62] These wind events are only inclusive of those reported by NCEI from April 2019 through May 2024. It is likely that additional events have affected Pinellas County. As additional local data becomes available, this hazard profile will be amended. Prior wind events in the county are available in previous versions of the LMS.

Table 4.59: Summary of Wind Occurrences in Pinellas County, 2019-2024

Location	Number of Occurrences	Deaths	Injuries	Property Damage Estimate
Belleair	0	0	0	$0
Belleair Beach	0	0	0	$0
Belleair Bluffs	0	0	0	$0
Belleair Shore	0	0	0	$0
Clearwater	0	0	0	$0
Dunedin	0	0	0	$0
Gulfport	0	0	0	$0
Indian Rocks Beach	0	0	0	$0
Indian Shores	0	0	0	$0
Kenneth City	0	0	0	$0
Largo	3	0	0	$770,000
Madeira Beach	0	0	0	$0
North Redington Beach	0	0	0	$0
Oldsmar	0	0	0	$0
Pinellas Park	0	0	0	$0
Redington Beach	0	0	0	$0

[61] https://www.ncdc.noaa.gov/stormevents/choosedates.jsp?statefips=12%2CFLORIDA
[62] https://www.ncdc.noaa.gov/stormevents/choosedates.jsp?statefips=12%2CFLORIDA

Location	Number of Occurrences	Deaths	Injuries	Property Damage Estimate
Redington Shores	2	0	0	$0
Safety Harbor	0	0	0	$0
St. Petersburg	19	0	0	$71,500
St. Pete Beach	0	0	0	$0
Seminole	1	0	0	$25,000
South Pasadena	0	0	0	$0
Tarpon Springs	1	0	0	$0
Treasure Island	0	0	0	$0
Unincorporated	4	0	0	$16,000
PINELLAS COUNTY TOTAL	**30**	**0**	**0**	**$882,500**

Table 4.60: Historical Wind Occurrences in Pinellas County, 2019-2024

	Date	Type	Magnitude	Deaths	Injuries	Property Damage Estimate
Belleair						
NONE REPORTED	--	--		--	--	--
Belleair Beach						
NONE REPORTED	--	--		--	--	--
Belleair Bluffs						
NONE REPORTED	--	--		--	--	--
Belleair Shore						
NONE REPORTED	--	--		--	--	--
Clearwater						
NONE REPORTED	--	--		--	--	--
Dunedin						
NONE REPORTED	--	--		--	--	--
Gulfport						
NONE REPORTED	--	--		--	--	--
Indian Rocks Beach						
NONE REPORTED	--	--		--	--	--
Indian Shores						
NONE REPORTED	--	--		--	--	--
Kenneth City						
NONE REPORTED	--	--		--	--	--
Largo						
LARGO	12/24/2020	Thunderstorm Wind	52 kts.	0	0	$20,000
LARGO	3/12/2022	Thunderstorm Wind	52 kts.	0	0	0
LARGO	5/14/2024	Thunderstorm Wind	61 kts.	0	0	$750,000
Madeira Beach						
NONE REPORTED	--	--		--	--	--

	Date	Type	Magnitude	Deaths	Injuries	Property Damage Estimate
North Redington Beach						
NONE REPORTED	--	--		--	--	--
Oldsmar						
OLDSMAR	8/5/2023	Lightning		0	0	$25,000
Pinellas Park						
NONE REPORTED	--	--		--	--	--
Redington Beach						
NONE REPORTED	--	--		--	--	--
Redington Shores						
REDINTGTON SHORES	5/5/2019	Thunderstorm Wind	50 kts.	0	0	$0
REDINGTON SHORES	8/16/2019	Thunderstorm Wind	51 kts.	0	0	$0
Safety Harbor						
NONE REPORTED	--	--		--	--	--
St. Petersburg						
ST. PETERBURG	5/5/2019	Thunderstorm Wind	50 kts.	0	0	$15,000
ST. PETERBURG	5/5/2019	Thunderstorm Wind	50 kts.	0	0	$0
ST. PETERBURG	7/24/2019	Thunderstorm Wind	50 kts.	0	0	$10,000
ST. PETERBURG	2/6/2020	Thunderstorm Wind	43 kts.	0	0	$5,000
ST. PETERBURG	2/6/2020	Thunderstorm Wind	45 kts.	0	0	$10,000
ST. PETERBURG	4/20/2020	Thunderstorm Wind	50 kts.	0	0	$0
ST. PETERBURG	4/24/2020	Thunderstorm Wind	52 kts.	0	0	$5,000
ST. PETERBURG	5/18/2020	Thunderstorm Wind	52 kts.	0	0	$0
ST. PETERBURG	5/18/2020	Thunderstorm Wind	52 kts.	0	0	$1,000
ST. PETERBURG	5/18/2020	Thunderstorm Wind	52 kts.	0	0	$0
ST. PETERBURG	5/22/2020	Thunderstorm Wind	52 kts.	0	0	$0
ST. PETERBURG	5/22/2020	Thunderstorm Wind	52 kts.	0	0	$0
ST. PETERBURG	7/21/2020	Thunderstorm Wind	50 kts.	0	0	$0
ST. PETERBURG	8/15/2021	Thunderstorm Wind	43 kts.	0	0	$10,000

	Date	Type	Magnitude	Deaths	Injuries	Property Damage Estimate
ST. PETERBURG	1/16/2022	Thunderstorm Wind	43 kts.	0	0	$500
ST. PETERBURG	3/12/2022	Thunderstorm Wind	56 kts.	0	0	$0
ST. PETERBURG	3/12/2022	Thunderstorm Wind	52 kts.	0	0	$0
ST. PETERBURG	7/22/2022	Thunderstorm Wind	52 kts.	0	0	$0
ST. PETERBURG	8/20/2022	Thunderstorm Wind	48 kts.	0	0	$15,000
St. Pete Beach						
NONE REPORTED	--	--		--	--	--
Seminole						
SEMINOLE	8/25/2021	Thunderstorm Wind	43 kts.	0	0	$25,000
South Pasadena						
NONE REPORTED	--	--		--	--	--
Pinellas Park						
NONE REPORTED	--	--		--	--	--
Tarpon Springs						
TARPON SPRINGS	5/14/2024	Thunderstorm Wind	52 kts.	0	0	$0
Treasure Island						
NONE REPORTED	--	--		--	--	--
Unincorporated						
UNINCORPORATED	5/5/2019	Thunderstorm Wind	50 kts.	0	0	$10,000
UNINCORPORATED	7/19/2020	Thunderstorm Wind	48 kts.	0	0	$1,000
UNINCORPORATED	4/11/2021	Thunderstorm Wind	43 kts.	0	0	$5,000
UNINCORPORATED	5/14/2024	Thunderstorm Wind	56 kts.	0	0	$0

Tornado

According to the NCEI Storm Events Database, there were 132 reports of tornadoes in Pinellas County from 2019 2024.[63] These tornado events are only inclusive of those reported by NCEI from April 2019 through May 2024. It is likely that additional events have affected Pinellas County. As additional local data becomes available, this hazard profile will be amended. Prior tornado events in the county are available in previous versions of the LMS.

[63] https://www.ncdc.noaa.gov/stormevents/choosedates.jsp?statefips=12%2CFLORIDA

Table 4.61: Summary of Tornado Occurrences in Pinellas County, 2019-2024

Location	Number of Occurrences	Deaths	Injuries	Property Damage (2019)*
Belleair	0	0	0	$0
Belleair Beach	0	0	0	$0
Belleair Bluffs	1	0	0	$5,000
Belleair Shore	0	0	0	$0
Clearwater	1	0	0	$500,000
Dunedin	0	0	0	$0
Gulfport	0	0	0	$0
Indian Rocks Beach	0	0	0	$0
Indian Shores	0	0	0	$0
Kenneth City	0	0	0	$0
Largo	0	0	0	$0
Madeira Beach	1	0	0	$50,000
North Redington Beach	0	0	0	$0
Oldsmar	1	0	0	$50,000
Pinellas Park	0	0	0	$0
Redington Beach	0	0	0	$0
Redington Shores	0	0	0	$0
Safety Harbor	0	0	0	$0
St. Petersburg	2	0	2	$510,000
St. Pete Beach	0	0	0	$0
Seminole	1	0	0	$100,000
South Pasadena	0	0	0	$0
Tarpon Springs	0	0	0	$0
Treasure Island	0	0	0	$0
Unincorporated	5	0	1	$16,250,000
PINELLAS COUNTY TOTAL	**12**	**0**	**3**	**$17,465,000**

Table 4.62: Historical Tornado Occurrences in Pinellas County, 2019-2024

	Date	Type	Magnitude	Deaths	Injuries	Property Damage Estimate
Belleair						
NONE REPORTED	--	--		--	--	--
Belleair Beach						
NONE REPORTED	--	--		--	--	--
Belleair Bluffs						
BELLEAIR BLUFFS	10/12/2023	Tornado	EF0	0	0	$5,000
Belleair Shore						
NONE REPORTED	--	--		--	--	--
Clearwater						
CLEARWATER	10/12/2023	Tornado	EF2	0	0	$500,000
Dunedin						

	Date	Type	Magnitude	Deaths	Injuries	Property Damage Estimate
NONE REPORTED	--	--		--	--	--
Gulfport						
NONE REPORTED	--	--		--	--	--
Indian Rocks Beach						
NONE REPORTED	--	--		--	--	--
Indian Shores						
NONE REPORTED	--	--		--	--	--
Kenneth City						
NONE REPORTED	--	--		--	--	--
Largo						
NONE REPORTED	--	--		--	--	--
Madeira Beach						
MADEIRA BEACH	5/5/2019	Tornado	EF0	0	0	$50,000
North Redington Beach						
NONE REPORTED	--	--		--	--	--
Oldsmar						
OLDSMAR	10/11/2023	Tornado	EF0	0	0	$50,000
Pinellas Park						
NONE REPORTED	--	--		--	--	--
Redington Beach						
NONE REPORTED	--	--		--	--	--
Redington Shores						
NONE REPORTED	--	--		--	--	--
Safety Harbor						
NONE REPORTED	--	--		--	--	--
St. Petersburg						
ST. PETERBURG	12/15/2022	Tornado	EF1	0	2	$500,000
ST. PETERBURG	1/9/2024	Tornado	EF0	0	0	$10,000
St. Pete Beach						
NONE REPORTED	--	--		--	--	--
Seminole						
SEMINOLE	10/18/2019	Tornado	EF0	0	0	$100,000
South Pasadena						
NONE REPORTED	--	--		--	--	--
Pinellas Park						
NONE REPORTED	--	--		--	--	--
Tarpon Springs						
NONE REPORTED	--	--		--	--	--
Treasure Island						
NONE REPORTED	--	--		--	--	--
Unincorporated						

	Date	Type	Magnitude	Deaths	Injuries	Property Damage Estimate
UNINCORPORATED	2/6/2020	Tornado	EF0	0	1	$200,000
UNINCORPORATED	6/6/2020	Tornado	EF0	0	0	$30,000
UNINCORPORATED	11/30/2020	Tornado	EFU	0	0	$0
UNINCORPORATED	12/16/2020	Tornado	EF2	0	0	$16,000,000
UNINCORPORATED	2/14/2021	Tornado	EF0	0	0	$20,000

4. Probability of Future Occurrences of Severe Storms

Based on historical analysis, severe storms and tornadoes will continue to effect Pinellas County.

The map on the next page shows the average number of thunderstorm days across the United States. Not all storms are severe and any storm that contains thunder, regardless of frequency, is classified as a thunderstorm. Given this, it can be impossible to count the number of actual thunderstorms, so the number of days with thunderstorms is counted instead.

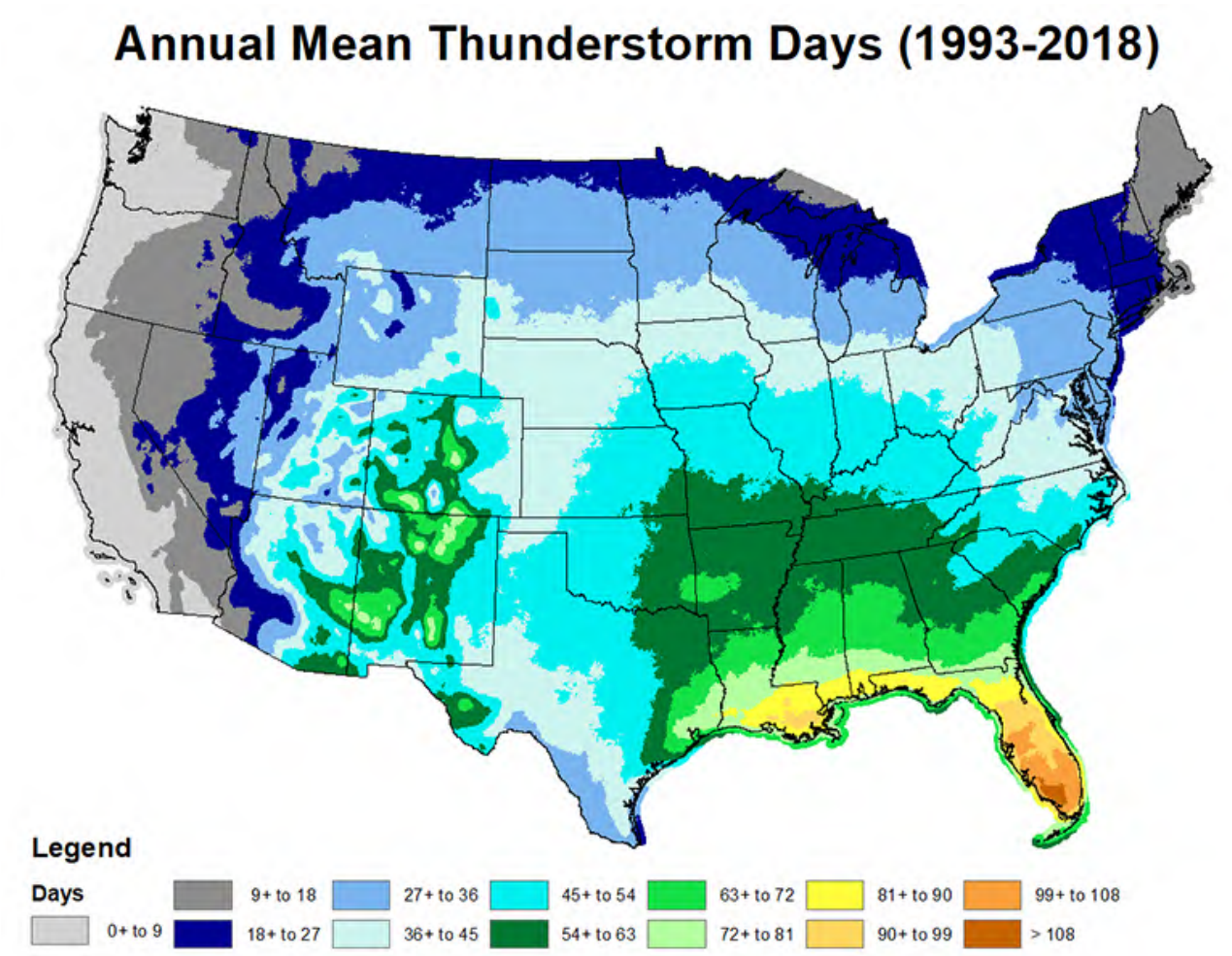
Pinellas County experiences 80 to 90 days of thunderstorms through the year and the state of Florida has is first in the United States for lightning strike density.[64] Due to these annual occurrences, lightning is one of the prevalent hazards in the county.

Pinellas County is also likely to experience at least one tornado warning each year. Furthermore, as shown in the Historical Occurrences section, most tornadoes in Florida are likely to be of smaller strength, usually between an EF-0 and an EF-2.

The probability is high that all jurisdictions could be impacted by severe storms. Variances in how much damage these storms generate within each community would severity of storms, maintenance of vegetation and infrastructure, and strength of residential and commercial structures.

[64] https://www.xweather.com/annual-lightning-report

Figure 4.40: Annual Mean Thunderstorm Days, Continental United States, 1993-2018[65]



Probability Based on Historical Occurrences

An analysis of severe storm reports from 2019 to 2024 in Pinellas County from the NCEI Storm Events Database indicates that there will be approximately 3 lightning events, 1 heavy rain event, 1 hail event, 6 wind events, and 2 tornado events each year in Pinellas County.

[65] https://www.noaa.gov/jetstream/thunderstorms

Table 4.63: NCEI Severe Storm Reports, 2019–2024[66]

Type of Severe Storm	NCEI Reports	Average per Year
Lightning	14	2.8
Heavy Rain	4	.8
Hail	3	.6
Wind	30	6
Tornado	12	2.4
TOTAL	**63**	**12.6**

Based on historical information, this hazard was determined to have a probability level of highly likely (100% annual probability).

5. Severe Storm Impact Analysis

All jurisdictions could receive the following impacts from severe storms. Variances in how much damage these storms generate within each community depend on the severity of storms, maintenance of vegetation and infrastructure, and strength of residential and commercial structures.

- Public
  - Injury or death from being struck by lightning
  - Injury or death from hail
  - Injury or death from flying debris
  - Injury or death from tornadoes and not having adequate shelter
  - Car accident
  - Indirect death
  - Survivors guilt if their house was not damaged from a severe storm or tornado and many neighbors died
- Responders
  - Responding during a severe storm can be very dangerous because of heavy rains, strong winds, hail, lightning, tornadoes
- Continuity of Operations (including continued delivery of services)
  - Thunderstorms often cause power outages from wind damage to power lines or lightning damage to power stations or other electrical infrastructure
- Property, Facilities, Infrastructure
  - Damage to property, including homes and businesses, can occur from strong winds, flooding, or tornadoes; the damage can range from minor roof damage to total structure loss
  - Damage to critical facilities from fallen trees and limbs, causing a power outage

[66] https://www.ncdc.noaa.gov/stormevents/choosedates.jsp?statefips=12%2CFLORIDA

- Environment
  - Damage to environment from strong winds, flooding, and tornadoes
  - There may be severe damage to vegetation in localized areas from a tornado
- Economic Condition
  - Power outages cause lost revenue and lost wages for businesses and employees
- Public Confidence in the Jurisdiction's Governance
  - Power outages for extended periods give the appearance that the jurisdiction is incapable of restoring power

6. Vulnerability Analysis and Loss Estimation by Jurisdiction

Historical Losses

The NCEI Storm Events Database information, presented in the Historical Occurrences section above, also contained property and crop damage dollar amounts, which is shown in the table below.

Table 4.64: Severe Storm Events in Pinellas County, by Type, 2019-2024[67]

Type of Event	Number of Events	Deaths	Injuries	Property Damage Estimate
Lightning	14	3	13	$215,000
Heavy Rain	4	0	0	$0
Hail	3	0	0	$0
Wind	30	0	0	$882,500
Tornado	12	0	3	$17,465,000
TOTAL	**63**	**3**	**16**	**$18,562,500**

The information can be analyzed to provide the average amount of property and crop damage that is likely each year. This information is shown in the chart below.

Table 4.65: NCEI Severe Storms, 2019-2024

NCEI Storm Event (hazard)	Average Severe Stormsper Year	Annualized PropertyLoss
All Types of Severe Storm	12.6	$3,712,500

According to the analysis, Pinellas County is historically vulnerable to over $ 3,712,500 in property damages from about 13 severe storm events each year.

[67] https://www.ncdc.noaa.gov/stormevents/choosedates.jsp?statefips=12%2CFLORIDA

Exposure

Since severe storm is a hazard that does not have geographically definable boundaries, it was excluded from spatial analysis through GIS. However, because severe storms are considered atmospheric, they have the potential to affect all buildings and all populations in Pinellas County.

Severe storms do not always impact structures, but impacts could result from heavy rain (often causing flooding), wind, tornadoes, hail, and lighting. Please refer to the *Flood Hazard Profile* for the 100-year and 500-year floodplain vulnerability and loss estimations. Because of the Florida Building Code, most structures do not sustain damage. This is because most buildings are built to withstand hurricane force winds and severe storms often do not have high wind speeds. Tornadoes, however, may cause damage to structures. Hail is unlikely to cause damage because hail rarely occurs in the county. Lightning impacts on structures are minimal.

People could be impacted by severe storms in several ways. Lightning can result in death or severe injury if a person is struck; heavy rain can result in rising floodwaters that can lead to drowning or other serious injury; injuries from hail are rare but they can be severe; wind can cause trees to fall and potentially result in injuries or death; and tornadoes can directly damage and destroy buildings and vehicles with occupants inside as well as create flying windborne debris that can cause serious injuries or loss of life.

7. Vulnerability Analysis and Loss Estimation of Critical Facilities

Severe storms can strike anywhere in Pinellas County; therefore, all the county's critical facilities are equally vulnerable and at risk. However, severe storms do not always impact structures. The impacts of severe storms to structures, including critical facilities, are listed above under Exposure.

8. Overall Vulnerability

Each of the five PRI categories was assigned a value from 1 to 4 and the pre-determined weighting factor was applied to calculate a PRI score. PRI scores can range from 1.0 to 4.0 and the overall vulnerability ranking or high, moderate, or low was assigned based on the PRI scores.

Based on the probability, impact, spatial extent, warning time, and duration, the overall vulnerability of this hazard was determined to be high, with a PRI score of 3.1.

SEVERE STORM	Overall Vulnerability
Overview	
The three key elements of a thunderstorm are wind, water, and lightning. The National Weather Service (NWS) considers a thunderstorm severe if it produces hail at least one inch in diameter, winds of 58 mph or stronger, or a tornado. In this profile, Severe Storms refers to thunderstorms having one or more of these effects: lightning, flash floods, hail, straight-line winds, and tornadoes.	**HIGH**
	PRI Score
	3.1

Probability	Impact	Spatial Extent	Warning Time	Duration
Highly Likely	**Critical**	**Moderate**	**6 to 12 hrs**	**< 6 hrs**

Wildfire Hazard Profile

1. Wildfire Description

Wildfire, or wildland fire, is an unplanned and uncontrolled fire in a natural area, such as a forest, grassland, or prairie. These fires can be caused by natural sources, such as lightning, or by human activity, both intentional and accidental. Wildfires occur in Florida every year and at all times of the year and are part of the natural cycle of Florida's fire-adapted ecosystems. Wildfires can cause major environmental, social, and economic damages because of the possible loss of life, property, wildlife habitats, and timber. Fortunately, many of these fires are quickly suppressed before they can damage or destroy property, homes, and lives.

There are three main types of wildfires:

- Ground fires: Occurs when plant roots and other organic matter below the soil surface ignite.
- Surface fires: Occurs when dead or dry vegetation above the ground ignite. Ground fires can lead to surface fires.
- Crown fires: Occurs when fire burns through the tree canopy. This type of fire can spread quickly if wind is present.

Environmental short-term loss caused by a wildland fire can include the destruction of wildlife habitat and watersheds. Long-term effects include reduced access to affected recreational areas, destruction of cultural and economic resources and community infrastructure, and vulnerability to flooding and landslides following a fire.

Causes

Wildfires can be caused by humans or occur naturally. Often, weather conditions determine how much a wildfire grows; dry conditions, high temperatures, and wind can cause a wildfire to become out of control very fast. Additionally, topography is important because it affects the movement of air over the ground surface and the slope and shape of terrain can change the rate of speed at which fire travels. Add in development within wildland areas and forests, and you get a perfect storm for risk to people and property.

Wildfire prevention and public awareness campaigns such as Smokey Bear and Firewise Communities have helped to greatly reduce the number of human-caused wildfires in Florida. Other measures used to help reduce the number and severity of wildfires include NWS advisories, prescribed burns, and county burn bans.

Although wildfires can cause severe damage, there can be benefits from this hazard. Sometimes, burns are "prescribed" by fire managers, meaning they are intentionally lit under carefully controlled conditions. Benefits of prescribed burns include insect pest control, removal of nonnative species, addition of nutrients to the soil for trees and other vegetation, removal of undergrowth to allow sunlight to reach the forest floor, and removal of extra fuel sources so when an un-prescribed burn occurs, there

is less fuel for it to grow.[68] The Florida Forest Service (FFS) authorizes an average of 2.1 million acres to be burned each year in these prescribed burns. The Service provides many tools and resources to safely utilize prescribed fire.[69]

The type and amount of fuel, as well as its burning qualities and level of moisture, affect wildfire potential and behavior. The continuity of fuels, expressed in both horizontal and vertical components, is also a factor because it expresses the pattern of vegetative growth and open areas. Topography is important because it affects the movement of air (and thus the fire) over the ground surface. The slope and shape of terrain can change the rate of speed at which the fire travels. Temperature, humidity, and wind (both short- and long-term) affect the severity and duration of wildfires.

Environmental short-term loss caused by a wildland fire can include the destruction of wildlife habitat and watersheds. Long-term effects include reduced access to affected recreational areas, destruction of cultural and economic resources and community infrastructure, and vulnerability to flooding and landslides following a fire.

Wildland Urban Interface (WUI) Fires

Population movement trends in the United States have resulted in rapid development in the outlying fringes of metropolitan areas and in the rural areas with attractive recreational and aesthetic amenities, such as forests. This demographic change is increasing the size of the WUI, defined as the area where structures and other human development meet or intermingle with undeveloped wildland or vegetative fuels. The WUI creates an environment for fire to move readily between vegetation fuels, such as brush and forests, and structural fuels, such as houses and buildings. Homes and other flammable structures can become fuel for WUI fires. There are three categories of WUI fires:

- Mixed Interface fires: areas with structures that are scattered throughout rural areas. Usually, there are isolated homes surrounded by larger or smaller areas of land.
- Occluded Interface fires: areas characterized by isolated (either large or small) areas within an urban area. An example may be a city park surrounded by urban homes trying to preserve some contact with a natural setting.
- Class Interface fires: areas where homes, especially those crowded onto smaller lots in new subdivisions, press along the wildland vegetation along a broad front. Vast adjacent wildland areas can propagate a massive flame front during a wildfire, and numerous homes are put at risk by a single fire.

The WUI is largely the result of development in areas once considered wildlands where people desire to live in a more natural setting. Natural landscaping, which allows natural vegetation to grow and accumulate near homes, is a hazardous trend and does not mitigate the risk of fire reaching into a homeowner's land. Many subdivision layouts are designed with numerous dead-end streets and cul-de- sacs, creating access issues for firefighting services and equipment. In addition, many of these areas do not have wet hydrants or other sources of water for firefighting.

[68] https://www.nps.gov/fire/wildland-fire/learning-center/fire-in-depth/fire-spread.cfm
[69] https://www.fdacs.gov/Forest-Wildfire/Wildland-Fire/Prescribed-Fire/Prescribed-Fire-Tools-and-Information

Advisories

There are three advisories that the NWS can issue for wildfires:[70]

- Fire Weather Watch: indicates weather conditions could result in critical fire weather conditions in the next 72 hours.
- Red Flag Warning: indicates ongoing or imminent critical fire weather in the next 24 hours.
- Extreme Fire Behavior: implies that a wildfire is either moving fast, has prolific crowning or spotting, has fire whirls, or has a strong convection column.

Measures

The data used to determine vulnerability to wildfire in Pinellas County is based on GIS data called the Southern Wildfire Risk Assessment (SWRA). This data is available on the Southern Wildfire Risk Assessment website and can be downloaded and imported into ArcGIS. A specific layer, known as "Wildland Urban Interface Risk Index" (WUIRI) was used to determine vulnerability of people and property. The WUIRI is presented on a scale of 0 to -9. It combines data on housing density with the data on the impact and likelihood of a wildfire occurring in a specific area. The primary purpose of the data is to highlight areas of concern that may be conducive to mitigation actions. Due to the assumptions made, it is not a true probability. However, it does provide a comparison of risk throughout the region.

Potential Effects of Climate Change on Wildfire

The increased frequency or intensity of extreme heat or drought events, due to the augmenting of existing fuel flammability, could affect wildfire behavior.[71] Changes in vegetation types could also alter fuel mixtures. Reducing moisture of living vegetation, soils, and decomposing organic matter during drought or extreme heat events is associated with increased incidence of wildfires. Furthermore, changes over time in vegetation types could change the mixture and flammability of fuels. As these transitions occur, wildfire occurrences and severity could increase with the introduction of more flammable vegetation types or decrease with the introduction of more fire-resistant species. As the *Flood Hazard Profile* discussed, arid areas may become drier and moist areas may become wetter. Florida has weather patterns that lead to both dry and wet periods each year. Climate change may cause one or the other, or both to increase in occurrences and magnitude.

2. Geographic Areas Affected by Wildfire

The land use map below shows areas in Pinellas County that may be prone to wildfire. As most of Pinellas County and its municipalities are urbanized, there are few areas with large fuels to support a catastrophic event. Nonetheless, woodlands and timberlands are clearly vulnerable to wildfires. Additionally, droughts increase vulnerability in swamps, wetlands, and agricultural lands. These types of land are vulnerable because they contain materials that are easily combustible fuel. The largest wildfire exposure occurs in the northwestern portion of Unincorporated County in a managed open-space area.

[70] https://www.weather.gov/safety/wildfire-ww

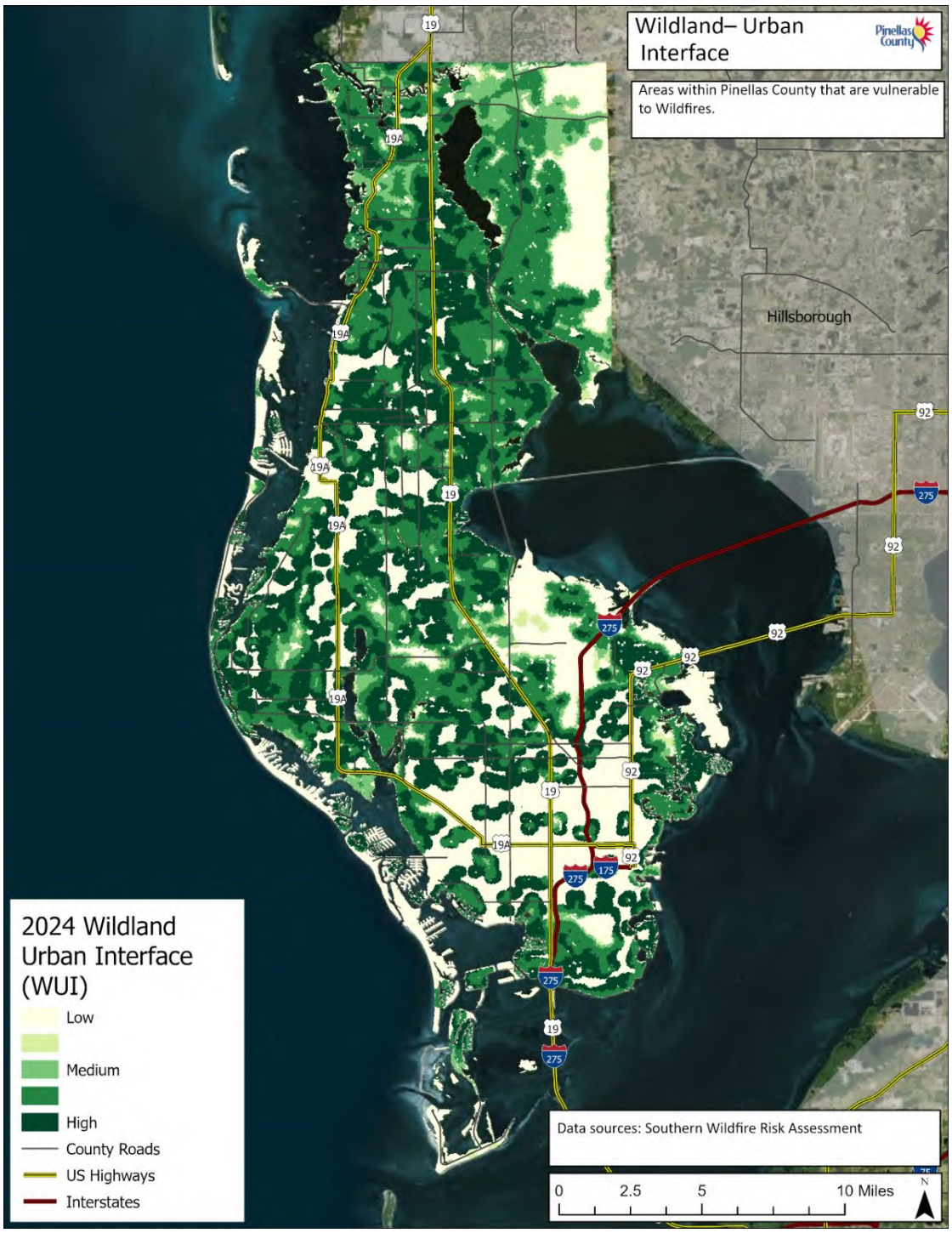
[71] Intergovernmental Panel on Climate Change, *Managing the Risks of Extreme Events and Disasters to Advance Climate Change Adaptation*, pp. 487–542. https://www.ipcc.ch/pdf/special-reports/srex/SREX_Full_Report.pdf

Figure 4.41: Pinellas County Land Use 2024



As explained before, the WUI areas of the state have increased. WUI areas are vulnerable to wildfires and can cause significant property damage. The WUI of the Pinellas County was mapped in 2024, showing the areas of the county vulnerable to wildfires.

Figure 4.42: Wildland-Urban Interface (WUI), 2024



3. Historical Occurrences of Wildfire

Most naturally caused wildland fires typically occur in July due to lightning strikes and coincide with the height of the thunderstorm season. Human-caused fires, such as arson, debris or trash burning, or sparking equipment, can occur any time of year but usually occur during the same season as wildfires. The table below includes a brief narrative for significant wildfires in the county.

Table 4.66: Significant Wildfire Occurrences in Pinellas County

Date	Description
March 23, 2000	The City of Clearwater experienced minor property damage ($5,000) from a small wildfire. A wildfire consumed 10 to 15 acres of brush and timber on the east side of McMullen Park near the intersection of U.S. Highway 19 and State Road 60 in Clearwater. One home incurred minor damage from the wildfire.
May 23–25, 2001	The county experienced smoke from fires in adjacent counties.
2006	There were 16 reported wildfires affecting 206.4 acres in Pinellas County.
Spring/ Summer 2007	Pinellas County residents experienced smoke from fires across the state and in Georgia. There were no damages and no injuries.

Since 1999, FEMA has authorized several Fire Management (FM) disaster declarations. The 1999 wildfire season was so severe that in addition to the Fire Management assistance being authorized, an Emergency Declaration (EM) was made to assist with handling the fires. Below is a list of all the FM and EM designations, plus the single major disaster declaration (DR) that Pinellas County has received from FEMA since 1998.

Table 4.67: FEMA Major Disaster Declarations in Pinellas County, Wildfire, 1953–2024[72]

Disaster Number	Date	Name/Description
DR-1223	May 25–July 22, 1998	EXTREME FIRE HAZARD
FS-2259	April 13, 1999	FL-FIRES 04/13/99
EM-3139	April 15–May 25, 1999	FL-FIRES 04/15/99
FS-2300	May 22, 2000	LAKELAND DISTRICT FIRE
FS-2353	February 17, 2001	FL - LAKELAND COMPLEX FIRE

According to the NCEI Storm Events Database, there were four reports of wildfire in Pinellas County from 2000 to 2024.[73] These wildfire events are only inclusive of those reported by NCEI from 1996 through 2024. It is likely that additional events have affected Pinellas County. As additional local data becomes available, this hazard profile will be amended.

[72] https://www.fema.gov/data-visualization/disaster-declarations-states-and-counties
[73] https://www.ncdc.noaa.gov/stormevents/choosedates.jsp?statefips=12%2CFLORIDA

Table 4.68: Summary of Wildfire Occurrences in Pinellas County

Location	Number of Occurrences	Deaths	Injuries	Property Damage Estimate (2024 dollars)	Crop Damage Estimate (2024 dollars)
Belleair	0	0	0	$0	$0
Belleair Beach	0	0	0	$0	$0
Belleair Bluffs	0	0	0	$0	$0
Belleair Shore	0	0	0	$0	$0
Clearwater	1	0	0	$9,012	$0
Dunedin	0	0	0	$0	$0
Gulfport	0	0	0	$0	$0
Indian Rocks Beach	0	0	0	$0	$0
Indian Shores	0	0	0	$0	$0
Kenneth City	0	0	0	$0	$0
Largo	0	0	0	$0	$0
Madeira Beach	0	0	0	$0	$0
North Redington Beach	0	0	0	$0	$0
Oldsmar	0	0	0	$0	$0
Pinellas Park	0	0	0	$0	$0
Redington Beach	0	0	0	$0	$0
Redington Shores	0	0	0	$0	$0
Safety Harbor	0	0	0	$0	$0
St. Petersburg	0	0	0	$0	$0
St. Pete Beach	0	0	0	$0	$0
Seminole	0	0	0	$0	$0
South Pasadena	0	0	0	$0	$0
Tarpon Springs	0	0	0	$0	$0
Treasure Island	0	0	0	$0	$0
Unincorporated	3	0	0	$0	$0
PINELLAS COUNTY TOTAL	**4**	**0**	**0**	**$9,012**	**$0**

Table 4.69: Historical Wildfire Occurrences in Pinellas County

	Date	Type	Deaths	Injuries	Property Damage Estimate (2024 dollars)	Crop Damage Estimate (2024 dollars)
Belleair						
NONE REPORTED	--	--	--	--	--	--
Belleair Beach						
NONE REPORTED	--	--	--	--	--	--
Belleair Bluffs						
NONE REPORTED	--	--	--	--	--	--
Belleair Shore						

	Date	Type	Deaths	Injuries	Property Damage Estimate (2024 dollars)	Crop Damage Estimate (2024 dollars)
NONE REPORTED	--	--	--	--	--	--
Clearwater						
CLEARWATER	3/23/2000	Wildfire	0	0	$9,012	$0
Dunedin						
NONE REPORTED	--	--	--	--	--	--
Gulfport						
NONE REPORTED	--	--	--	--	--	--
Indian Rocks Beach						
NONE REPORTED	--	--	--	--	--	--
Indian Shores						
NONE REPORTED	--	--	--	--	--	--
Kenneth City						
NONE REPORTED	--	--	--	--	--	--
Largo						
NONE REPORTED	--	--	--	--	--	--
Madeira Beach						
NONE REPORTED	--	--	--	--	--	--
North Redington Beach						
NONE REPORTED	--	--	--	--	--	--
Oldsmar						
NONE REPORTED	--	--	--	--	--	--
Pinellas Park						
NONE REPORTED	--	--	--	--	--	--
Redington Beach						
NONE REPORTED	--	--	--	--	--	--
Redington Shores						
NONE REPORTED	--	--	--	--	--	--
Safety Harbor						
NONE REPORTED	--	--	--	--	--	--
St. Petersburg						
NONE REPORTED	--	--	--	--	--	--
St. Pete Beach						
NONE REPORTED	--	--	--	--	--	--
Seminole						
NONE REPORTED	--	--	--	--	--	--
South Pasadena						
NONE REPORTED	--	--	--	--	--	--
Tarpon Springs						
NONE REPORTED	--	--	--	--	--	--
Treasure Island						
NONE REPORTED	--	--	--	--	--	--

	Date	Type	Deaths	Injuries	Property Damage Estimate (2024 dollars)	Crop Damage Estimate (2024 dollars)
Unincorporated						
PINELLAS (ZONE)	5/23/2001	Wildfire	0	0	$0	$0
PINELLAS (ZONE)	5/24/2001	Wildfire	0	0	$0	$0
PINELLAS (ZONE)	5/26/2001	Wildfire	0	0	$0	$0

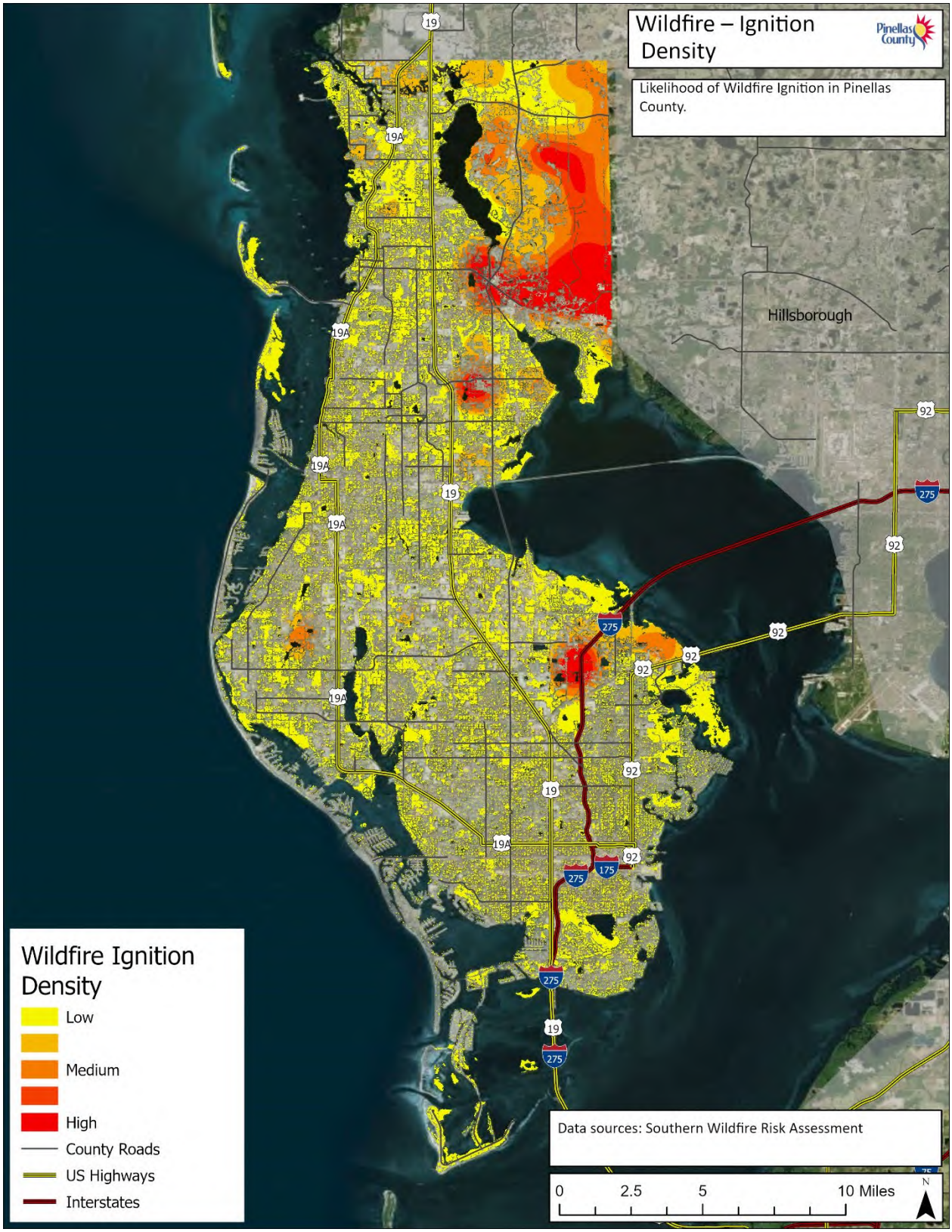
Data from the State Fire Marshal Annual Reports was also reviewed to obtain additional information on historical wildfire events in the county. The table below summarizes the wildfires reported from 2006 to 2024.

Table 4.70: Reported Wildfires in Pinellas County, 2006–2024

Year	Number of Reported Wildfires	Acres Affected
2006	16	306.8
2007	1	0.2
2008	1	3.0
2009	4	76.0
2010	3	53.0
2011	4	47.5
2012	4	53.0
2013	1	0.3
2014	3	61.5
2015	3	22.0
2016	7	23.0
2017	0	0
2018	0	0
2019	0	0
2020	0	0
2021	0	0
2022	0	0
2023	0	0
2024	0	0
TOTAL	**47**	**646.3**

The wildfire ignition density shown in the figure below gives an indication of historic location in Pinellas County. The wildfire ignition density is based on data from the Southern Wildfire Risk Assessment. This data is based on historical fire ignitions and the likelihood of a wildfire igniting in an area. Occurrence is derived by modeling historic wildfire ignition locations to create an average ignition rate map. This is measured in the number of fires per year per 1,000 acres.

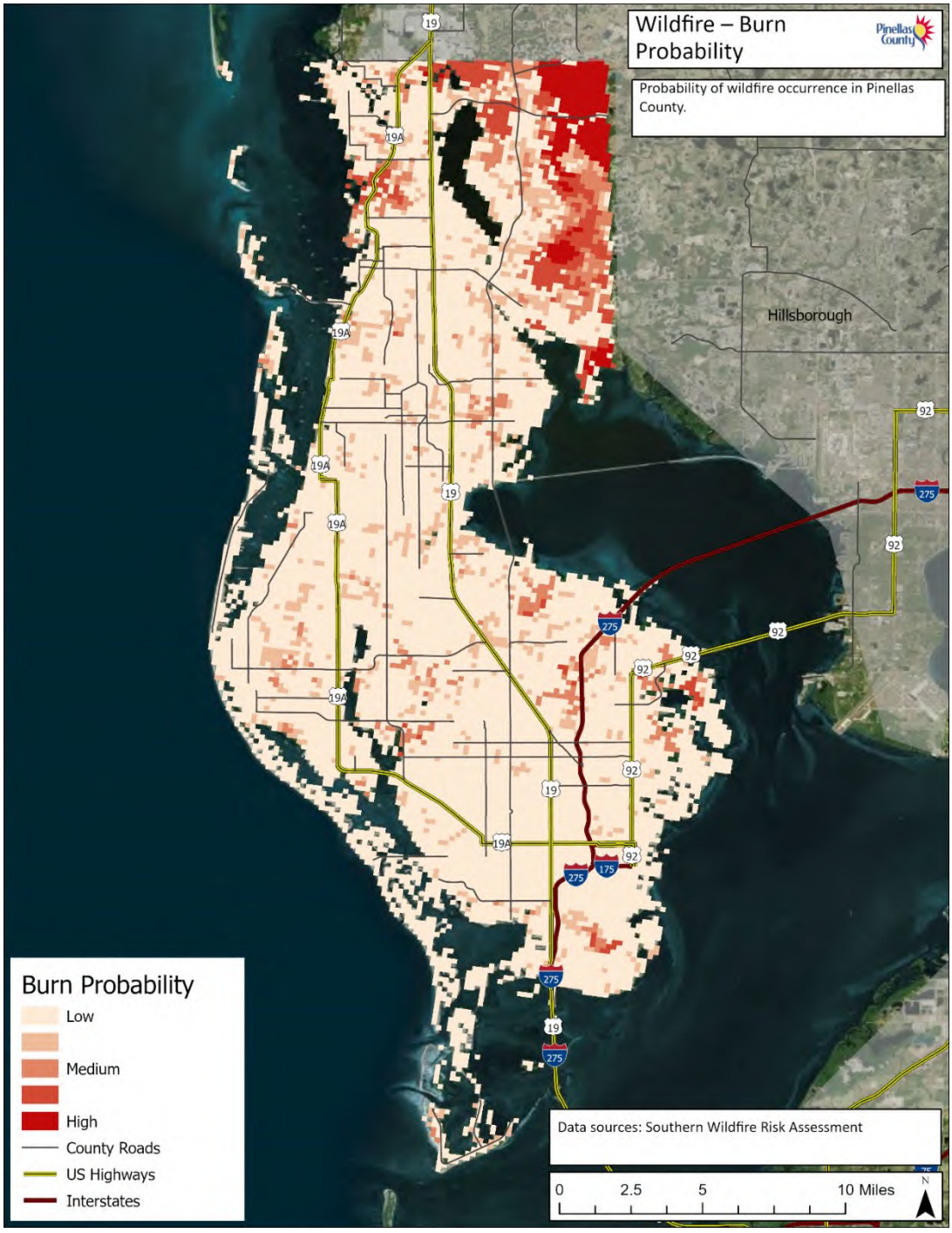
Figure 4.43: Pinellas County Wildfire Ignition Density, 2024



4. Probability of Future Occurrences of Wildfire

Below is a map showing the Burn Probability for Pinellas County, based on data from the Southern Wildfire Risk Assessment.

Figure 4.44: Pinellas County Burn Probability, 2024

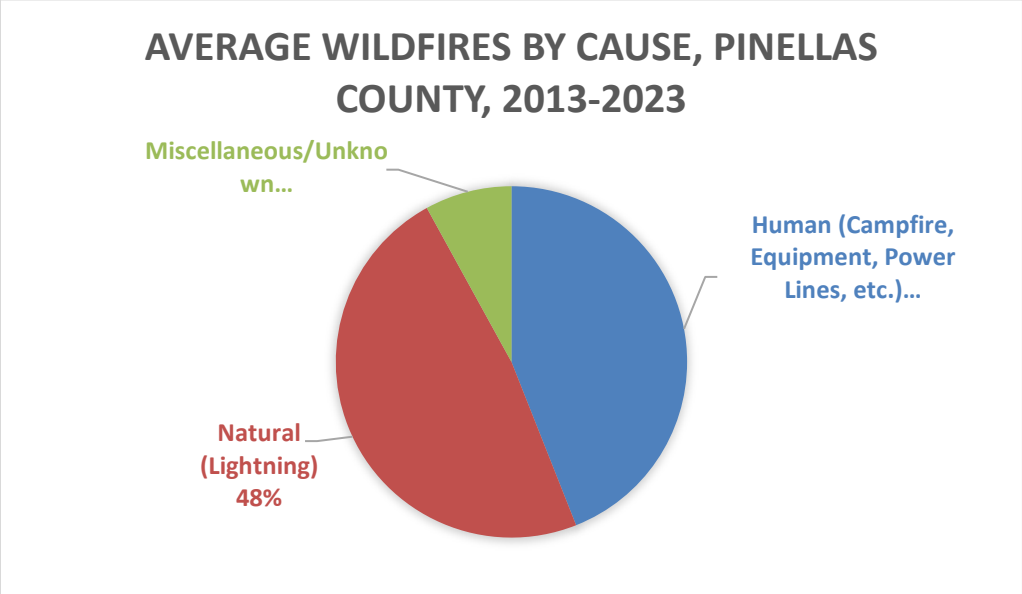


According to the burn probability map, there is some probability a wildfire will occur throughout the county, but they are most likely to occur in the northeast corner of Unincorporated County. When utilizing the WUI-9 (Major Impacts) metric, Unincorporated County shows 9% of buildings potentially at risk. The only municipalities with more than 1% of buildings within WUI-9 probable areas are Clearwater (3%), St. Petersburg (2%), and both Largo and Safety Harbor just over 1%. All other municipalities have less than 1% and most at 0% within the WUI-9 extents. The likelihood of wildfires increases during drought cycles and abnormally dry conditions. Fires are likely to stay small but could increase due local climate and ground conditions. Dry, windy conditions with an accumulation of forest floor fuel (potentially due to ice storms or lack of fire) could create conditions for a large fire that spreads quickly. It should also be noted that some areas do vary somewhat in risk. For example, highly developed areas are less susceptible unless they are located near the urban-wildland boundary. The risk will also vary due to assets. Areas in the WUI will have much more property at risk, resulting in increased vulnerability and need to mitigate compared to rural, mainly forested areas.

Florida has a year-round fire season with the most active time being April to July, with the largest number of lightning-caused fires occurring in July. The dry months, combined with low humidity and high wind, tend to have the highest number of fires reported. Approximately 80% of all wildfires in Florida occur within one mile of the WUI.

According to FFS, there were 30 wildfires in the county from 2013 to 2023, burning about 416 acres. There were 11 human-caused wildfires, burning about 186 acres; 12 lightning-caused wildfires, burning 218 acres; and two fires whose causes were miscellaneous or unknown, burning about 12 acres.[74]

Figure 4.45: Average Wildfires by Cause, Pinellas County, 2013–2023



Based on historical information, this hazard was determined to have a probability level of possible (1 to 10% annual probability). According to this burn probability map, there is some probability a wildfire will occur throughout the county, but they are most likely to occur in the northeast corner of Unincorporated

[74] Florida Forest Service Report System, Fire by Causes, Pinellas County 12/31/2014 through 12/31/2023. https://fireinfo.fdacs.gov/fmis.publicreports/FiresByCause.aspx

County. When utilizing the WUI-9 (Major Impacts) metric, Unincorporated County shows 9% of buildings potentially at risk. The only municipalities with more than 1% of buildings within potential WUI-9 areas are Clearwater (3%), St. Petersburg (2%), and both Largo and Safety Harbor just over 1%. All other municipalities have less than 1% and most at 0% within the WUI-9 extents.

5. Wildfire Impact Analysis

All jurisdictions could receive the following impacts due to wildfire. However, the northeast corner of the Unincorporated County, Clearwater, St. Petersburg, Largo, and Safety Harbor have a greater percentage of buildings at risk.

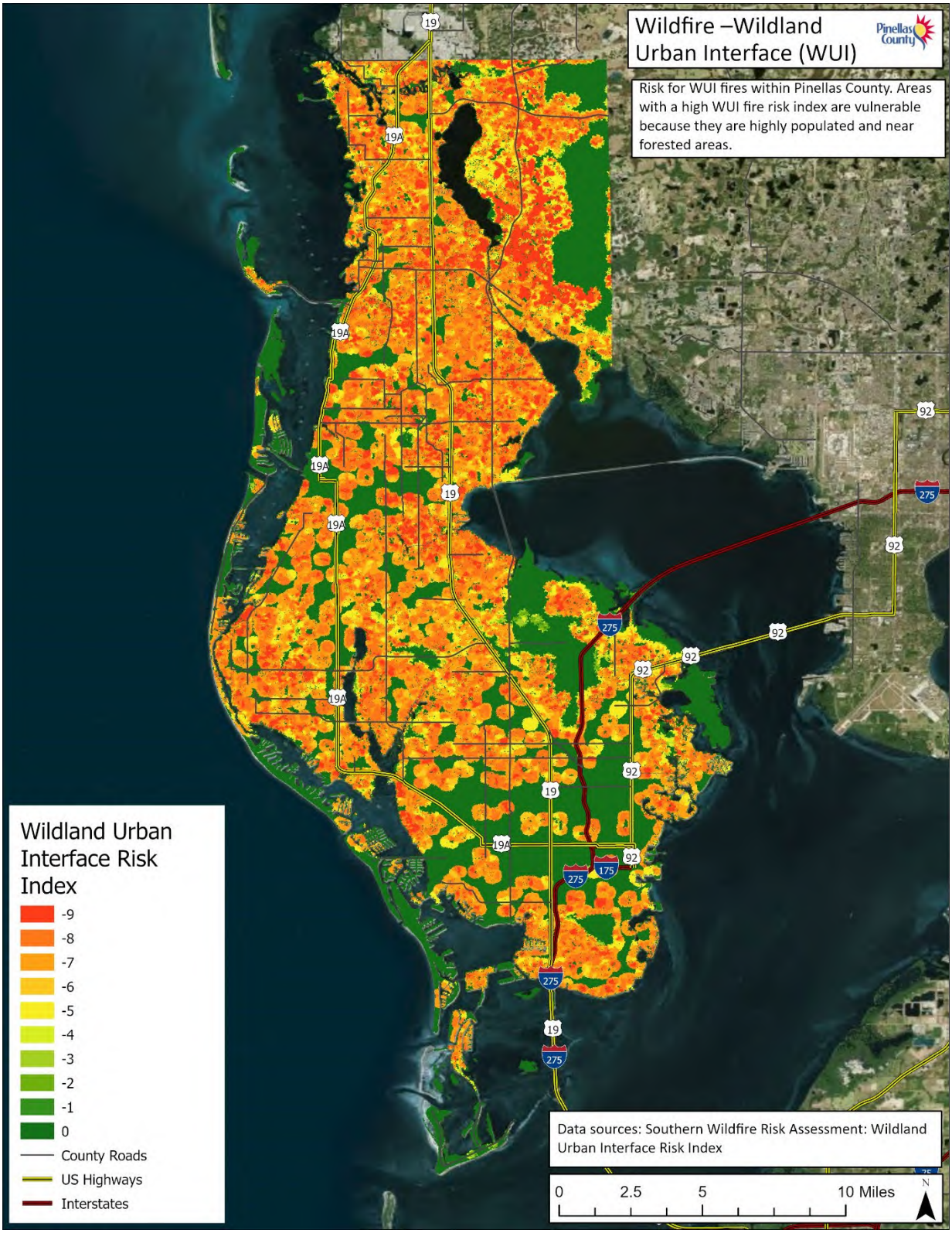
- People
  - Injury or death from fire
  - Injury or death from smoke inhalation
  - Injury or death while evacuating
  - Vehicle accidents due to decreased visibility due to smoke
- Responders
  - Injury or death during wildfire suppression, especially during high wind conditions
  - Injury or death from vehicle accidents due to decreased visibility
  - Injury or death from evacuation and rescue missions
  - Injury or death from smoke inhalation
- Continuity of Operations (including continued delivery of services)
  - Inability to operate businesses if evacuations are ordered, leading to lost wages and revenue
  - Employee absenteeism if employees are evacuated
  - Blocked transportation routes because of decreased visibility
- Property, Facilities, Infrastructure
  - Damage or loss to personal structures and businesses
  - Damage or loss to critical infrastructure such as schools, hospitals, government buildings, utilities, etc.
  - Damage or loss to agricultural crops and timber, leading to lost income and revenue
- Environment
  - Damage or loss to forested areas
  - Damage or loss to habitats
- Economic Condition
  - Closure of businesses if in evacuation area leading to lost wages and revenue
  - Employee absenteeism leading to forced business closure, resulting in lost wages and revenue
  - Damage or loss to agricultural crops and timber, leading to lost income and revenue
  - Loss of tourism if wildfires are in or adjacent to popular tourist areas
- Public Confidence in Jurisdiction's Governance
  - Lost confidence if evacuations not ordered, messaged, and coordinated effectively
  - Lost confidence if deaths from wildfires occur among those that did not evacuate

6. Vulnerability Analysis and Loss Estimation by Jurisdiction

The Burn Probability map above shows that there is some burn probability across the county, but areas in the northeast corner have the highest burn probability.

The map below is similar to the state of Florida WUI area map shown before and shows the risk for WUI fires. These maps are similar because they both highlight the WUI areas. The areas with a high WUI fire risk index are vulnerable because they are highly populated and near forested areas. Most areas throughout Pinellas County have a WUI risk index between -6 and -9.

Figure 4.46: Wildland Urban Interface Risk Index, 2024



Historical Losses

The total (based on data from 2000 to 2024) annual property loss due to wildfires in Pinellas County is $9,012 in 2024 dollars (refer to Tables 4.69 and 4.70).

Table 4.71: NCEI Wildfires, 2000–2024[75]

NCEI Storm Event (hazard)	Average Wildfires per Year	Annualized Property Loss (2024 dollars)	Annualized Crop Loss (2024 dollars)
Wildfires	< 1	$360	$0

Exposure

To estimate exposure of improved property to wildfire, the approximate number of parcels and their associated improved valued located in high wildfire risk areas was determined using GIS analysis. The WUI Risk Index data ranges from 0 to -9 with lower values being most severe. Areas with a WUI Risk Index of - 6 and -9 were chosen to be displayed as areas of risk because this shows the upper echelon of the scale and the areas of highest risk. The maps below delineate the areas with WUI Risk Index values less than -6 and less than -9, and the table below summarizes the buildings and parcels in the county that are located in the high wildfire risk areas.

[75] https://www.ncdc.noaa.gov/stormevents/choosedates.jsp?statefips=12%2CFLORIDA

Figure 4.47: Wildland Urban Interface Risk Index Less than -6, 2024

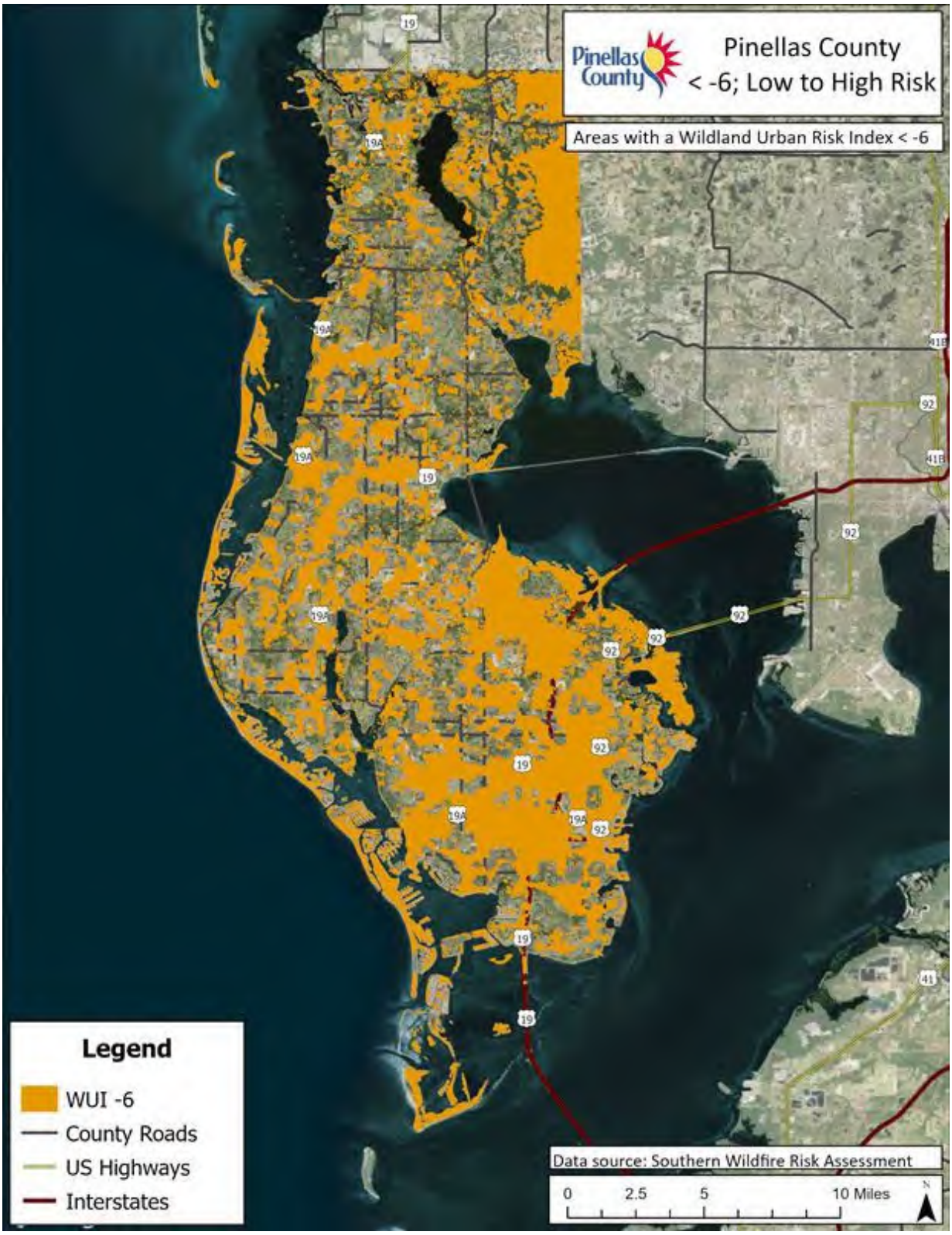


Figure 4.48: Wildland Urban Interface Risk Index -9, 2024

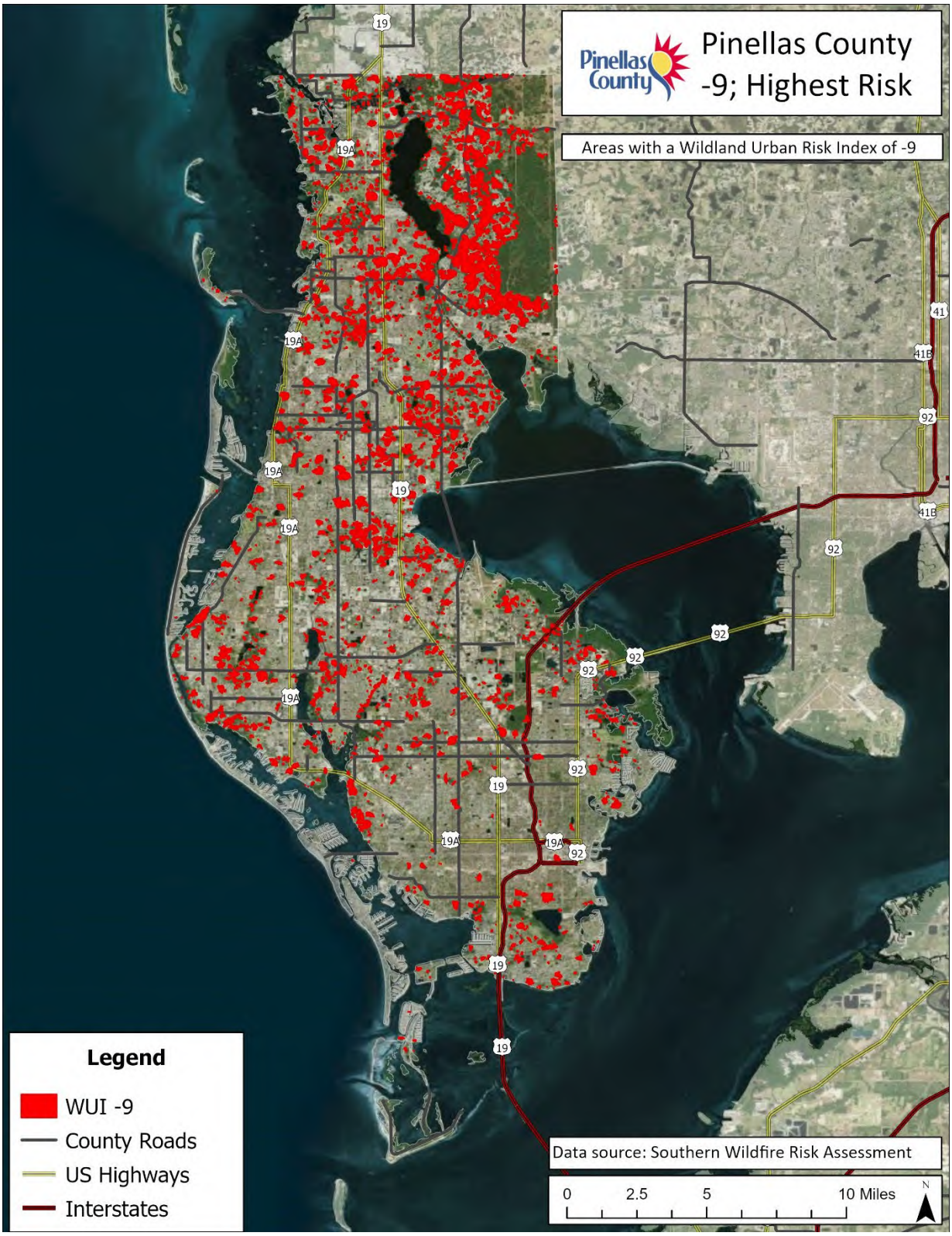


Table 4.72: Estimated Exposure of Improved Property to Wildfire

Location	Buildings and Parcels in High Wildfire Risk Area					
	WUI Risk Index < -6			WUI Risk Index < -9		
	No. of Parcels	No. of Buildings	Improved Value	No. of Parcels	No. of Buildings	Improved Value
Belleair	292	99	$225,225,249	284	102	$292,396,140
Belleair Beach	161	31	$121,269,975	-	-	$-
Belleair Bluffs	169	9	$38,641,201	179	79	$121,126,813
Belleair Shores	-	-	$-	-	-	$-
Clearwater	11,232	3,648	$6,682,657,807	12,425	4,983	$6,062,393,488
Dunedin	3,292	1,364	$1,485,359,091	2,980	1,400	$1,678,489,675
Gulfport	113	71	$50,768,453	326	148	$125,255,051
Indian Rocks Beach	736	189	$598,167,470	2	1	$2,795,420
Indian Shores	1,175	52	$842,729,003	188	12	$90,545,586
Kenneth City	321	176	$109,734,319	27	1,746	$9,950,987
Largo	10,175	4,678	$4,599,211,073	5,806	1,433	$2,891,881,119
Madeira Beach	380	206	$306,507,366	73	3,492	$26,688,151
Oldsmar	1,827	841	$924,826,059	2,884	782	$1,539,636,593
Pinellas Park	4,445	1,890	$2,248,256,495	2,946	1,553	$1,354,515,550
Redington Shores	101	80	$76,456,288	-	-	$-
Safety Harbor	604	311	$545,522,735	1,973	2,916	$1,214,774,611
Seminole	3,822	1,840	$1,997,503,956	3,028	1,896	$1,863,421,769
South Pasadena	818	51	$382,246,158	-	-	$-
St Pete Beach	28	19	$38,191,081	-	-	$-
St Petersburg	16,621	7,115	$11,092,435,337	9,047	5	$5,015,852,294
Tarpon Springs	3,264	1,068	$1,461,898,601	3,701	-	$2,116,491,008
Treasure Island	1,196	196	$684,538,310	1	-	$8,654,043
Unincorporated	6,697	3,060	$2,922,451,330	10,939	2,833	$4,852,269,649
TOTALS:	**74,143**	**28,646**	**$40,357,048,687**	**67,736**	**24,683**	**$34,119,407,596**

To estimate the county population's exposure to wildfire, areas of risk were intersected with census block data. As a result, these population estimates are going to be an overestimate of risk since the entire census block's population count will be included even if only a portion of the census block's area is located in a risk area. However, these estimates still give an idea of the county population's risk to wildfire.

Table 4.73: Estimated Exposure of Population to Wildfire

Location	Population in High Wildfire Risk Area					
	WUI Risk Index < -6			WUI Risk Index < -9		
	Total	< 18	> 65	Total	< 18	> 65
Belleair	545	68	176	313	47	89
Belleair Beach	2,338	243	954	1,971	198	973
Belleair Bluffs	472	37	180	803	49	446
Belleair Shores	540	51	207	-	-	-
Clearwater	-	-	-	-	-	-
Dunedin	47,496	6,827	11,699	45,598	7,497	10,611
Gulfport	19,018	2,060	6,341	15,531	1,725	5,390
Indian Rocks Beach	1,337	166	409	1,312	110	449
Indian Shores	2,074	159	727	788	41	290
Kenneth City	1,164	69	543	461	36	175
Largo	2,433	257	1,027	254	36	91
Madeira Beach	45,699	5,708	13,245	26,101	3,257	7,312
Oldsmar	1,979	155	542	-	-	-
Pinellas Park	11,055	2,298	1,650	9,314	1,858	1,545
Redington Shores	24,890	3,845	5,848	13,787	2,084	3,273
Safety Harbor	943	33	495	-	-	-
Seminole	8,864	1,398	2,386	12,479	2,023	3,345
South Pasadena	8,239	1,119	2,693	8,369	1,127	3,079
St Pete Beach	2,075	39	1,253	-	-	-
St Petersburg	507	28	216	-	-	-
Tarpon Springs	77,079	10,889	17,188	47,013	6,473	9,960
Treasure Island	14,594	2,144	4,494	15,377	2,300	4,540
Unincorporated	4,335	235	1,595	478	12	222
TOTAL:	146,103	21,630	42,910	135,942	20,576	39,277

7. Vulnerability Analysis and Loss Estimation of Critical Facilities

To estimate exposure to wildfire for the critical facility analysis, areas of risk were intersected with critical facility locations. The table below summarizes the critical facilities in the county that are located in high wildfire risk areas. The WUI Risk Index data ranges from 0 to -9 with lower values being most severe. Areas with a WUI Risk Index of -6 and -9 were chosen to be displayed as areas of risk because this shows the upper echelon of the scale and the areas of highest risk.

Table 4.74: Exposure of Critical Facilities to Wildfire Risk Areas

Location	Number of Critical Facilities in High Wildfire Risk Area	
	WUI Risk Index < -6	WUI Risk Index < -9
Belleair		
Belleair Beach		
Belleair Bluffs		
Belleair Shores		
Clearwater	36	44

Location	Number of Critical Facilities in High Wildfire Risk Area	
	WUI Risk Index < -6	WUI Risk Index < -9
Dunedin	9	16
Gulfport		
Indian Rocks Beach	1	
Indian Shores	3	
Kenneth City		
Largo	25	22
Madeira Beach	2	
Oldsmar	6	13
Pinellas Park	5	7
Redington Shores		
Safety Harbor		2
Seminole	4	6
South Pasadena		
St Pete Beach		
St Petersburg	36	11
Tarpon Springs	8	22
Treasure Island		
Unincorporated	16	32
TOTAL:	**152**	**175**

8. Overall Vulnerability

Each of the five PRI categories was assigned a value from 1 to 4 and the pre-determined weighting factor was applied to calculate a PRI score. PRI scores can range from 1.0 to 4.0 and the overall vulnerability ranking or high, moderate, or low was assigned based on the PRI scores.

Based on the probability, impact, spatial extent, warning time, and duration, the overall vulnerability of this hazard was determined to be moderate, with a PRI score of 2.5.

WILDFIRE			Overall Vulnerability	
Overview				
Wildfire, or wildland fire, is an unplanned and uncontrolled fire in a natural area, such as a forest, grassland, or prairie. These fires can be caused by natural sources, such as lightning, or by human activity, both intentional and accidental. Wildfires occur in Florida every year and at all times of the year and are part of the natural cycle of Florida's fire-adapted ecosystems. Wildfires can cause major environmental, social, and economic damages because of the possible loss of life, property, wildlife habitats, and timber.			**MODERATE**	
			PRI Score	
			2.5	
Probability	**Impact**	**Spatial Extent**	**Warning Time**	**Duration**
Possible	**Limited**	**Moderate**	**6 to 12 hrs**	**<1 week**

Coastal Erosion Hazard Profile

1. Coastal Erosion Description

Coastal erosion is the wearing away of land or the removal of beach or dune sediments by wave action, tidal currents, wave currents, or drainage. Waves generated by storms cause coastal erosion, which may take the form of long-term losses of sediment and rocks or merely in the temporary redistribution of coastal sediments. The study of erosion and sediment redistribution is called "coastal morphodynamics," which can also be described as the dynamic interaction between the shoreline, seabed, and water.

The ability of waves to cause erosion depends on a number of factors, which include:

- Erodibility of the beach, cliff, or rocks;
- Power of the waves to cross the beach;
- Lowering of the beach or shore platform through wave action; and
- Near shore bathymetry.

For example, waves must be strong enough to remove material from the debris lobe for erosion to occur. Additionally, beaches can help dissipate wave energy on the foreshore and can provide a measure of protection to cliffs, rocks, and other harder formations as well as any area upland.

Below is a table with the majority of the contribution factors to erosion. The factors are organized by first, second, and third orders depending on how the erosion occurs.

Table 4.75: Erosion Contribution Factors

First Order	Second Order	Third Order
• Geological structure and lithology: a) Hardness b) Height, etc. c) Fractures/faults d) Wave climate e) Prevailing wave direction f) Sub-aerial climate g) Weathering (frost, etc.) h) Stress relief swelling/ shrinkage i) Water-level change j) Groundwater fluctuations k) Tidal range l) Geomorphology	• Weathering and transport slope processes • Slope hydrology • Vegetation • Cliff foot erosion • Cliff foot sediment accumulation • Resistance of cliff foot sediment to attrition and transport	• Coastal land use • Resource extraction • Coastal management

As beaches are constantly moving, building up here and eroding there, in response to waves, winds, storms, and relative sea level rise, this issue requires long-term analysis and planning. The current beach- erosion problem has many causes, including the following items:

- The desire by many to live near the sea.
- A historically rapid rise in average ocean levels, now estimated to be rising at about 25–30 centimeters per century in much of the United States.
- The gradual sinking of coastal land (since the height of the land and the sea are both changing, the "relative sea level rise" is used to describe the rise of the ocean compared to the height of land in a particular location).
- Efforts to reduce erosion that have proved to be ineffective and instead increased it.

Some erosion changes are slow, inexorable, and usually gradual. However, the changes on a beach can happen overnight, especially during a storm. Even without storms, sediment may be lost to longshore drift (the currents that parallel coastlines), or sediment may be pulled to deeper water and lost to the coastal system. Coastal erosion may also be caused by the construction and maintenance of navigation inlets. There are many solutions to the major problem of beach erosion, including:

- Beach re-nourishment: Sand is purposefully deposited onto the beaches by humans; however, there is a very high cost associated with the solution.
- Rebuild rivers: Direct rivers back into places with a lack of sediment with the intention that the rivers will push the sediment back into place.
- Breakwaters, sea walls, and groins: While each location has different requirements that drive specific development and construction, these types of structural projects are intended to interfere with erosion. There are, however, some flaws and issues with these types of projects as they can trap as much sediment as they deposit with down-drift effects.
- Limits on beach development: Limit, restrict, or prohibit development on the impacted beaches.

According to the Beach Management Funding Assistance Program (BMFA) within Florida Department of Environmental Protection (FDEP) (formerly the Beach Erosion Control Program), there are many stretches of shoreline that has been critically eroded. Critically eroded shoreline is defined as,

> *"a segment of the shoreline where natural processes or human activity have caused or contributed to erosion and recession of the beach or dune system to such a degree that upland development, recreational interests, wildlife habitat, or important cultural resources are threatened or lost. Critically eroded areas may also include peripheral segments or gaps between identified critically eroded areas which, although they may be stable or slightly erosional now, their inclusion is necessary for continuity of management of the coastal system or for the design integrity of adjacent beach management projects."*

Therefore, critically eroded beaches are those in which there is a threat or loss of one of four specific interests: upland development, recreation, wildlife habitat, or important cultural resources. Non-critically eroded beaches are those in which there may be significant erosion conditions, but there is currently no public or private interest threatened.

In Pinellas County, the 2018 Critical Erosion Report from FDEP states there are:[76]

- 21.4 miles of critically eroded beach
- 0.5 miles of critically eroded inlet shoreline
- 4.4 miles of non-critically eroded beach
- 0.0 miles of non-critically eroded inlet shoreline

This is shown below in the map.

[76] https://floridadep.gov/sites/default/files/CriticallyErodedBeaches.pdf

Figure 4.49: Critical Erosion Areas, Pinellas County [77]



[77] https://floridadep.gov/sites/default/files/CriticallyErodedBeaches.pdf

Additionally, there are some areas where the erosion is not significant.

According to FDEP, roughly half of the designated critically eroded beaches are currently managed with restoration efforts such as placement of beach fill material. While these areas are improved from their eroded status, they are kept on the critically eroded list to ensure monitoring and continued eligibility for projects and funding.[78]

Beach Management Funding Assistance (BMFA) Program

The primary vehicle for implementing the beach management planning recommendations is the Florida Beach Erosion Control Program (BECP) within FDEP (formerly the Beach Erosion Control Program), a program established to work in concert with local, state, and federal governmental entities to achieve the protection, preservation, and restoration of the coastal sandy beach resources of the state. Under the program, financial assistance in an amount of up to 50% of project costs is available to Florida's county and municipal governments, community development districts, or special taxing districts for shore protection and preservation activities. Eligible activities include beach restoration and nourishment activities, project design and engineering studies, environmental studies and monitoring, inlet management planning, inlet sediment transfer, dune restoration and protection activities, and other beach erosion prevention-related activities consistent with the adopted Strategic Beach Management Plan.

Potential Effects of Climate Change on Erosion

Both increased rates of global eustatic sea level rise and increased frequency of higher intensity hurricanes may affect coastal erosion. As described in the *Flood Hazard Profile*, continued atmospheric warming could increase rates of global eustatic sea level rise. In the absence of offsetting changes in natural sediment supply, sand beaches will erode more rapidly as the rate of sea level rise increases. If the frequency of higher intensity hurricanes does increase (see *Tropical Cyclone Hazard Profile*), events will occur more often when sand eroded from beaches is transported to depths from which it will not be moved back on shore by swell waves. More frequent Category 4 and 5 hurricanes also would increase incidence of dune erosion and over wash where beach sediments are carried landward. These processes can damage structures, but where structures are not present, the over wash process can permit a beach and dune system to migrate landward.[79] Rising sea levels also threaten the survival of coastal wetlands when natural rates of sediment accretion and elevation increase are not fast enough to offset the rising sea.[80] However, wetlands also may be able to migrate landward with adequate sediment influx if there are no physical barriers to their movement.

[78] https://floridadep.gov/sites/default/files/CriticallyErodedBeaches.pdf
[79] (Gutierrez et al. (2009). Ocean coasts. http://papers.risingsea.net/coastal-sensitivity-to-sea-level-rise-3-ocean-coasts.html; In Titus et al. (Eds.), Coastal sensitivity to sea-level rise: A focus on the mid-Atlantic region. http://downloads.globalchange.gov/sap/sap4-1/sap4-1-final-report-all.pdf.).
[80] (Cahoon et al. (2009). Coastal wetland sustainability. http://papers.risingsea.net/coastal-sensitivity-to-sea-level-rise-4-wetland-accretion.html; In Titus et al. (eds.), Coastal sensitivity to sea-level rise: A focus on the mid-Atlantic region.).

2. Geographic Areas Affected by Coastal Erosion

Almost the entire length of Pinellas County on the Gulf Coast is lined with fine, white sandy beaches. These beaches, a main tourism attraction, are highly vulnerable to erosion from coastal events as well as inland coastal exposures along the county coastline. These events typically have caused considerable loss of the beachfront and widespread damage to structures that line those beaches.

The Bureau of Beaches and Coastal Systems develops and publishes the Critically Eroded Beaches Report annually. The data from this report is gathered from a set of monitoring locations along the coast throughout the state. Data is collected from each of these stations and then compiled into a GIS database for modeling and analysis. The continual reporting and analysis are combined with the historical data for detailed records about the status of the state's beaches. Erosion is a constantly changing issue as development continues on the beaches and in the inlets. It can also be instantly changed by a large storm or a hurricane.

The June 2018 Critically Eroded Beaches in Florida Report[81] states that there are 21.4 miles of critically eroded beach and 4.4 miles of non-critically eroded beach in Pinellas County. There are also 0.5 miles of critically eroded inlet shoreline but no areas of non-critically eroded inlet shoreline in the county. The map shown in the previous section depicts this information and indicates that the following communities have some exposure to critical erosion: Unincorporated County, Belleair Beach, Belleair Shore, Clearwater, Indian Rocks Beach, Indian Shores, Madeira Beach, North Redington Beach, Redington Beach, Redington Shores, St. Pete Beach, and Tarpon Springs. Other beach communities may have minimal exposure but are not identified as significant per the FDEP information.

3. Historical Occurrences of Coastal Erosion

DEP maintains a database of all the occurrences of erosion in the state with high quality reporting since the inception of the BMFA Program. There are constantly cases of beach erosion throughout the state.

The disastrous hurricane seasons of 2004–2005 had a severe impact on the state in terms of erosion, and DEP has published a number of reports about the specific details of these events. A number of these events are listed below.

Table 4.76: Florida Significant Erosion Contribution Events[82]

Year	Event
1972	Hurricane Agnes
1975	Hurricane Eloise
1979	Hurricanes David and Frederick
1984	Thanksgiving Day Nor'easter
1982	"no-name" storms
1985	Hurricanes Elena and Kate and Tropical Storms Bob and Juan
1992	Hurricane Andrew
1993	Winter storm
1995	Hurricanes Erin and Opal

[81] https://floridadep.gov/sites/default/files/CriticallyErodedBeaches.pdf
[82] https://floridadep.gov/sites/default/files/SBMP-Introduction_0.pdf

Year	Event
1998	Hurricanes Earl and Georges
1999	Hurricanes Floyd and Irene
2004	Hurricanes Charley, Frances, Ivan, and Jeanne,
2005	Hurricanes Dennis, Katrina, Ophelia, Rita, and Wilma
2008	Tropical Storm Fay and Hurricane Gustav
2012	Hurricane Isaac and Sandy and Tropical Storm Debby
2017	Hurricane Irma
2020	Hurricane Eta
2022	Hurricane Ian

Tropical Storm Debby was a significant erosion contribution event that resulted in severe beach and dune erosion to Pinellas County beaches at: Honeymoon Island State Park, sections of Sand Key, Sunshine and Sunset beaches on Treasure Island, and Upham and Pass-a-Grille beaches on Long Key.

The University of South Florida's (USF's) Coastal Research Lab staff documented sand volume and dry beach changes due to Tropical Storm Debby.[83] The table below provides volume changes to the dune and dry beach as well as the approximate loss of dry feet in terms of linear distance seaward from the mean high tide line. For example, Pass-a-Grille lost a total of 22,900 cubic yards of sand and 25.6 feet of dry beach width as a result of Tropical Storm Debby.

Table 4.77: Volume Changes to the Dune and Dry Beach in Pinellas County after Tropical Storm Debby

Location	Nourished/Not Nourished	Volume Change (cubic yards)				MHT Line Change (ft)
		Dune	Dry Beach	Overall Loss	Overall Gain	
Long Key Barrier Island						
Pass-a-Grille	Nourished in 2004	1,500	-22,100	-36,500	22,900	-25.6
Middle Long Key	Not nourished	6,400	-31,500	-64,000	82,600	-15.1
Upham Beach	Nourished in 2010; T-Groins	270	-5,100	-12,900	20,400	-10.8
LONG KEY TOTAL	--	**8,170**	**-58,700**	**-113,400**	**125,900**	--
Treasure Island Barrier						
Sunset Beach	Nourished in 2010	-7,700	-12,000	-43,400	22,600	-21.3
Middle Treasure Island	Not nourished	11,000	-13,000	-50,100	63,600	-10.2
Sunshine Beach	Nourished in 2010	--	-2,100	--	--	--
TREASURE ISLAND TOTAL	--	**3,300**	**-27,100**	**-93,500**	**86,200**	--
Sand Key Barrier Island						
Madeira Beach	Not nourished in 2006	700	-22,500	-29,600	35,000	-18.4

[83] Volume and Shoreline Changes along Pinellas County Beaches during Tropical Storm Debby, Ping Wang and Tiffany M. Roberts, Coastal Research Laboratory, University of South Florida July 24, 2012

Location	Nourished/Not Nourished	Volume Change (cubic yards)				MHT Line Change (ft)
		Dune	Dry Beach	Overall Loss	Overall Gain	
Redington Beach	Not nourished in 2006	-4,300	-19,200	-38,600	48,800	-18.4
North Redington Beach	Nourished in 2006	-500	-21,800	-59,400	41,000	-33.8
Indian Shores	Nourished in 2006	-6,300	-32,200	-98,400	100,000	-34.4
Headland	Nourished in 2006	-5,500	-15,800	-58,400	61,400	-28.2
Indian Rocks Beach	Nourished in 2006	-12,100	-15,300	-86,900	100,800	-10.2
Belleair Shore	Not nourished in 2006	-2,800	6,800	-29,900	38,600	10.5
North Sand Key	Nourished in 2006 and 2014/15	-5,600	2,500	-22,800	20,000	--
SAND KEY TOTAL	**--**	**-36,400**	**-117,500**	**-424,000**	**445,600**	

Sunshine Beach and Sunset Beach on Treasure Island received U.S. Army Corps of Engineers (USACE) Flood Control and Coastal Emergencies (FCCE) supplemental appropriations funding to cover the sand losses on those two beaches from Tropical Storm Debby. Those two beaches were repaired by a USACE nourishment project in 2014 with costs shared by the USACE, FDEP, and Pinellas County. The FCCE funding for the construction to replace sand loss from Tropical Storm Debby on those two beaches totaled approximately $1.55 million. The beach at Honeymoon Island State Park also lost sand due to Tropical Storm Debby. The sand volume loss was calculated to be 19,817 cubic yards at a construction cost of $239,480 as approved by FEMA to replace the lost sand.

Note that the beach segments in Pinellas County with the highest loss of volume and dry beach width from Tropical Storm Debby do not necessarily relate to the beaches subject to the highest annual mean erosion rates. Some of the wider beaches prior to Tropical Storm Debby passing through the area had much more sand volume and dry beach width to lose, and thus, resulted in some of the higher losses. Conversely, many beaches that chronically erode quickly had very little sand to lose since much sand had already eroded away prior to the arrival of Tropical Storm Debby. To combat increasing erosion rates, the Florida Department of Environmental Protection implemented a Strategic Beach Management Plan in May of 2023. This plan aims to support critically eroded beaches by providing dredge and fill. These areas and their respective fill volume, along with additional details are shown in the table below.

Table 4.78: Estimated Mean Annual Erosion Rates in Pinellas County

Project Location	Survey Lines	Year of Completion	Volume (cy)
Honeymoon Island Beach			
Hurricane Pass Ebb Shoal	R7-R10.5	2015	162,890
Spit at South End of Island	R7-R9.5	2021	169,641
		Total Volume Contribution:	332,531
Pinellas County Shore Protection Project: Sandy Key			
Offshore Borrow Area L	R56-R66	2012	600,000
Offshore Borrow Area L	R71-R107	2012	650,000
Egmont Shoals	R58-R65.8 & R71-R83 & R87-R96 & R97.4-R98.8 & R99.4-R103.1 & R105.1-R108.7	2018	1,299,858
		Total Volume Contribution:	2,549,858
Pinellas County Shore Protection Project: Treasure Island			
East Egmont Shoal	R126-R128	2014	66,892
East Egmont Shoal	R136-R141	2014	232,407
East Egmont Shoal	R126B-R128A & R136A-R142	2018	277,652
		Total Volume Contribution:	576,951
Pinellas County Shore Protection Project: Long Key			
East Egmont Shoal	R144-R146	2014	
East Egmont Shoal	R160-R166	2014	
Blind Pass	R144-R146	2019	
		Total Volume Contribution:	447,655

Over the past four years, the northern beach of Honeymoon Island State Park has lost 70–80 feet of the shore-parallel portion of the parking lot due to erosion resulting in 65 parking spaces being reallocated. The State Park also had to move more than one bathroom building away from the shoreline due to erosion.

Pinellas County has a very proactive Coastal Management Program with nourishments occurring periodically as part of the federal Pinellas County Shore Protection Project at Sand Key (since 1988), Treasure Island (since 1969), and Long Key (since 1980) as well as cooperative efforts between Pinellas County and FDEP's Division of Recreation and Parks to nourish the beach at Honeymoon Island State Park that began in 1989. The Costal Management Program overall has provided exceptional upland infrastructure and private property storm protection over a large fraction of the Pinellas County shoreline.

4. Probability of Future Occurrences of Coastal Erosion

The beaches of Pinellas County will continue to shift and change over time, especially when faced with the current levels of development. This hazard will continue to affect the county, and there is considerable work being done regularly to mitigate potential damages. DEP maintains an active and on-going program to study this issue and mitigate damages as much as possible. This hazard will continue to affect the county in the future, especially in conjunction with hurricanes, winter storms, and coastal flooding, and considering the likelihood of future development in coastal areas. Coastal erosion has occurred in Pinellas County since the start of such record keeping. Additionally, coastal flooding will continue to occur, whether it is due to tropical storms or sea level rise, or both. While it would be best

to keep areas prone to coastal erosion undeveloped, this is unlikely and future development in coastal areas will increase the probability of coastal erosion affecting developed areas.

Based on historical information, this hazard was determined to have a probability level of likely (10 to 100% annual probability). All waterfront communities are likely to be impacted by erosion. However, some communities have much bigger proportions of their community with areas susceptible to erosion and thus their vulnerability differs (identified later in this profile). The only communities with a none-to- low probability of coastal erosion are the land locked and higher elevated communities of Kenneth City and Pinellas Park as they have small creeks and drainage systems running through them.

5. Coastal Erosion Impact Analysis

All waterfront communities could receive the following impacts due to coastal erosion. However, some communities have much bigger proportions of their community with areas susceptible to erosion and thus their vulnerability differs. The only communities with a none-to-low probability of coastal erosion are the land locked and higher elevated communities of Kenneth City and Pinellas Park as they have small creeks and drainage systems running through them.

- Public
  - May lose property
  - May lose sandy beaches, dunes, or mangroves, which could lead to storm surge flooding
  - Sandy beaches may have to close
- Responders
  - N/A
- Continuity of Operations (including continued delivery of services)
  - Businesses, critical infrastructure, government buildings, etc. may have operations hindered if erosion leads to damage to the structure
  - Operations may be hindered if roads to the structures are damaged from erosion
  - Continuity of transportation network may be interrupted because of erosion damage to roads
- Property, Facilities, Infrastructure
  - Structures may be damaged when coastal erosion damages the ground
- Environment
  - Coastal areas, marshes, mangroves, sandy beaches etc. may be severely damaged from coastal erosion which is a habitat for many species of plants and animals
  - If large portions of coastal areas and dunes are washed away from coastal erosion, storm surge from the next storm could reach homes, businesses, roads, etc.
- Economic Condition
  - N/A
- Public's Confidence in Jurisdiction's Governance
  - If damage from coastal erosion, such as damage to roads, is not quickly repaired, then the public may be frustrated with the jurisdiction's governance

6. Vulnerability Analysis and Loss Estimation by Jurisdiction

Exposure

To estimate exposure of improved property to erosion, the approximate number of parcels and their associated improved valued located in high erosion risk areas was determined using GIS analysis. A 400-meter buffer of the critical erosion areas was chosen as the area of risk used for the analysis.

Table 4.79: Estimated Exposure of Improved Property to Erosion

Location	Buildings and Parcels in High Erosion Risk Area		
	No. of Parcels	No. of Buildings	Improved Value
Belleair	0	0	$0
Belleair Beach	650	142	$489,883,197
Belleair Bluffs	0	0	$0
Belleair Shore	60	61	$344,972,288
Clearwater	2,084	23	$1,356,114,072
Dunedin	1	3	$28,424,832
Gulfport	0	0	$0
Indian Rocks Beach	1,436	372	$1,356,114,072
Indian Shores	2,527	135	$2,037,407,786
Kenneth City	0	0	$0
Largo	0	0	$0
Madeira Beach	1,036	122	$916,677,502
North Redington Beach	884	57	$703,583,439
Oldsmar	0	0	$0
Pinellas Park	0	0	$0
Redington Beach	464	162	$584,962,775
Redington Shores	1,125	186	$862,028,201
Safety Harbor	0	0	$0
St. Petersburg	1	1	$74,958,461
St. Pete Beach	2,487	558	$3,108,276,913
Seminole	0	0	$0
South Pasadena	0	0	$0
Tarpon Springs	0	0	$0
Treasure Island	1,614	442	$1,289,499,727
Unincorporated	6	155	n/a
PINELLAS COUNTY TOTAL	**14,375**	**2,419**	**$13,498,376,443**

To estimate the county population's exposure to erosion, areas of risk were intersected with census block data. As a result, these population estimates are going to be an overestimate of risk since the entire census block's population count will be included even if only a portion of the census block's area is located in a risk area. However, these estimates still give an idea of the county population's risk to erosion.

Table 4.80: Estimated Exposure of Population to Erosion

Location	Population in High Erosion Risk Area		
	Total	< 18	> 65
Belleair	0	0	0
Belleair Beach	1,035	116	366
Belleair Bluffs	0	0	0
Belleair Shore	73	11	23
Clearwater	2,444	45	1,430
Dunedin	245	0	189
Gulfport	0	0	0
Indian Rocks Beach	1,957	154	721
Indian Shores	1,190	72	559
Kenneth City	0	0	0
Largo	0	0	0
Madeira Beach	748	42	303
North Redington Beach	1,408	116	507
Oldsmar	0	0	0
Pinellas Park	0	0	0
Redington Beach	959	102	336
Redington Shores	1,515	122	642
Safety Harbor	0	0	0
St. Pete Beach	2,731	168	1,194
Treasure Island	1,493	83	613
Unincorporated	3	0	1
Totals:	**15,801**	**1,031**	**6,884**

7. Vulnerability Analysis and Loss Estimation of Critical Facilities

To estimate exposure to erosion for the critical facility analysis, areas of risk were intersected with critical facility locations. The table below summarizes the critical facilities in the county that are located in high erosion risk areas. The erosion risk areas are based on data from FDEP.

Table 4.81: Exposure of Critical Facilities to Erosion Risk Areas

Location	Number of Critical Facilities in High Erosion Risk Area
Belleair	0
Belleair Beach	0
Belleair Bluffs	0
Belleair Shore	0
Clearwater	0
Dunedin	1
Gulfport	0
Indian Rocks Beach	4
Indian Shores	4
Kenneth City	0
Largo	0
Madeira Beach	1
North Redington Beach	0
Oldsmar	0
Pinellas Park	0
Redington Beach	0
Redington Shores	0
Safety Harbor	0
St. Petersburg	2
St. Pete Beach	2
Seminole	0
South Pasadena	0
Tarpon Springs	0
Treasure Island	0
Unincorporated	0
PINELLAS COUNTY TOTAL	**14**

8. Overall Vulnerability

Each of the five PRI categories was assigned a value from 1 to 4 and the pre-determined weighting factor was applied to calculate a PRI score. PRI scores can range from 1.0 to 4.0 and the overall vulnerability ranking or high, moderate, or low was assigned based on the PRI scores.

Based on the probability, impact, spatial extent, warning time, and duration, the overall vulnerability of this hazard was determined to be moderate, with a PRI score of 2.6.

EROSION			Overall Vulnerability	
Overview				
Coastal erosion is the wearing away of land or the removal of beach or dune sediments by wave action, tidal currents, wave currents, or drainage. Waves generated by storms cause coastal erosion, which may take the form of long-term losses of sediment and rocks, or merely in the temporary redistribution of coastal sediments.			**MODERATE**	
			PRI Score	
			2.6	
Probability	**Impact**	**Spatial Extent**	**Warning Time**	**Duration**
Likely	**Limited**	**Moderate**	**> 24 hrs**	**> 1 week**

Extreme Heat Hazard Profile

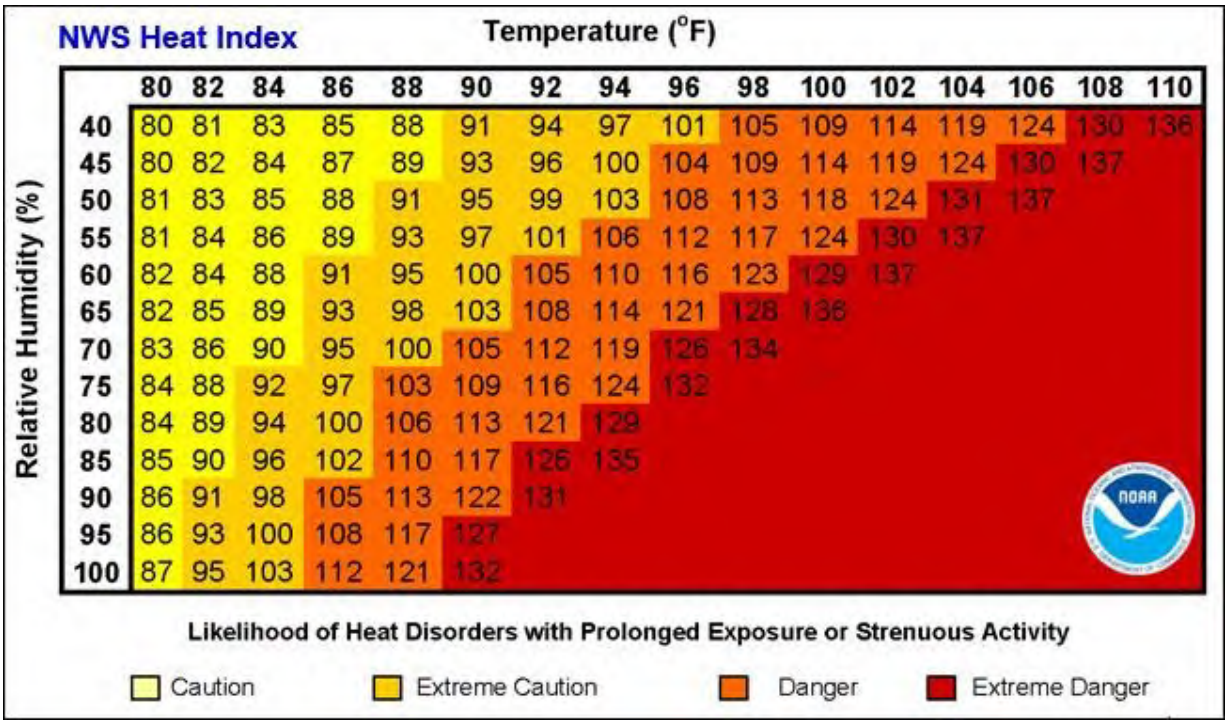
1. Extreme Heat Description

Extreme heat is defined as extended period where the temperature and relative humidity combine for a dangerous heat index.[84] Extreme heat events occur across the state each year. This hazard is focused on the effects to the human population, while drought focuses more on environmental interests.

Heat Index

The Heat Index is a measure of how hot the temperature feels when humidity is factored in with the actual temperature. The Heat Index chart is below. The red area indicates extreme danger. The NWS will begin to issue alerts when the heat index is expected to exceed 105–110 degrees Fahrenheit for at least two consecutive days.[85]

Figure 4.50: Heat Index



[84] https://www.weather.gov/safety/heat-index
[85] https://www.weather.gov/safety/heat-index

Advisories

The National Weather Service issues the following heat-related advisories:

- Excessive Heat Outlook: issued when the potential exists for an excessive heat event within the next 3 to 7 days.
- Heat Advisory: issued within 12 hours of extremely dangerous heat conditions.
- Excessive Heat Watch: issued when conditions are favorable for an excessive heat event within the next 24 to 72 hours; this is used when the risk of a heat wave has increased but the timing is still uncertain.
- Excessive Heat Warning: issued within 12 hours of extremely dangerous heat conditions.

Heat Related Illness

Extreme heat can cause death by making it difficult for a body to cool itself. Heat illnesses occur when the body temperature increases too quickly to cool itself or when too much fluid or salt is lost through dehydration or sweating. Older adults, young children, and those who are sick or overweight are more likely to succumb to extreme heat. Below are the different types of heat-related illnesses.86

Heat Cramps

Heat Cramps are the first sign of a heat illness and can lead to more serious illnesses. Symptoms of heat cramps include muscular pains and spasms, usually in the legs or abdomen.

Heat Exhaustion

Heat exhaustion follows heat cramps if the body is not able to cool itself. Symptoms include heavy sweating; weakness; cool, pale, clammy skin; a fast and weak pulse; dizziness; nausea or vomiting; and fainting.

Heat Stroke

Heat stroke usually occurs by ignoring the signs of heat exhaustion and is life threatening. Signs of heat stroke include extremely high body temperature, red skin, changes in consciousness, rapid and weak pulse, rapid shallow breathing, confusion, vomiting, and seizures. This occurs because the body becomes overwhelmed by heat and begins to stop functioning. There are two types of heat stroke, classical and exertional. Classical heat stroke occurs when an individual is unable to maintain thermal equilibrium due to medication, injury, chronic illness, or age. Exertional heat stroke occurs when young and healthy individuals are engaged in strenuous activity in hot and humid weather.

Additionally, other chronic illnesses may become exacerbated by heat-related illnesses. For example, those with cardiovascular disease and other heart conditions may not be able to tolerate the increased cardiac output associated with heat illnesses. People with mental health disorders and certain behavioral disorders, such as substance abuse, are at higher risk for morbidity and mortality during extreme heat events. Those with respiratory diseases and Type I and II diabetes are also at higher risk

[86] https://www.weather.gov/safety/heat-illness

for morbidity and mortality with increased heat exposure.[87]

Potential Effects of Climate Change on Extreme Heat

Average global temperatures are expected to increase anywhere from 4 to 12 degrees Fahrenheit by the end of the 21st century.[88] Average global temperatures move in tandem with extreme temperatures, suggesting that in the future extreme heat events will become more frequent and last longer with an overall warming trend.

According to analysis of 360 U.S. cities and the combination of several climate model projections, Florida will likely see an increase in days when the heat index is above 105 degrees Fahrenheit by 2050.[89] While it is likely that cycles of cool periods and warm periods will continue in the future, it is believed that the overall long-term trend is projected to be an increase in the number of extreme heat events.

2. Geographic Areas Affected by Extreme Heat

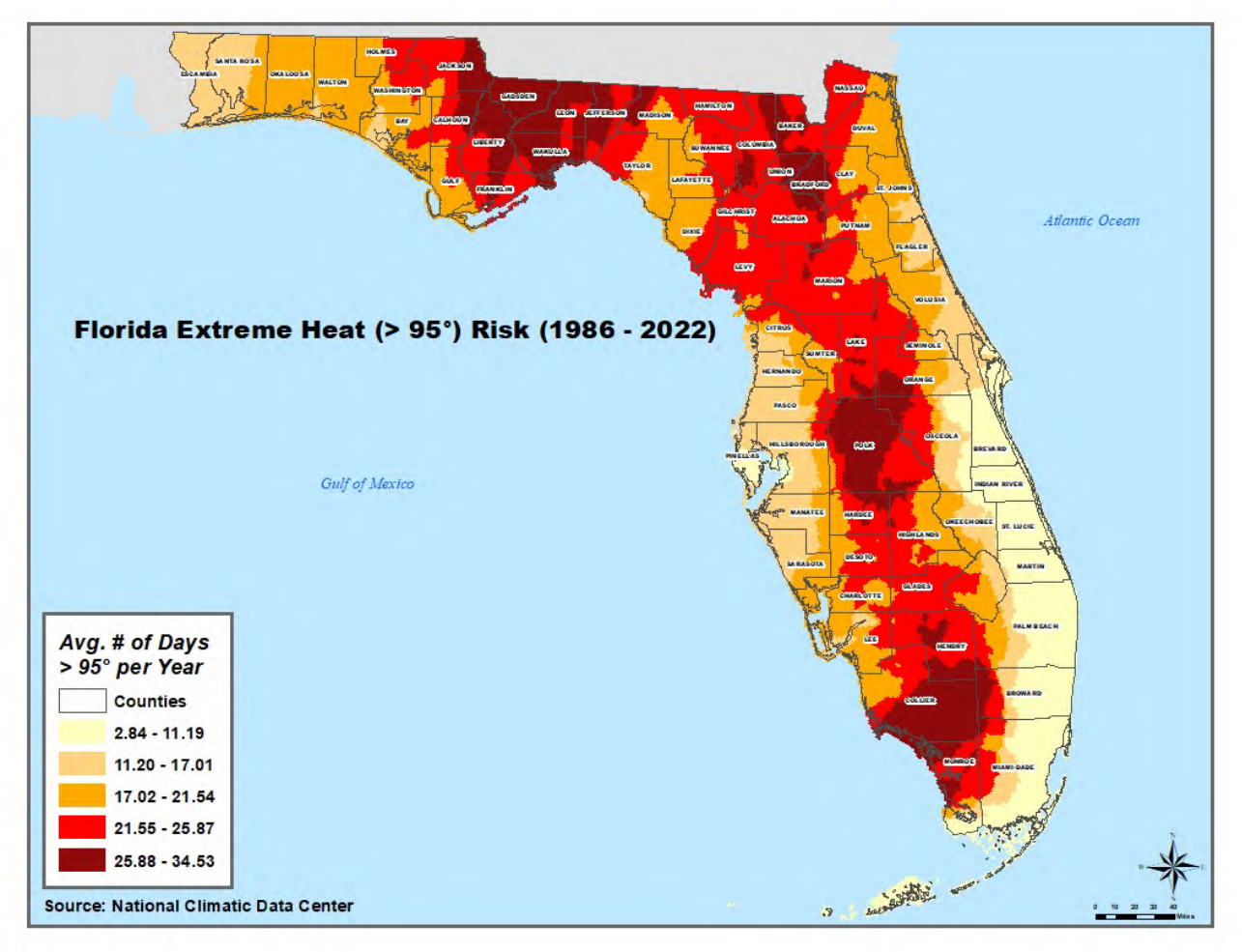
Due to the subtropical climate of Florida, the entire state has historically been vulnerable to extreme heat events. Because of the close proximity of large bodies of water, Florida typically experiences fewer days when the temperature reaches 100 degrees Fahrenheit or greater than many other states. However, the proximity to large bodies of water also increases the humidity, which decreases the body's ability to dissipate the heat.

Additionally, the expansion of urban development in large cities around the state has increased the magnitude of the urban heat island effect. A heat island occurs when concrete, asphalt, and heat absorbing buildings replace the natural environment.[90]

The map below shows the average number of days with temperatures above 95 degrees each year. From this map, it is evident that Pinellas County experiences between 5 and 15 days of above 95 degree weather each year.

[87] http://flbrace.org/images/docs/heat-profile.pdf
[88] (Karl et al. (Eds.). (2009). Global climate change impacts in the United States. https://downloads.globalchange.gov/usimpacts/pdfs/climate-impacts-report.pdf
[89] http://www.climatecentral.org/news/sizzling-summers-20515
[90] http://flbrace.org/images/docs/heat-profile.pdf

Figure 4.51: Florida Extreme Heat (>95 degrees) Risk, 1986–2022



Extreme heat events typically impact a large area and cannot be defined to any geographic or political boundaries. All municipalities within the county are susceptible to extreme heat. While some communities may have more social vulnerability factors that would make them more challenged (for any hazards), all communities have a high chance of being impacted by extreme heat.

3. Historical Occurrences of Extreme Heat

Florida is known for its high humidity and heat, which combine to affect its population. However, the NCEI Storm Events Database has no record of extreme heat events reported in Pinellas County from 1996 to 2024.[91]

91 https://www.ncdc.noaa.gov/stormevents/listevents.jsp?eventType=%28Z%29%2BExcessive%2BHeat&eventType=%28Z%29%2BHeat&beginDate_mm=01&beginDate_dd=01&beginDate_yyyy=1950&endDate_mm=12&endDate_dd=31&endDate_yyyy=2018&county=PINELLAS%3A103&hailfilter=0.00&tornfilter=0&windfilter=000&sort=DT&submitbutton=Search&statefips=12%2CFLORIDA

As stated above, NOAA tracks deaths related to weather events by state. According to their data for Florida from 1995 to 2018, 1 person died from extreme heat in 1995, 1997, 2003, 2006, and 2010; 2 people died in 2009; and 4 people died in 1998.[92]

The tables below identify the history of maximum daily temperatures over 95 degrees in Pinellas County based on the NCEI Climate Data Online collection of Local Climatological Data from 2009 through 2024.[93] Data is available for three locations in the county, and they are identified on the map that follows.

Table 4.82: Total Number of Days with Maximum Temperatures over 95°F in Pinellas County, 2019–2024

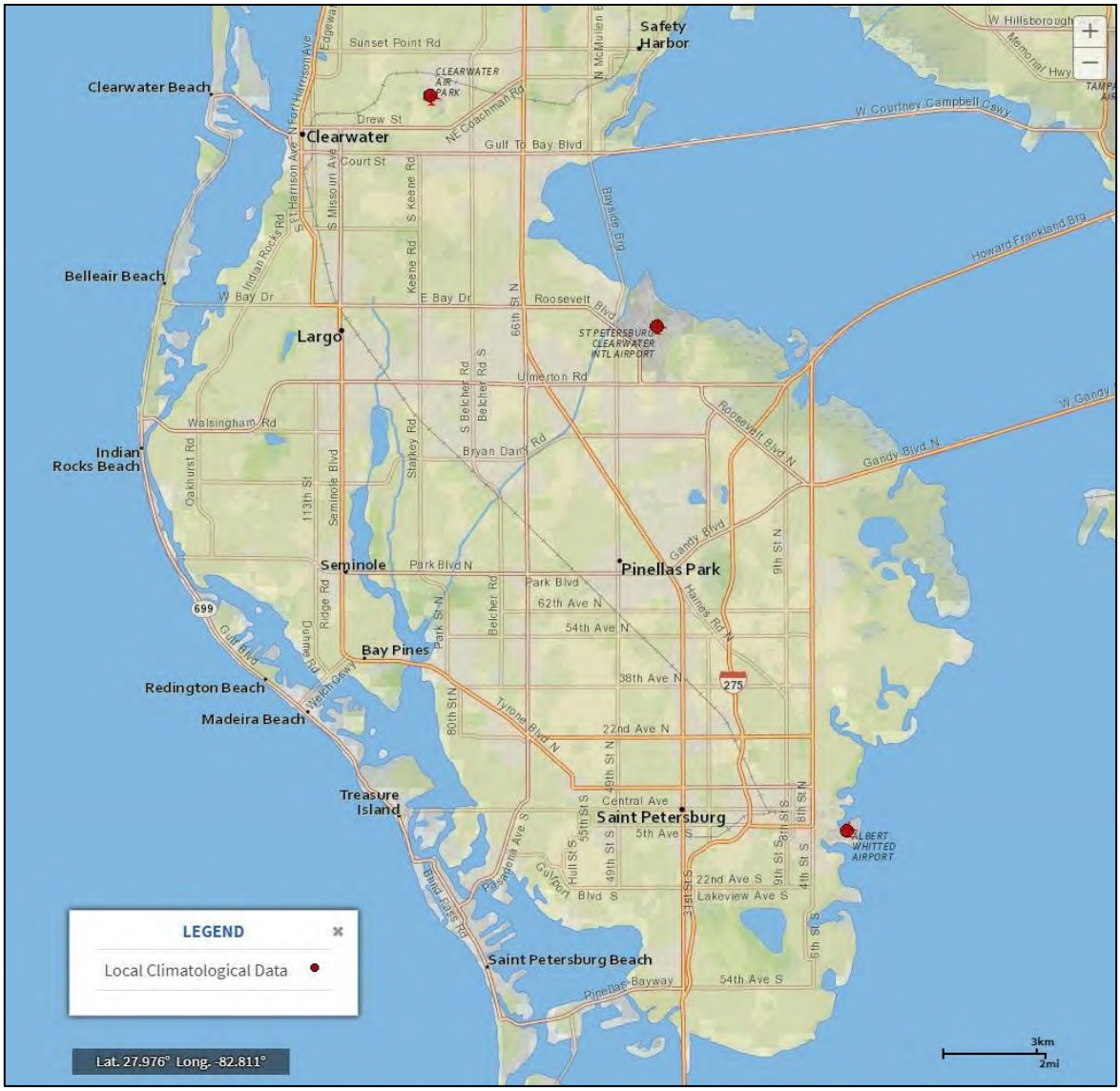
Year	St. Petersburg Clearwater International Airport	St. Petersburg Albert Whitted Airport
	Number of Days >=95 Degrees Fahrenheit	
2019	6	5
2020	17	7
2021	5	3
2022	5	4
2023	29	5
2024*	21	14
Total	83	38

Table 4.83: Yearly Deaths, Injuries and Property Damage for the State of Florida 2019-2024[107]

Year	Fatalities	Injuries	Property Damage	Crop Damage	Total Damage
2019	33	37	$27.6 million	-	$27.6 million
2020	19	29	$361.3 million	$90 million	$450.3 million
2021	33	31	$48.9 million	-	$48.9 million
2022	1	n/a	-	-	-
2023	35	51	$107 million	$337.5 million	$444.5 million

[92] http://www.nws.noaa.gov/om/hazstats.shtml#
[93] https://www.ncdc.noaa.gov/cdo-web/

Figure 4.52: NCEI Climate Data Online Local Climatological Data Station Locations in Pinellas County



4. Probability of Future Occurrences of Extreme Heat

Extreme heat can occur throughout the state but typically occurs in the summer between the months of June and September. As shown in the map in the Geographic Areas section above, Pinellas County experiences an average of 11 to 21 days of temperatures above 95 degrees each year, and incidents of extreme heat are expected to continue in the county.

Based on historical information, this hazard was determined to have a probability level of likely (10 to 100% annual probability). For all jurisdictions, the probability is likely (10 to 100% annual probability) that each could be impacted by extreme heat. The county is essentially built out and urbanized which further amplifies concerns for this hazard. Portions of these communities with high concentrations of senior residents and very young individuals could be the most at risk.

5. Extreme Heat Impact Analysis

All jurisdictions could receive the following impacts due to extreme heat. The county is essentially built out and urbanized which further amplifies concerns for this hazard. Portions of these communities with high concentrations of senior residents and very young individuals could be the most at risk.

- Public
  - Injury or death from overexposure, especially to infants, children, the elderly, those who are overweight, those with chronic illnesses, and those who take certain medications
- Responders
  - Injury or death from overexertion in heat
- Continuity of Operations (including continued delivery of services)
  - Not likely to impact continuity of operations
- Property, Facilities, Infrastructure
  - Less efficient cooling systems or systems that must run constantly to effectively cool a building
- Environment
  - Faster evaporation
  - Damage to green spaces and agricultural lands
  - Death of plants and animals
- Economic Condition
  - Crop damage or loss
- Public Confidence in Jurisdiction's Governance
  - If people become ill or die from exposure to extreme heat, public may believe the government is not doing all that it can to help those in need, whether or not a cooling shelter was opened

6. Vulnerability Analysis and Loss Estimation by Jurisdiction

Historical Losses

Because there was no record of extreme heat events reported by the NCEI Storm Events Database in Pinellas County, it is not possible to analyze historical losses for this hazard.

Exposure

Since extreme heat is a hazard that does not have geographically definable boundaries, it was excluded from spatial analysis through GIS. However, because extreme heat is considered atmospheric, it has the potential to affect all buildings and all populations in Pinellas County.

Extreme heat usually does not cause significant damage to the built environment. Although structures themselves are not vulnerable to extreme heat, the areas or regions that the structures are located in may be susceptible to extreme heat. The efficiency at which a building operates may be affected (i.e., added load to building cooling systems) if the building is in an area vulnerable to extreme heat.

Extreme heat primarily affects the human population. Extreme heat can ultimately cause death, and most heat disorders occur because the victim has been overexposed to heat or has over-exercised for his

or her age and physical condition.

7. Vulnerability Analysis and Loss Estimation of Critical Facilities

Extreme heat can strike anywhere in Pinellas County; therefore, all of the county critical facilities are equally vulnerable and at risk. However, extreme heat usually does not cause direct structural damage to critical facilities. Extreme heat impacts to structures, including to critical facilities, are listed above under Exposure.

8. Overall Vulnerability

Each of the five PRI categories was assigned a value from 1 to 4 and the pre-determined weighting factor was applied to calculate a PRI score. PRI scores can range from 1.0 to 4.0 and the overall vulnerability ranking or high, moderate, or low was assigned based on the PRI scores.

Based on the probability, impact, spatial extent, warning time, and duration, the overall vulnerability of this hazard was determined to be moderate, with a PRI score of 2.5.

<table>
<tr><th colspan="3">EXTREME HEAT</th><th colspan="2" rowspan="2">Overall Vulnerability</th></tr>
<tr><th colspan="3">Overview</th></tr>
<tr><td colspan="3" rowspan="3">Extreme heat is defined as extended period where the temperature and relative humidity combine for a dangerous heat index.</td><td colspan="2">MODERATE</td></tr>
<tr><td colspan="2">PRI Score</td></tr>
<tr><td colspan="2">2.5</td></tr>
<tr><th>Probability</th><th>Impact</th><th>Spatial Extent</th><th>Warning Time</th><th>Duration</th></tr>
<tr><td>Likely</td><td>Minor</td><td>Large</td><td>> 24 hrs</td><td>> 1 week</td></tr>
</table>

Drought Hazard Profile

1. Drought Description

Drought is a deficiency in precipitation over an extended period, usually a season or more, resulting in a water shortage. While droughts are a normal and recurring feature of our climate, sometimes they can endanger vegetation, animals, and even people. There are several types of droughts, which will be discussed below.[94]

- Meteorological droughts are based on the amount of dryness compared to normal for that region.
- Agricultural drought refers to agricultural concerns, such as precipitation shortages and reduced ground water.
- Hydrological drought refers to the hydrological effects from extended periods with precipitation deficits. These droughts take longer to occur than meteorological and agricultural droughts.
- Socioeconomic droughts occur when the demand for an economic good reliant upon water, such as fish or hydroelectric power, exceeds supply as a result of a weather-related water shortfall.

Many factors of precipitation determine whether the rains will relieve a drought. For example, the timing and effectiveness of the rains. There is also a balance between precipitation and evapotranspiration that must be maintained to avoid a drought. Evapotranspiration is the sum of evaporation and transpiration, which is the release of water from plant leaves. High temperatures, high winds, and low relative humidity are also factors that can intensify a drought.

The agricultural industry is particularly vulnerable to the impacts of a drought because the crops depend on stored soil water and surface water.

Drought Indices and Measurements

One method to interpret drought is the Palmer Drought Severity Index (PDSI), which is based on the supply and demand concept of the water balance equation, taking into account more than just the precipitation deficit at specific locations. The objective of the Palmer Drought Severity Index (PDSI), shown in the table below, is to provide measurements of moisture conditions that are standardized so that comparisons using the index can be made between locations and between months.

The PDSI is most effective in determining long-term drought, over a matter of several months, and is not as reliable with short-term forecasts. It uses a 0 as normal, and drought is shown in terms of minus numbers; for example, minus 2 is moderate drought, minus 3 is severe drought, and minus 4 is extreme drought. The advantage of the PDSI is that it is standardized to local climate, so it can be applied to any part of the country to demonstrate relative drought or rainfall conditions.

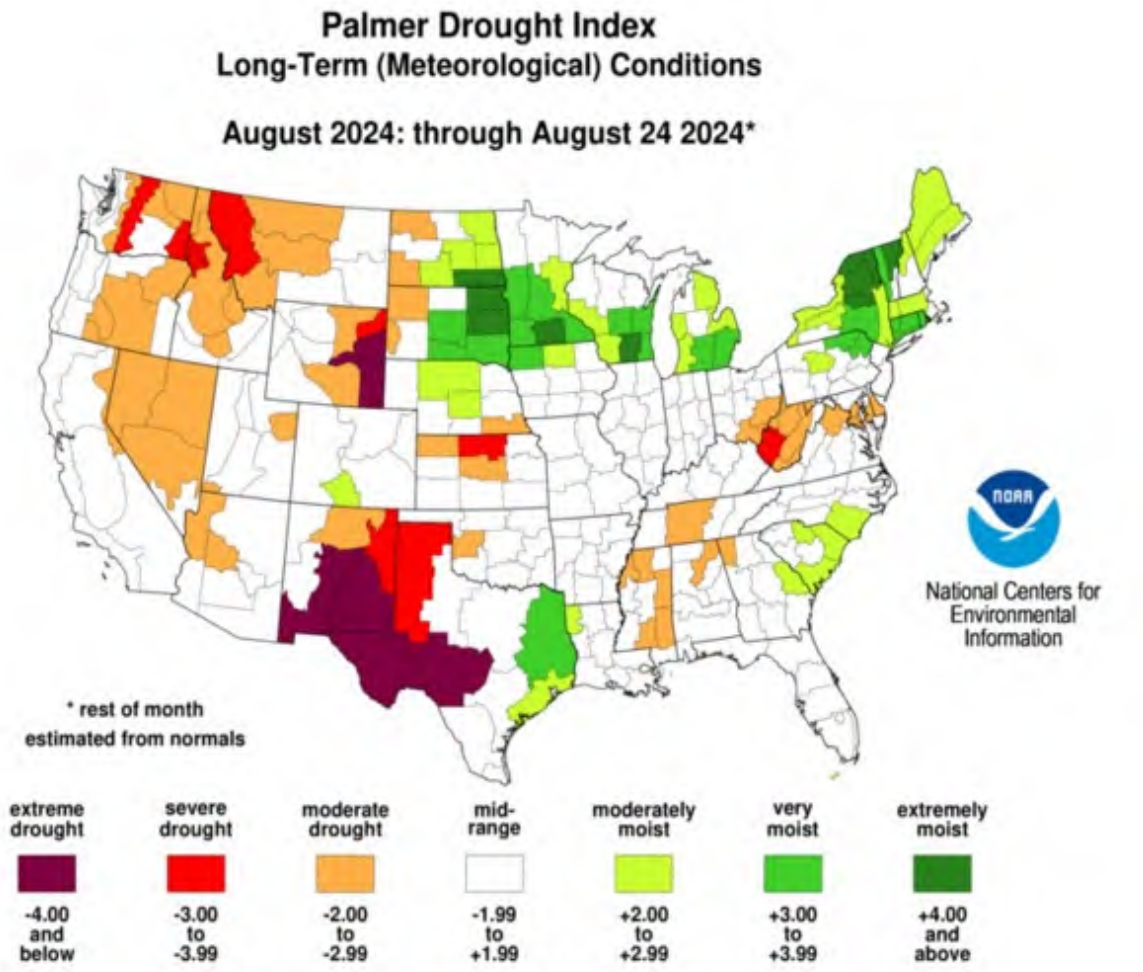
[94] https://www.nws.noaa.gov/om/csd/graphics/content/outreach/brochures/FactSheet_Drought.pdf

Table 4.84: Palmer Drought Severity Index[95]

Term	Extreme drought	Severe drought	Moderate drought	Mid-range	Moderately moist	Very moist	Extremely moist
Numerical description	-4.00 and below	-3.00 to -3.99	-2.00 to -2.99	-1.99 to +1.99	+2.00 to +2.99	+3.00 to +3.99	+4.00 and above

Below is an example of the PDSI of the United States from August 2024.[96]

Figure 4.53: Florida PDSI, August 2024



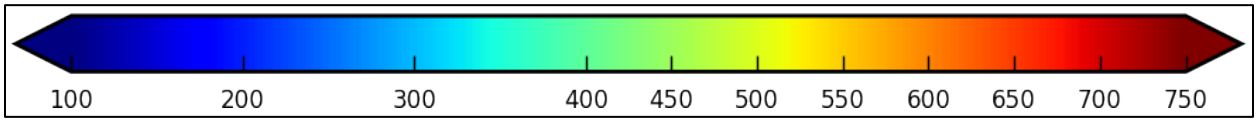
[95] https://www.drought.gov/drought/data-maps-tools/current-conditions
[96] https://www.ncdc.noaa.gov/temp-and-precip/drought/weekly-palmers/20190622

Another method to interpret drought is with the Keetch Byran Drought Index (KBDI). It is a reference scale for estimating the dryness of the soil and duff layers. The index increases for each day without rain and decreases when it rains and assumes there are 8 inches of saturated soil readily available to vegetation. The scale ranges from 0 (no moisture deficit) to 800.[97]

For different soil types, the depth of soil required to hold 8 inches of moisture varies (loam 30 inches, clay 25 inches, and sand 80 inches). A prolonged drought, meaning a high KBDI, can increase wildfire intensity because more fuel is available for combustion. In addition, the drying of organic material in the soil can lead to increased difficulty in fire suppression.

The index rating is displayed below.[98]

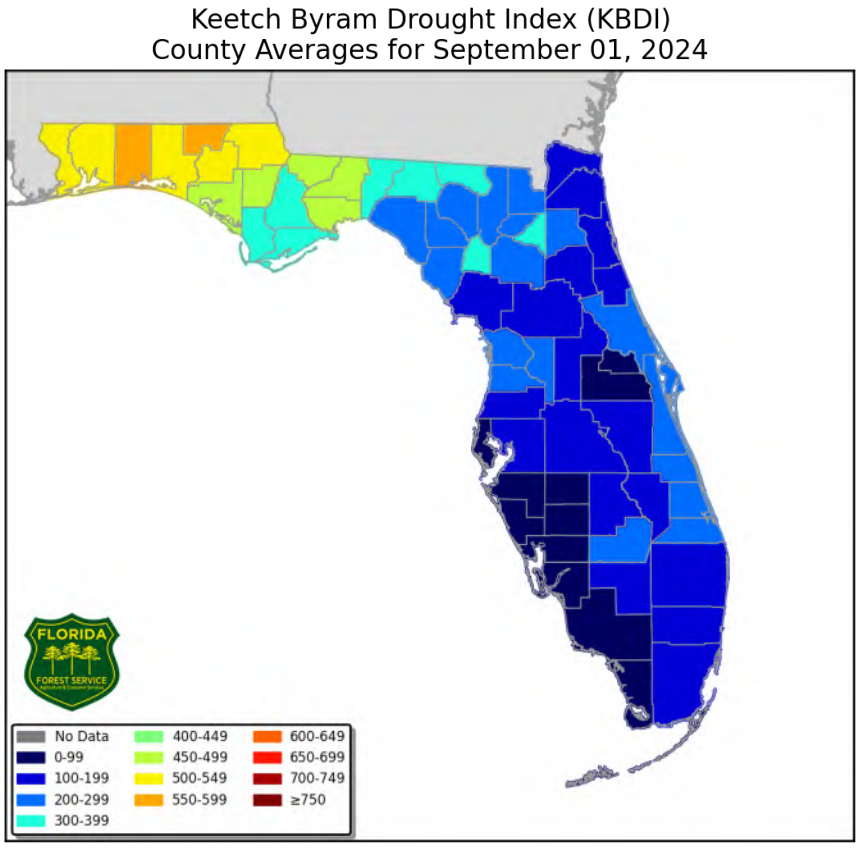
Figure 4.54: Keetch Byran Drought Index



Below is an example of the KBDI for Florida from September 2024.

[97] https://climatecenter.fsu.edu/
[98] http://currentweather.freshfromflorida.com/kbdi_4km.html

Figure 4.55: Florida KBDI, September 2024[99]



[99] http://currentweather.freshfromflorida.com/kbdi_index.html

There is also a U.S. Drought Monitor, which focuses on broad drought conditions across the entire United States. In this measurement, drought intensity is classified from D0 Abnormally Dry to D4 Exceptional Drought.

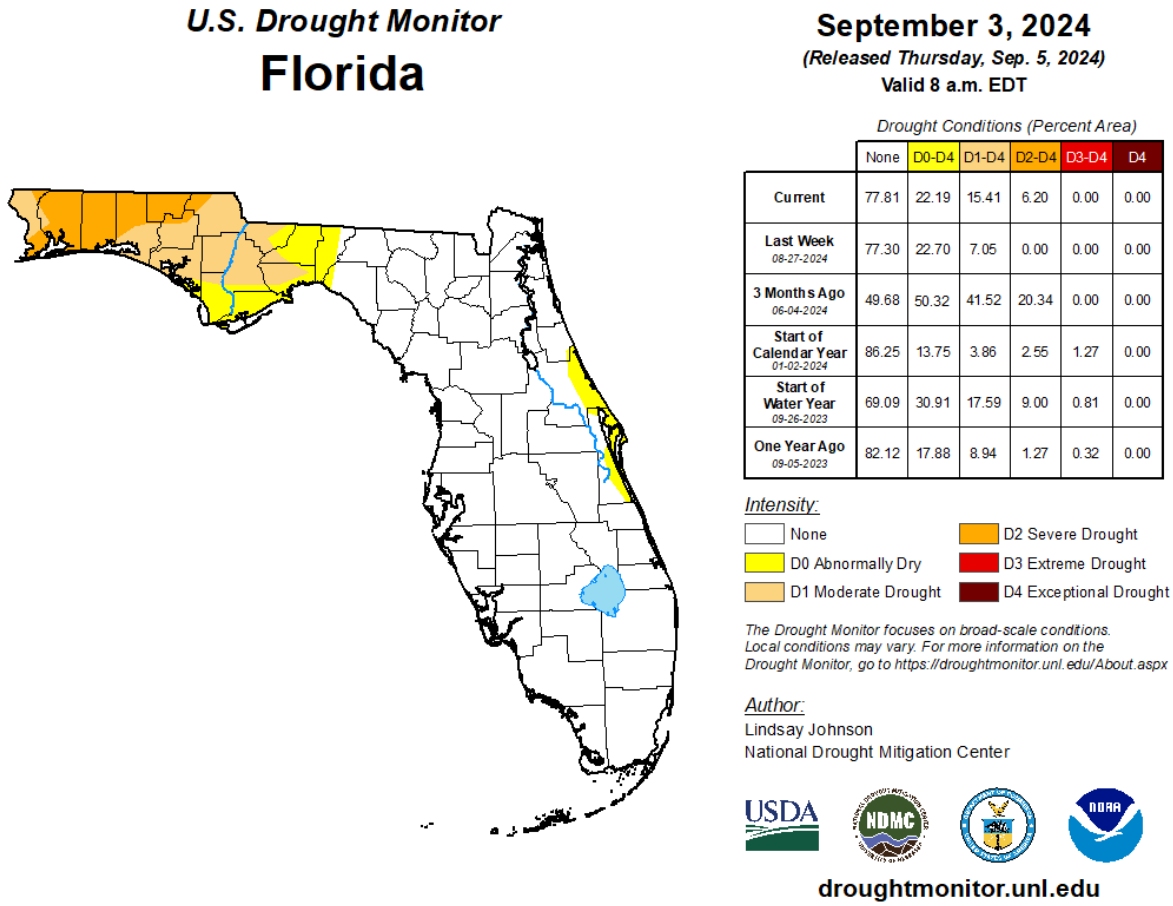
Table 4.85: United States Drought Monitor[100]

Category	Description	Possible Impacts
D0	Abnormally Dry	Going into drought: • Short-term dryness slows planting and growth of crops or pastures Coming out of drought • Some lingering water deficits • Pastures or crops are not fully recovered
D1	Moderate Drought	• Some damage to crops, pastures • Streams, reservoirs, or wells are low; some water shortages are developing or imminent • Voluntary water-use restrictions requested
D2	Severe Drought	• Crop of pasture losses are likely • Water shortages are common • Water restrictions are imposed
D3	Extreme Drought	• Major crop or pasture losses • Widespread water shortages or restrictions
D4	Exceptional Drought	• Exceptional and widespread crop or pasture losses • Shortage of water in reservoirs, streams, and wells creating water emergencies

Below is an example of the drought monitor map for Florida from September 2024.

[100] https://droughtmonitor.unl.edu/AboutUSDM/AbouttheData/DroughtClassification.aspx

Figure 4.56: Florida U.S. Drought Monitor, September 2024[101]



Potential Effects of Climate Change on Drought

Changes in rates of precipitation, evaporation, and transpiration may affect the duration and severity of drought events. A warmer climate would impact the hydrological cycle by increasing rates of evaporation leading to a decrease in runoff rates associated with rainfall events. Moreover, increased rates of evapotranspiration would exacerbate current droughts as existing soil moisture and plant moisture would likewise increase moisture in the atmosphere potentially leading to more frequent rainfall events. Regional effects are expected to range widely and are difficult to predict.[102] It is widely believed that an overall warming trend may intensify and prolong droughts as they occur due to

[101] https://droughtmonitor.unl.edu/Maps/MapArchive.aspx

[102] (Walsh and Wuebbles (2013). Our changing climate. In, Draft national climate assessment, pp. 25–103. https://www.globalchange.gov/sites/globalchange/files/NCAJan11-2013-publicreviewdraft-chap2-climate.pdf); p. 113.).

increased rates of evapotranspiration associated with higher temperatures.[103]

The Intergovernmental Panel on Climate Change forecasts with medium confidence both an increase in heavy rainfall periods as well as an increase in the duration of relatively dry periods for North America, particularly in the subtropics, such as Florida.[104] South Florida, in particular, may see increased dry and hot periods between heavy rainfall events, exacerbating the risk for drought.[105] However, there is significant uncertainty associated with these projections given the numerous factors that contribute to climatic variability.[106]

As stated in the *Flood Hazard Profile*, the expected global pattern is for arid areas to become drier, meaning that droughts may occur more frequently and be more severe.

2. Geographic Areas Affected by Drought

The state of Florida experiences cyclical drought on a regular basis. Analyzing past events as well as the current drought conditions has proven that the conditions and severity of drought conditions has been variable over the years, affecting the east, north, south, and central regions randomly and somewhat equally.

The map below shows that Pinellas County is likely to be impacted by drought and experiences up to 11 weeks of drought each year. All municipalities within the county are susceptible to drought. While some communities may have more social vulnerability factors that would make them more challenged (for any hazards), all communities have an approximately equal chance of being impacted by drought.

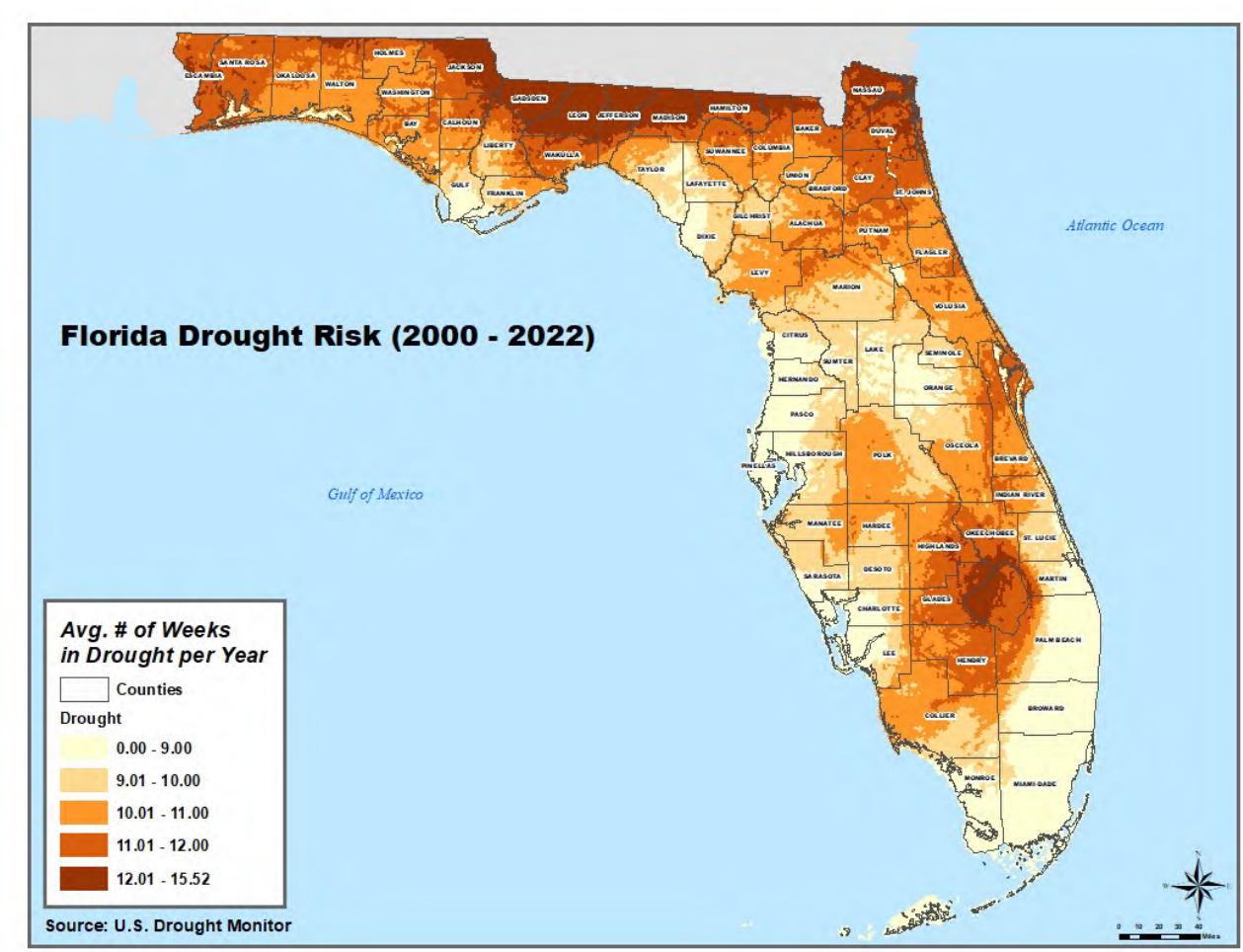
[103] (Allen et al. (2012). Summary for policymakers. In Field et al. (Eds.), Managing the risks of extreme events and disasters to advance climate change adaptation. A Special Report of Working Groups I and II of the Intergovernmental Panel on Climate Change, pp. 3–21., https://www.ipcc.ch/pdf/special-reports/srex/SREX_FD_SPM_final.pdf, p. 13).

[104] (Seneviratne et al. (2012). Changes in climate extremes and their impacts on the natural physical environment. https://www.ipcc.ch/pdf/special-reports/srex/SREX-Chap3_FINAL.pdf); In Field et al. (Eds.), Managing the risks of extreme events and disasters to advance climate change adaptation. A Special Report of Working Groups I and II of the Intergovernmental Panel on Climate Change, pp. 109–230. https://www.ipcc.ch/pdf/special-reports/srex/SREX_FD_SPM_final.pdf, pp. 174–175.).

[105] (Karl et al. (Eds.) (2009). https://downloads.globalchange.gov/usimpacts/pdfs/climate-impacts-report.pdf).

[106] (Seager et al. (2009). http://journals.ametsoc.org/doi/full/10.1175/2009JCLI2683.1).

Figure 4.57: Florida Drought Risk, 2000–2022



3. Historical Occurrences of Drought

Florida experienced a destructive drought from 1998 to 2001 where farm crops were ruined, forest fires burned, and lake levels reached an all-time low. In 2006 to 2007, rainfall deficits were the largest observed since the mid-1950s, which led to severe wildfires in 2007.

While drought is a common occurrence in Florida, there has never been a Presidential Major Disaster Declaration for drought in the state. Additionally, Pinellas County has very little agriculture; therefore, no economic losses from drought have been reported. The NCEI Storm Events Database also has no record of drought events reported in Pinellas County from 1996 to 2024.[107]

107 https://www.ncdc.noaa.gov/stormevents/listevents.jsp?eventType=%28Z%29%2BDrought&beginDate_mm=01&beginDate_dd=01&beginDate_yyyy=1950&endDate_mm=12&endDate_dd=31&endDate_yyyy=2018&county=PINELLAS%3A103&hailfilter=0.00&tornfilter=0&windfilter=000&sort=DT&submitbutton=Search&statefips=12%2CFLORIDA

The table below explains various significant drought events that have occurred in Florida.

Table 4.86: Significant Drought Occurrences in Florida

Date	Description
1954–1956	The most extreme drought in Florida on record occurred during 1954–1956 when runoff was 8 inches below normal, causing extensive loss of crops and timber. The Panhandle and northern central regions of the state were in a drought for most of 1955 and the almost the entire state was in drought for most of 1956.[108]
1981–1982	Rainfall deficiencies caused the water levels in Lake Okeechobee to reach the lowest levels ever recorded. In mid-1981, the entire state was in moderate or severe drought, but most regions were out of drought by the end of the year.[109]
1998–2002	Lower than normal precipitation caused a severe long-term statewide drought in Florida lasting from 1998–2002. This drought was particularly severe over the 5-year period in the northwest, northeast, and southwest regions of Florida. The drought became so severe that in 2001, the following actions were taken: • Three of Florida's five water management districts imposed mandatory cutbacks, strictly limiting water use. • Several municipalities hiked water-sewer rates, meaning even customers who cut back were paying more. Restaurants in South Florida were ordered to stop serving water, except to diners who asked.[110]
2006–2007	Drought conditions began to develop in 2006 across Florida because of less than average rainfall. In 2007, the drought was so severe it was considered a one in 25-year drought. The drought affected most of the state. The 2007 wildfire season was very active because of the extreme drought classification.[111]
2010–2012	Drought conditions began in central Florida in late 2010 and continued into mid-2012. The drought affected most of the state, but the northern central and the Panhandle regions of the state were in "extreme drought" for several months.[112]
2016–2017	Drought conditions developed in late 2016 and persisted into mid 2017 leading to several wildfires across the state.[113]

Data from the U.S. Drought Monitor was used to ascertain historical drought conditions for Pinellas County. (Data was only available at the county level, so each jurisdiction is not shown separately.) The U.S. Drought Monitor provides weekly updates on drought status by county. Drought conditions are classified on a scale of D0 to D4 as described previously in this section.

According to the U.S. Drought Monitor data from 2000 to 2023, the greatest magnitude of drought, D4 – exceptional drought, occurred in Pinellas County in 2000 and 2001, and the county has experienced at least abnormally dry conditions every year except 2015. The table below shows the most severe

[108] https://www.ncdc.noaa.gov/temp-and-precip/drought/historical-palmers/psi/195401-195612
[109] https://www.ncdc.noaa.gov/temp-and-precip/drought/historical-palmers/psi/198001-198212
[110] https://www.ncdc.noaa.gov/temp-and-precip/drought/historical-palmers/psi/199801-200212
[111] https://www.ncdc.noaa.gov/temp-and-precip/drought/historical-palmers/psi/200601-200712
[112] https://www.ncdc.noaa.gov/temp-and-precip/drought/historical-palmers/psi/201001-201212
[113] https://www.ncdc.noaa.gov/temp-and-precip/drought/historical-palmers/psi/201601-201704

drought classification for each year and the associated number of weeks reported at that category. It should be noted that the U.S. Drought Monitor also estimates what percentage of the county is in each classification of drought severity. For example, the most severe classification reported may be exceptional, but a majority of the county may actually be in a less severe condition.

Table 4.87: Historical Drought Occurrences in Pinellas County[114]

Year	Most Severe Drought Condition		Number of Weeks
	Category	Description	
2000	D4	Exceptional Drought	3
2001	D4	Exceptional Drought	14
2002	D0	Abnormally Dry	16
2003	D0	Abnormally Dry	2
2004	D0	Abnormally Dry	2
2005	D0	Abnormally Dry	17
2006	D1	Moderate Drought	4
2007	D1	Moderate Drought	23
2008	D1	Moderate Drought	21
2009	D2	Severe Drought	8
2010	D1	Moderate Drought	5
2011	D2	Severe Drought	2
2012	D3	Extreme Drought	9
2013	D1	Moderate Drought	11
2014	D0	Abnormally Dry	4
2015	None	--	--
2016	D0	Abnormally Dry	2
2017	D2	Severe Drought	9
2018	D0	Abnormally Dry	4
2019	D0	Abnormally Dry	1
2020	D2	Severe Drought	1
2021	D0	Abnormally Dry	3
2022	D1	Moderate Drought	6
2023	D3	Extreme Drought	15

4. Probability of Future Occurrences of Drought

Based on the previous occurrences of drought conditions in the county, future drought events occurring over the long term with some frequency are expected to continue. According to the Florida Drought Risk map shown above, Pinellas County is likely to experience up to 11 weeks of drought each year. As Pinellas County continues to develop with higher populations and higher water demands, these drought conditions and drier trends may begin to have a profound impact on the county and its residents.

Based on historical information, this hazard was determined to have a probability level of likely (10 to

[114] https://droughtmonitor.unl.edu/DmData/DataDownload/ComprehensiveStatistics.aspx

100% annual probability) for all jurisdictions within the county.

5. Drought Impact Analysis

All jurisdictions could receive the following impacts due to drought. As Pinellas County continues to develop with higher populations and higher water demands, drought conditions and drier trends may begin to have a profound impact on the county and its residents.

- Public
  - Lack of water or water restrictions for personal use
  - Damage to property, such as grass and other vegetation dying from lack of water
- Responders
  - Lack of water to extinguish fires
- Continuity of Operations (including continued delivery of services)
  - Lack of water or water restrictions may impact the public use of water and wastewater utilities; the public may have to restrict their showering time and other water use in the restroom, restrict their water usage for cooking and drinking, and restrict from watering their gardens or lawns
- Property, Facilities, and Infrastructure
  - Facilities and infrastructure should not be affected by drought
  - Property, such as green spaces, gardens, crops, etc., may be damaged from lack of water
- Environment
  - Areas such as green spaces, gardens, and forests may be damaged from drought
- Economic Condition
  - Crop damage or loss from drought can severely impact farmers and the agricultural economy, which can in turn affect the economy of an area if it is dependent upon the sales of the crops, like how Florida relies upon the sales of citrus
  - Employment loss due to lower demand for services such as landscaping, lawn care, car wash, etc.
- Public Confidence in the Jurisdiction's Governance
  - The public may lose confidence in the jurisdiction's governance if there is not a plan in place to deal with lack of water or water restrictions

6. Vulnerability Analysis and Loss Estimation by Jurisdiction

Historical Losses

Because there was no record of drought events reported by the NCEI Storm Events Database in Pinellas County, it is not possible to analyze historical losses for this hazard.

Exposure

Since drought is a hazard that does not have geographically definable boundaries, it was excluded from spatial analysis through GIS. However, because drought is considered atmospheric, it has the potential to affect all buildings and all populations in Pinellas County.

Drought conditions typically do not cause significant damage to the built environment. Although structures themselves are not vulnerable to drought, the areas or regions that the structures are located in may be susceptible to drought. The efficiency at which a building operates may be affected (i.e., low water pressure) if the building is in a drought-stricken area. Furthermore, drought can also increase the likelihood of wildfires and lower water levels in canals and other surface waters which could inhibit the ability to fight fires in rural areas potentially increasing impacts to structures.

The agriculture sector is most vulnerable to drought because crops, pasturelands, and livestock can be impacted by lack of water due to short-term drought during critical times in the growth cycle and long-term drought over many years. However, there is very little agriculture in Pinellas County as previously noted.

Drought conditions may also require water use restrictions and result in more water supply shortages. Availability of water during drought conditions is controlled largely by the topography, geology, hydrogeology, and hydrology of an area. Local conditions, such as the availability of a large impoundment for water storage, may affect drought vulnerability on a local scale.

7. Vulnerability Analysis and Loss Estimation of Critical Facilities

Drought can strike anywhere in Pinellas County; therefore, all of the county critical facilities are equally vulnerable and at risk. However, drought usually does not cause direct structural damage to critical facilities. Drought impacts to structures, including to critical facilities, are listed above under Exposure.

8. Overall Vulnerability

Each of the five PRI categories was assigned a value from 1 to 4 and the pre-determined weighting factor was applied to calculate a PRI score. PRI scores can range from 1.0 to 4.0 and the overall vulnerability ranking or high, moderate, or low was assigned based on the PRI scores.

Based on the probability, impact, spatial extent, warning time, and duration, the overall vulnerability of this hazard was determined to be moderate, with a PRI score of 2.5.

DROUGHT			Overall Vulnerability	
Overview				
Drought is a deficiency in precipitation over an extended period, usually a season or more, resulting in a water shortage. While droughts are a normal and recurring feature of our climate, sometimes they can endanger vegetation, animals, and even people.			MODERATE	
			PRI Score	
			2.5	
Probability	**Impact**	**Spatial Extent**	**Warning Time**	**Duration**
Likely	**Minor**	**Large**	**> 24 hrs**	**> 1 week**

Geological Event Hazard Profile

1. Geological Event Description

This profile will discuss landslides and sinkholes.

Landslides

Landslides are rock, earth, or debris flows down slopes due to gravity. They can occur on any terrain given the right conditions of soil, moisture, and the angle of slope. Integral to the natural process of the Earth's surface geology, landslides serve to redistribute soil and sediments in a process that can be in abrupt collapses or in slow gradual slides. Also known as mud flows, debris flows, earth failures, and slope failures, landslides can be triggered by rains, floods, earthquakes, and other natural causes as well as human-made causes including grading, terrain cutting and filling, and excessive development.[115]

Because the factors affecting landslides can be geophysical or human-made, they can occur in developed areas, undeveloped areas, or any area where the terrain was altered for roads, houses, utilities, or buildings.

The state of Florida has very low topographic relief, meaning that the state is flat. Because of this, landslides are not a significant natural hazard in Florida.[116] Any risk or vulnerability to people, property, the environment, or operations would be low.

Sinkholes

Sinkholes are landforms created when overburden subsides or collapses into fissures or cavities in underlying carbonate rocks. Florida is underlain by several thousand feet of carbonate rock, limestone, and dolostone, with a variably thick mixture of sands, clays, shells, and other near-surface carbonate rock units, called overburden. Those several thousand feet of carbonate rocks are host to one of the world's most productive aquifers, the Floridian aquifer system. Erosional processes, physical and chemical, have created fissures and cavities within the rock. This has created Florida's karst topography, characterized by the presence of sinkholes, swallets, caves, submerged conduits, springs, and disappearing and reappearing streams. Sinkholes are unpredictable, as they can form rapidly, within minutes to hours, or slowly, within months to years.[117]

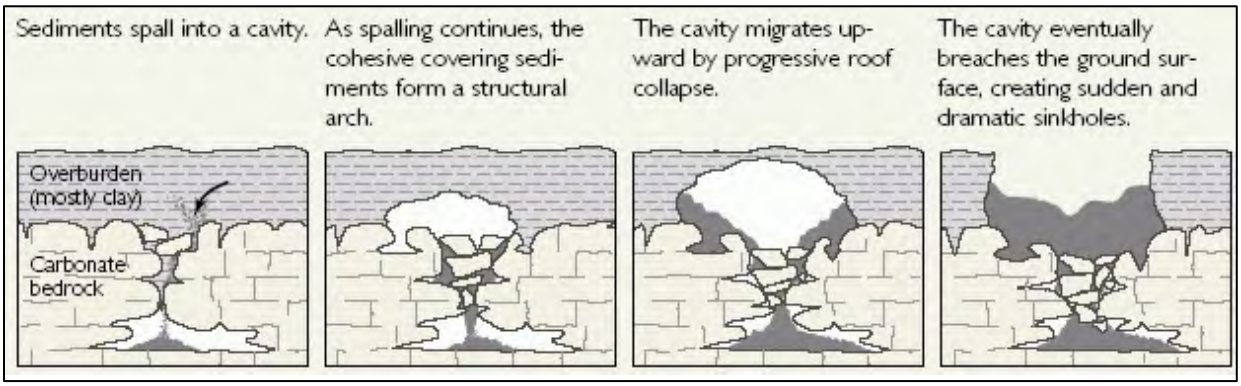
This profile will focus on the two common types of sinkholes in Florida, cover collapse sinkholes and cover subsidence sinkholes, because of their rate of formation and the risk they pose to human life and property.

[115] https://landslides.usgs.gov/learn/ls101.php
[116] http://www.dep.state.fl.us/geology/geologictopics/hazards/landslides.htm
[117] Florida Department of Environmental Protection Florida Geological Survey. (2017). The favorability of Florida's geology to sinkhole formation. Page 4–7.

Cover Collapse Sinkholes

Cover-collapse sinkholes may develop quickly and cause significant damage. These sinkholes develop when the ceiling of an underground cavity can no longer support the overlying weight, resulting in an abrupt collapse of the overburden into the cavity, thereby forming a hole in the land surface.[118] This occurs because, over time, surface drainage, erosion, and deposition of materials develop a shallow bowl-shaped depression beneath the surface of the ground.

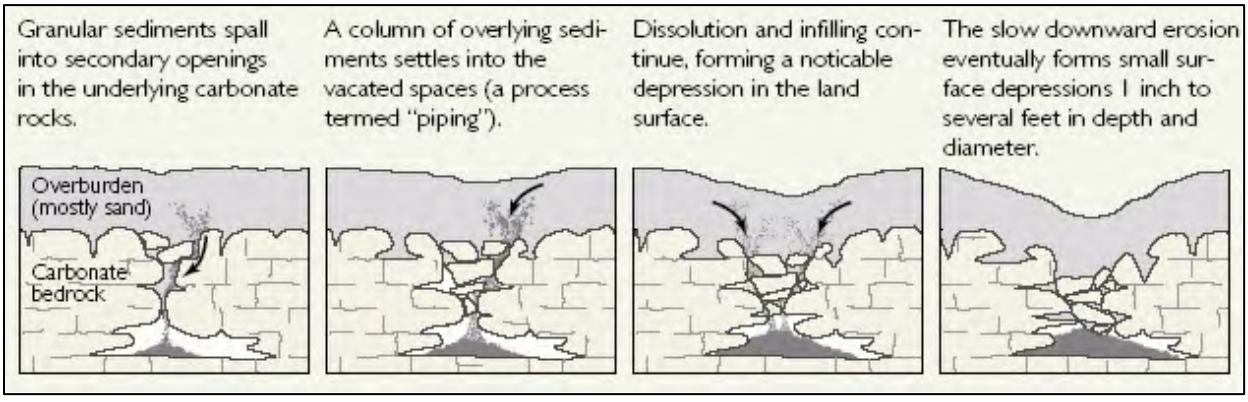
Figure 4.58: Cover Collapse Sinkholes[119]



Cover Subsidence Sinkholes

Cover-subsidence sinkholes develop more gradually, usually where the sediment is permeable and contains sand. The overburden slowly migrates down into the fissures and cavities in the underlying rock, which results in a depression in the land surface.[120]

Figure 4.59: Cover Subsidence Sinkholes[121]



[118] Florida Department of Environmental Protection Florida Geological Survey. (2017). *The favorability of Florida's geology to sinkhole formation*. Page 5.
[119] https://water.usgs.gov/edu/sinkholes.html
[120] Florida Department of Environmental Protection Florida Geological Survey. (2017). *The favorability of Florida's geology to sinkhole formation.* Page 4–7.
[121] https://water.usgs.gov/edu/sinkholes.html

Triggers

There are several triggers for sinkhole formation. For example, extended periods of drought can lead to sinkholes, especially if a heavy rain event occurs after an extended drought. Heavy rainfall can trigger sinkholes for several reasons. For example, heavy rainfall can add additional weight to overburden sediments above a cavity which could cause a failure of the cavity ceiling. Or heavy rainfall could collect in low-lying areas adding to the weight and accelerating infiltration at that location, which could cause failure of cavity ceilings. Additionally, heavy rainfall could saturate overburden sediments, making them soft, which could weaken the overburden sediments, causing failure of the cavity ceiling. According to geologists, sinkholes can also be attributed to anthropogenic triggers, such as significant groundwater withdrawal; terraforming, which is the alteration of the earth's surface without realizing the area has thin overburden sediments; some stormwater management practices; heavy infrastructure over critical areas; and well drilling and development.[122]

Potential Effects of Climate Change on Sinkholes

Incidences of sinkholes increase either after severe storm events with associated flooding and soil saturation or during extended periods of drought.[123] With the potential for more prolonged and more intense periods of drought as well as greater intensity and frequency of rainfall and inland flooding *(*see *Flood Hazard Profile)*, it is likely that incidences of sinkholes will increase in the coming century in areas with karst geology or areas identified as favorable for sinkhole development.

Climate change is not expected to affect the occurrence of landslides in Florida.

2. Geographic Areas Affected by Geological Events

Landslides

Florida has low topographic relief and therefore is not affected by this hazard.

Sinkholes

A geological survey conducted for the Pinellas County General Plan (1979) indicates that the central and northern portions of the county are more prone to sinkhole development due to the heavy limestone composition of the substrate in the area. All municipalities within the county have some exposure to drought. All communities are low exposure, except for Clearwater which has a medium exposure as well as Unincorporated County (particularly central and northern areas) and Tarpon Springs which are highly likely to see sinkholes.

Sinkholes are common wherever there is limestone terrain. The following define areas of sinkhole occurrence in Florida:

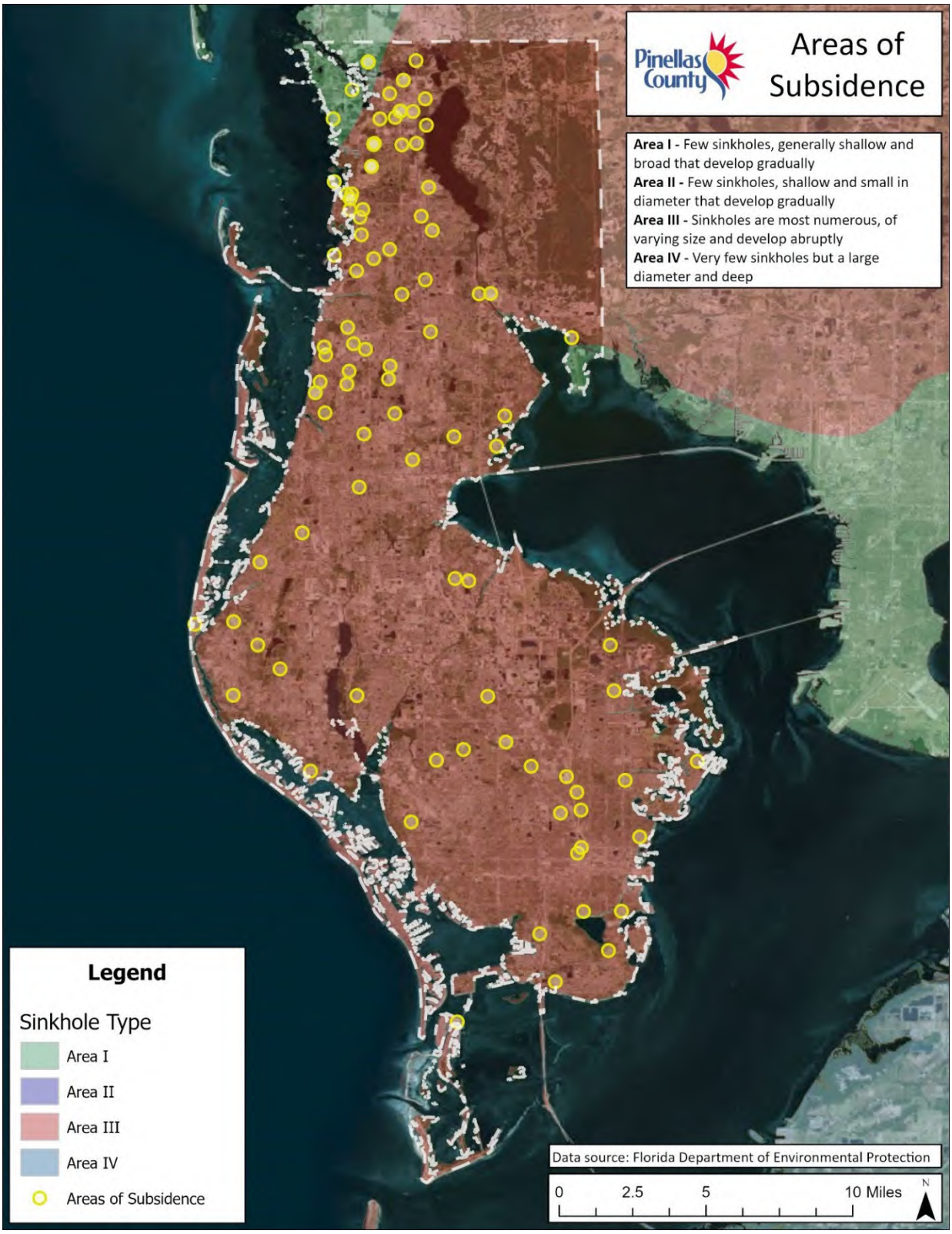
[122] Florida Department of Environmental Protection Florida Geological Survey. (2017). The favorability of Florida's geology to sinkhole formation. Page 11.

[123] Dragoni and Sukhija (2008) *Climate change and groundwater: A short review.* Geological Society, London, Special Publications, 288, 1-12; Hyatt and Jacobs (1996). *Distribution and morphology of sinkholes triggered by flooding following Tropical Storm Alberto at Albany, Georgia, USA.* Geomorphology, 17, 305-316.

- Area I – Few sinkholes, generally shallow and broad that develop gradually.
- Area II – Few sinkholes, shallow and of small diameter that develop gradually.
- Area III – Sinkholes are most numerous, of varying size and develop abruptly.
- Area IV – Very few sinkholes but a large diameter and deep.

Area I and Area III of sinkhole occurrence are both present in Pinellas County. All municipalities within the county have some exposure to sinkholes. All communities are low exposure, except for Clearwater which has a medium exposure as well as Unincorporated County (particularly central and northern areas) and Tarpon Springs which are both highly likely to see sinkholes. The map below delineates the location of these areas as well as the location of documented sinkhole and subsidence incidents.

Figure 4.60: Areas of Sinkhole Occurrence



3. Historical Occurrences of Geological Events

Landslides

There has only been one landslide in Florida in recorded history. In 1948, a landslide occurred on a farm in Gadsden County.[124] No one was injured, and no structures were damaged. There have been no occurrence in Pinellas County.

Sinkholes

Sinkholes, a common occurrence in many parts of Florida, have a history of occurring in Pinellas County. In Pinellas County, sinkholes have generally developed rather slowly and are fairly shallow and small in diameter. The 95th percentile for sinkhole lengths recorded in the county is approximately 30 feet, which means that 95% of all the sinkholes that have occurred are smaller than this. The geometric mean is 9.43- foot width, 10.09-foot length, and 6.22-foot depth.

Much of the property damage caused by sinkholes and subsidence events in Pinellas County has been relatively minor, including damage or destruction of a shed, a carport, part of a seawall, and several instances where small portions of roadways sustained minor damage. Of the sinkhole or other subsidence events that were reported to have caused property damage, the majority were between 12 and 20 feet long and wide and 5 to 10 feet deep. Future sinkholes of this size have the potential to cause similar types of property damage, though a similar sinkhole that occurs directly beneath a building or roadway could cause injury from falling debris or partial structure collapse.

There are several significant historical occurrences of sinkholes in Pinellas County listed below.

Table 4.88: Significant Sinkhole Incidents in Pinellas County[125]

Date	Event Description
1960	The US-19 bridge over the Anclote River in Tarpon Springs collapsed due to a collapse sinkhole in the river under the bridge supports, leading to one fatality and five people injured.
March 18, 1981	An 18-foot long, 18-foot wide, 6-foot deep sinkhole occurred in 2–3 hours in Palm Harbor. A carport was severely damaged and actually sank into the sinkhole.
October 24, 1983	A significant sinkhole occurred on October 24, 1983 in Palm Harbor that measured 20-feet long, 15-feet wide, 10-feet deep. According to the St. Petersburg Times, the sinkhole caused the partial collapse of a concrete block office building used by W.F. Madsen and Company, an insurance adjustment firm. No injuries were reported with this event, and no property damage value was reported.
November 2, 1983	A 60-foot long, 50-foot wide, 3-foot deep sinkhole occurred in Safety Harbor on November 2, 1983. The sinkhole resulted in heavy structural damage to a building, road, and asphalt parking lot.

[124] https://floridadep.gov/fgs/data-maps/media/florida-geological-surveydep-staffgadsden-landslide-terrain-model
[125] https://floridadep.gov/fgs/sinkholes/content/subsidence-incident-reports

Date	Event Description
June 2012	Tropical Storm Debby brought heavy rainfall after an extended period of drought in Florida. The event led to the formation of hundreds of collapse sinkholes across the state, resulting in highway and residential road closures, evacuations of homes, and building closures.
November 14, 2013	The most significant sinkhole event in Pinellas County, according to the Florida Geological Survey database, occurred on November 14, 2013, when a 70-foot long, 70-foot wide, 55-foot deep sinkhole severely damaged two single family homes in Dunedin. According to the St. Petersburg Times report dated November 15, 2013, there were no injuries reported even though both homes were occupied at the time that the sinkhole occurred. No injuries were reported with this event, and no property damage value was reported.
April 17, 2014	A sinkhole with a diameter of about 20 feet and 12–15 feet deep and growing occurred in Floral City. The sinkhole damaged the road surface, but no buildings were threatened.
February 7, 2017	A 6-foot long, 6-foot wide, 1 foot-deep sinkhole occurred in St. Pete Beach. A vehicle was temporarily stuck in the hole, and the road was temporarily closed.
October 4, 2022	An 8-foot long, 8-foot wide, 6-foot deep sinkhole occurred in Tarpon Springs when a maintenance crew was enlarging a lake for irrigation purposes. All subsidence stopped when work on the lake was completed.

Only a small percentage of sinkhole reports are determined to be actual sinkholes. Most are subsidence events, resulting from clay shrinkage or fill deterioration. However, most occurrences of subsidence are incorrectly identified as sinkholes.

The Florida Geological Survey maintains a database of sinkholes and subsidence incidents reported throughout the state. As of June 2024, this database reported 105 incidents for Pinellas County.[126]

[126] https://floridadep.gov/fgs/sinkholes/content/subsidence-incident-reports

Table 4.89: Summary of Sinkhole Occurrences in Pinellas County

Location	Number of Occurrences
Belleair	0
Belleair Beach	0
Belleair Bluffs	1
Belleair Shore	0
Clearwater	6
Dunedin	11
Gulfport	0
Indian Rocks Beach	1
Indian Shores	0
Kenneth City	0
Largo	2
Madeira Beach	0
North Redington Beach	0
Oldsmar	3
Pinellas Park	3
Redington Beach	0
Redington Shores	0
Safety Harbor	1
St. Petersburg	16
St. Pete Beach	0
Seminole	1
South Pasadena	0
Tarpon Springs	13
Treasure Island	0
Unincorporated	46
PINELLAS COUNTY TOTAL	**104**

Figure 4.61: Sinkhole Incidents and Geology

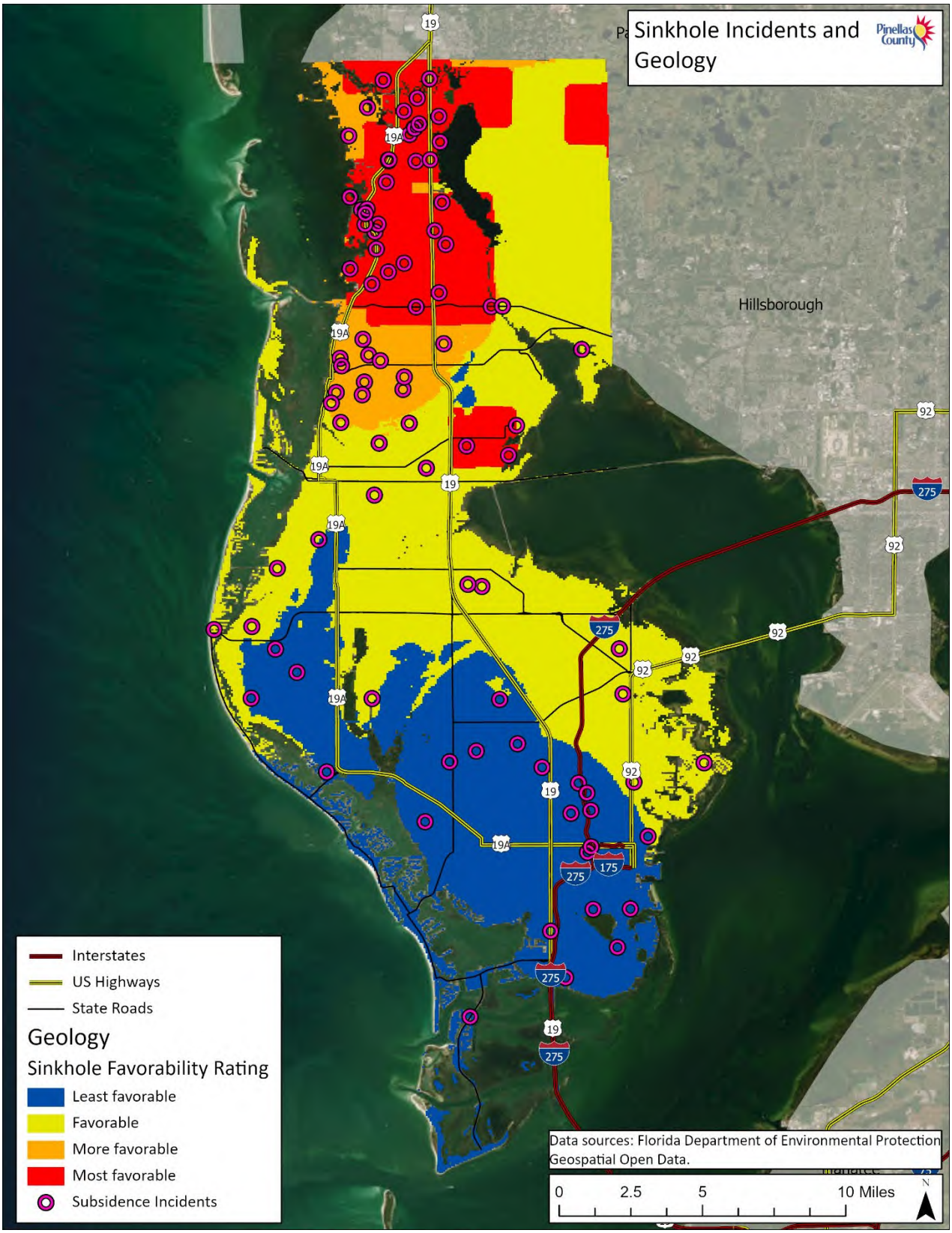


Table 4.90: Historical Sinkhole Occurrences in Pinellas County

	Date	Length (ft)	Width (ft)	Depth (ft)
Belleair				
NONE REPORTED	--	--	--	--
Belleair Beach				
NONE REPORTED	--	--	--	--
Belleair Bluffs				
BELLAIR BLUFFS	3/31/2015	6	4	2
Belleair Shore				
NONE REPORTED	--	--	--	--
Clearwater				
CLEARWATER	6/19/1981	2	2	3
CLEARWATER	6/19/1981	4	4	3
CLEARWATER	6/18/1985	20	15	30
CLEARWATER	1/10/2003	15	15	8
CLEARWATER	4/3/2016	4	4	0
CLEARWATER	7/6/2019	6	6	--
Dunedin				
DUNEDIN	5/15/1988	21	16	7
DUNEDIN	9/8/1988	8	8	0.5
DUNEDIN	9/19/1989	21	21	10
DUNEDIN	2/12/1990	5	2.5	1
DUNEDIN	2/17/1990	15	15	15
DUNEDIN	8/1/1991	8	8	20
DUNEDIN	6/29/2000	20	8	0
DUNEDIN	12/9/2002	--	--	--
Gulfport				
NONE REPORTED	--	--	--	--
Indian Rocks Beach				
INDIAN ROCKS BEACH	7/16/2019	2	--	--
Indian Shores				
NONE REPORTED	--	--	--	--
Kenneth City				
NONE REPORTED	--	--	--	--
Largo				
LARGO	3/13/2003	4	4	2
LARGO	7/15/2013	1	1	6
Madeira Beach				
NONE REPORTED	--	--	--	--
North Redington Beach				
NONE REPORTED	--	--	--	--
Oldsmar				
OLDSMAR	9/5/2002	4	4	3
OLDSMAR	7/10/2023	3	0	--

	Date	Length (ft)	Width (ft)	Depth (ft)
OLDSMAR	8/5/2024	--	4	12
Pinellas Park				
PINELLAS PARK	11/15/1989	0.8	0.8	2
PINELLAS PARK	8/29/2013	0	0	0
PINELLAS PARK	12/8/2023	10	--	4
Redington Beach				
NONE REPORTED	--	--	--	--
Redington Shores				
NONE REPORTED	--	--	--	--
Safety Harbor				
SAFETY HARBOR	11/2/1983	60	50	3
St. Petersburg				
ST. PETERSBURG	6/30/1970	15	15	0.5
ST. PETERSBURG	8/1/1981	20	20	10
ST. PETERSBURG	4/30/1978	8	8	1.5
ST. PETERSBURG	9/12/1988	4	4	2
ST. PETERSBURG	4/30/1990	3	3	1
ST. PETERSBURG	1/11/2001	10	30	0
ST. PETERSBURG	12/9/2002	3	3	2
ST. PETERSBURG	8/18/2003	1.5	1.5	2
ST. PETERSBURG	9/11/2003	4	4	8
ST. PETERSBURG	8/6/2004	4	4	6
ST. PETERSBURG	2/12/2010	4	3.5	2
ST. PETERSBURG	8/7/2013	2.5	2.5	0
ST. PETERSBURG	6/27/2014	5	5	4
ST. PETERSBURG	9/2/2016	8	5	0
ST. PETERSBURG	7/21/2021	8	9	--
ST. PETERSBURG	7/29/2023	2	2	1.5
St. Pete Beach				
ST. PETE BEACH	2/7/2017	6	6	1
Seminole				
SEMINOLE	3/24/1989	10	10	1.5
South Pasadena				
NONE REPORTED	--	--	--	--
Tarpon Springs				
TARPON SPRINGS	4/14/1979	30	30	25
TARPON SPRINGS	7/20/1989	6.5	5.5	1
TARPON SPRINGS	11/6/1989	4.5	4.5	0.5
TARPON SPRINGS	2/9/1990	8	8	6
TARPON SPRINGS	2/9/1990	10	10	2
TARPON SPRINGS	11/21/2002	--	--	15
TARPON SPRINGS	2/8/2003	3	3	--
TARPON SPRINGS	7/6/2004	3	3	--
TARPON SPRINGS	6/16/2011	--	--	--
TARPON SPRINGS	6/16/2011	15	15	15

	Date	Length (ft)	Width (ft)	Depth (ft)
TARPON SPRINGS	3/30/2016	--	60	15
TARPON SPRINGS	1/22/2020	20	20	7
TARPON SPRINGS	--	8	8	6
Treasure Island				
NONE REPORTED	--	--	--	--
Unincorporated				
PINELLAS CO.	4/16/1975	5	5	3
PINELLAS CO.	4/16/1975	18	15	12
PINELLAS CO.	4/16/1975	15	15	8
PINELLAS CO.	4/16/1975	18	15	8
PINELLAS CO.	4/16/1975	30	25	8
PINELLAS CO.	6/2/1979	20	20	10
PINELLAS CO.	3/18/1981	5	5	1.5
PINELLAS CO.	3/18/1981	18	18	6
PINELLAS CO.	10/24/1983	20	15	10
PINELLAS CO.	4/16/1985	--	--	--
PINELLAS CO.	3/3/1986	--	--	--
PINELLAS CO.	4/30/1987	--	--	--
PINELLAS CO.	11/9/1987	10	10	8
PINELLAS CO.	1/29/1988	6	6	3
PINELLAS CO.	4/21/1988	4	4	16
PINELLAS CO.	3/31/1989	--	--	--
PINELLAS CO.	4/13/1989	35	35	16
PINELLAS CO.	4/13/1989	12	12	9
PINELLAS CO.	4/13/1989	12	12	9
PINELLAS CO.	9/1/1989	20	20	14
PINELLAS CO.	1/23/1991	5	5	11
PINELLAS CO.	1/25/1991	3	3	2.5
PINELLAS CO.	3/19/2001	10	10	2
PINELLAS CO.	11/30/2002	6	6	6
PINELLAS CO.	4/18/2003	8	8	4
PINELLAS CO.	7/14/2003	5	8	5
PINELLAS CO.	7/16/2003	--	--	--
PINELLAS CO.	7/18/2003	3	4	--
PINELLAS CO.	10/26/2003	3	3	5
PINELLAS CO.	3/19/2006	8	8	0.83
PINELLAS CO.	3/1/2007	1.5	1.5	3
PINELLAS CO.	4/29/2007	2	4	--
PINELLAS CO.	4/29/2013	0.8	0.8	1
PINELLAS CO.	4/23/2014	4.5	4.5	--
PINELLAS CO.	10/1/2014	6	3	5
PINELLAS CO.	5/29/2015	--	--	--
PINELLAS CO.	8/11/2015	--	--	--
PINELLAS CO.	4/3/2016	4	4	--
PINELLAS CO.	2/7/2017	6	6	1

	Date	Length (ft)	Width (ft)	Depth (ft)
PINELLAS CO.	6/9/2021	3	3	3
PINELLAS CO.	7/27/2021	10	10	5
PINELLAS CO.	8/13/2021	10	10	8
PINELLAS CO.	5/20/2022	3	3	0
PINELLAS CO.	7/14/2024	--	12	7
PINELLAS CO.	--	0.8	0.8	5

4. Probability of Future Occurrences of Geological Events

Landslides

Because of Florida's relatively flat topography, landslides are not likely in Florida.

Sinkholes

There will continue to be incidences of sinkholes in Pinellas County because, as explained above, Florida has terrain that is favorable to sinkholes.

Sinkholes can be triggered by natural and anthropogenic factors, such as heavy rain after an extended drought and groundwater withdrawal or well drilling. This means that heavy rainfall or high levels of groundwater withdrawal can increase the probability of sinkholes in an area.

Additionally, as Pinellas County's population increases, the potential for individuals to be negatively impacted by a sinkhole increases because more people will live in locations that are favorable for sinkhole development.[127]

Based on historical information, this hazard was determined to have a probability level of likely (10 to 100% annual probability) for all jurisdictions.

5. Geological Events Impact Analysis

Landslides

N/A

Sinkholes

All jurisdictions could receive the following impacts due to sinkholes. As the county's population increases, the potential for individuals to be negatively impacted by a sinkhole increases because more people will live in locations that are favorable for sinkhole development.

[127] Florida Department of Environmental Protection Florida Geological Survey. (2017). *The favorability of Florida's geology to sinkhole formation.* Page 4.

- Public
  - May fall in or drive in to a sinkhole
  - May be injured or killed from structure collapse because of sinkhole
- Responders
  - May be injured or killed when attempting rescue missions
- Continuity of Operations (including continued delivery of services)
  - If sinkhole affects structures or critical infrastructure, operations may be interrupted
- Property, Facilities, Infrastructure
  - Critical infrastructure, including structures and roads, may be affected or damaged causing disruption
- Environment
  - Sinkholes are part of the natural environment, but there may be damage to some natural spaces from a sinkhole; for example, a public park may be damaged and result in closure
- Economic Condition
  - Sinkhole damage repair can be very expensive, so a sinkhole may have a significant negative impact for the property owner; a sinkhole would likely not affect the economy of a community
- Public Confidence in Jurisdiction's Governance
  - If there is an increase in sinkhole occurrences and the government does not address the issue, the public may become concerned about what would happen if a sinkhole were to affect their property

6. Vulnerability Analysis and Loss Estimation by Jurisdiction

Exposure

Landslides

Florida is not vulnerable to landslides, so no vulnerability analysis or loss estimation will be conducted.

Sinkholes

To estimate exposure of improved property to sinkholes, the approximate number of parcels and their associated improved valued located in high sinkhole risk areas was determined using GIS analysis. The majority of Pinellas County has a classification type of Area III. These areas are susceptible to the most numerous sinkholes of varying size and develop abruptly. The table below shows the buildings, parcels and potential damage of areas at risk to Area II subsidence.

Table 4.91: Estimated Exposure of Improved Property to Sinkholes

Location	Buildings and Parcels in High Sinkhole Risk Area		
	No. of Parcels	No. of Buildings	Improved Value
Belleair	2,585	1,456	$2,262,355,938
Belleair Beach	1,248	728	$1,274,246,722
Belleair Bluffs	1,384	714	$663,508,889
Belleair Shore	60	61	$344,972,288
Clearwater	72,965	48,489	$36,022,781,782
Dunedin	19,017	5,020	$8,937,378,151
Gulfport	7,047	1,702	$3,138,640,542
Indian Rocks Beach	3,541	163	$3,208,612,945
Indian Shores	2,795	1,439	$2,171,407,926
Kenneth City	2,180	40,341	$628,484,786
Largo	41,235	1,901	$16,872,749,633
Madeira Beach	4,053	370	$3,218,216,896
North Redington Beach	1,329	6,132	$1,229,036,117
Oldsmar	9,994	22,240	$4,478,295,239
Pinellas Park	22,768	753	$9,458,216,558
Redington Beach	1,102	814	$1,214,312,473
Redington Shores	2,083	7,195	$1,683,021,583
Safety Harbor	8,145	22,047	$4,215,813,232
Seminole	29,377	738	$11,636,691,733
South Pasadena	3,185	3,609	$1,391,745,829
St Pete Beach	7,762	103,183	$7,388,986,253
St Petersburg	127,098	759	$65,996,596,378
Tarpon Springs	12,427	9,478	$5,567,929,699
Treasure Island	6,049	2,388	$4,729,256,113
Unincorporated	38,858	49,146	$19,077,387,314
PINELLAS COUNTY TOTAL	**467,001**	**364,671**	**$235,888,032,333**

To estimate the county population's exposure to sinkhole, areas of risk were intersected with census block data. As a result, these population estimates are going to be an overestimate of risk since the entire census block's population count will be included even if only a portion of the census block's area is located in a risk area. However, these estimates still give an idea of the county population's risk to sinkhole.

Table 4.92: Estimated Exposure of Population to Erosion

Location	Population in High Sinkhole Risk Area		
	Total	< 18	> 65
Belleair	4,266	497	1,706
Belleair Beach	1,377	157	477
Belleair Bluffs	2,278	273	798
Belleair Shore	73	11	23
Clearwater	115,041	19,096	26,419

Location	Population in High Sinkhole Risk Area		
	Total	< 18	> 65
Dunedin	35,531	4,045	12,091
Gulfport	11,783	1,180	3,936
Indian Rocks Beach	3,673	368	1,183
Indian Shores	1,190	72	559
Kenneth City	4,915	761	1,513
Largo	83,110	11,852	23,296
Madeira Beach	3,895	280	1,233
North Redington Beach	1,495	121	531
Oldsmar	14,364	3,020	2,396
Pinellas Park	52,431	9,224	11,529
Redington Beach	1,376	159	434
Redington Shores	2,161	166	854
Safety Harbor	16,998	2,851	4,492
St. Petersburg	257,614	41,278	50,513
St. Pete Beach	8,686	556	3,325
Seminole	19,844	2,731	6,726
South Pasadena	5,386	193	3,252
Tarpon Springs	16,954	2,773	4,721
Treasure Island	6,584	375	2,468
Unincorporated	276,877	45,381	74,401
PINELLAS COUNTY TOTAL	**1,224,779**	**192,801**	**313,277**

7. Vulnerability Analysis and Loss Estimation of Critical Facilities

Landslides

Florida is not vulnerable to landslides, so no vulnerability analysis or loss estimation will be conducted.

Sinkholes

To estimate exposure to sinkholes for the critical facility analysis, areas of risk were intersected with critical facility locations. The table below summarizes the critical facilities in the county that are located in high sinkhole risk areas. Areas classified as Area III of sinkhole occurrence were chosen to be displayed as areas of risk because these areas are susceptible to the most numerous sinkholes of varying size and develop abruptly.

Table 4.93: Exposure of Critical Facilities to Sinkhole Risk Areas

Location	Number of Critical Facilities in High Sinkhole Risk Area
Belleair	17
Belleair Beach	4
Belleair Bluffs	5
Belleair Shore	0
Clearwater	538
Dunedin	136

Location	Number of Critical Facilities in High Sinkhole Risk Area
Gulfport	538
Indian Rocks Beach	136
Indian Shores	22
Kenneth City	12
Largo	7
Madeira Beach	7
North Redington Beach	356
Oldsmar	10
Pinellas Park	100
Redington Beach	3
Redington Shores	0
Safety Harbor	28
St. Petersburg	534
St. Pete Beach	13
Seminole	88
South Pasadena	10
Tarpon Springs	184
Treasure Island	5
Unincorporated	244
PINELLAS COUNTY TOTAL	**2,837**

8. Overall Vulnerability

Each of the five PRI categories was assigned a value from 1 to 4 and the pre-determined weighting factor was applied to calculate a PRI score. PRI scores can range from 1.0 to 4.0 and the overall vulnerability ranking or high, moderate, or low was assigned based on the PRI scores.

Based on the probability, impact, spatial extent, warning time, and duration, the overall vulnerability of this hazard was determined to be moderate, with a PRI score of 2.5.

GEOLOGICAL			Overall Vulnerability	
Overview				
Sinkholes are landforms created when overburden subsides or collapses into fissures or cavities in underlying carbonate rocks. Florida is underlain by several thousand feet of carbonate rock, limestone, and dolostone, with a variably thick mixture of sands, clays, shells, and other near surface carbonate rock units, called overburden.			MODERATE	
			PRI Score	
			2.5	
Probability	**Impact**	**Spatial Extent**	**Warning Time**	**Duration**
Likely	**Limited**	**Small**	**< 6 hrs**	**< 24 hrs**

Winter Storm and Freeze Hazard Profile

1. Winter Storm and Freeze Description

Severe winter weather includes extreme cold, snowfall, ice storms, winter storms, and/or strong winds and affects every state in the continental United States. Areas where such weather is uncommon, such as Florida, may experience a greater impact on transportation, agriculture, and people from relatively small events compared to other states that experience winter weather more frequently.

Winter storm formation requires below-freezing temperatures, moisture, and lift to raise the moist air to form the clouds and cause precipitation. Lift is commonly provided by warm air colliding with cold air along a weather front. These storms move easterly or northeasterly and use both the southward plunge of cold air from Canada and the northward flow of moisture from the Gulf of Mexico to produce ice, snow, and sometimes blizzard conditions. These fronts may push deep into the interior regions, sometimes as far south as Florida. The National Weather Service will issue Frost Advisories, Wind Chill Advisories, Watches or Warnings, along with Freeze and Hard Freeze Watches and Warnings when cold weather threatens an area.

Frozen Precipitation: Snow, Sleet, and Freezing Rain

As a hazardous winter weather phenomenon, the National Weather Service (NWS) defines a winter storm a weather event with accumulating frozen precipitation such as snow, sleet, and/or freezing rain.

- Snowfall: steady fall of snow for several hours or more. Heavy snow is defined as either a snowfall accumulating to 4 inches in depth in 12 hours or less or snowfall accumulation to 6 inches or more in depth in 24 hours or less.
- Sleet: pellets of ice composed of frozen or mostly frozen raindrops or refrozen partially melted snowflakes. Heavy sleet is a relatively rare event defined as the accumulation of ice pellets covering the ground to a depth of 0.5 inch or more.

In states such as Florida, where even the smallest accumulations can cause impacts, lower thresholds are typically used to define significant winter storms and the issuance of Winter Storm Warnings. This is because of a lower capacity to respond to winter storm events.

These accumulations become heavy and can damage buildings and trees and even disrupt power and communications systems. A small amount of ice can be dangerous to pedestrians and motorists, with bridges being particularly dangerous because they freeze before other surfaces. A thin layer of ice can cause travel issues on untreated roadways.

Frost, Freeze, and Hard Freeze

Frost is the accumulation of small ice crystals on surfaces, similar to the accumulation of dew in the mornings. If a frost persists for long enough, it can lead to crop damage or loss. Frost can occur when air temperatures fall below 36 degrees Fahrenheit, the wind is light, and there is sufficient moisture in the air. A freeze occurs when overnight temperatures reach at least 32 degrees Fahrenheit. A hard freeze occurs when the temperature falls below 28 degrees Fahrenheit for four hours or more. While most vegetation can survive a frost, very little vegetation can survive a hard freeze, and this is when the most

damage to crops occurs. While cold fronts rarely bring snow or sleet to Pinellas, long lasting cold temperatures occur more often and can last for several days. Nighttime temperatures can drop below freezing for periods well in excess of 8 hours.

Cold Illnesses

Frostbite is damage to skin and tissue caused by exposure to freezing temperatures, typically any temperature below 31F, and can occur in a matter of minutes when bare skin is exposed to extreme cold. Hypothermia occurs when the body loses the ability to regulate temperature. Both of these illnesses are very dangerous and can be life threatening if not treated immediately. Infants and elderly people are most at risk. When strong winds combine with cold temperatures, the heat loss from a person's skin can be accelerated. This is called the wind chill. The wind chill can make it feel like it is much colder outside than the actual temperature. In areas unaccustomed to winter weather, near freezing temperatures are considered "extreme cold." During unexpected or prolonged cold periods in Florida, there are often issues with propane gas supplies, and electrical and natural gas systems are pushed to their limits to meet the record demands. Also, many residents of Florida have inadequate heating systems and turn to alternatives such as space heaters and wood fires that increase the likelihood of accidental house fires and deaths from carbon monoxide poisoning.[128]

Potential Effects of Climate Change on Winter Storms and Freezes

Climate change is not expected to increase occurrences or magnitude of winter storms and freezes in Florida. However, climate change does not mean that winter storms and freezes would not continue to occur in Florida. Climate variability will continue to influence daily temperature variability, so isolated and prolonged winter storms and freeze events are not unlikely.[129]

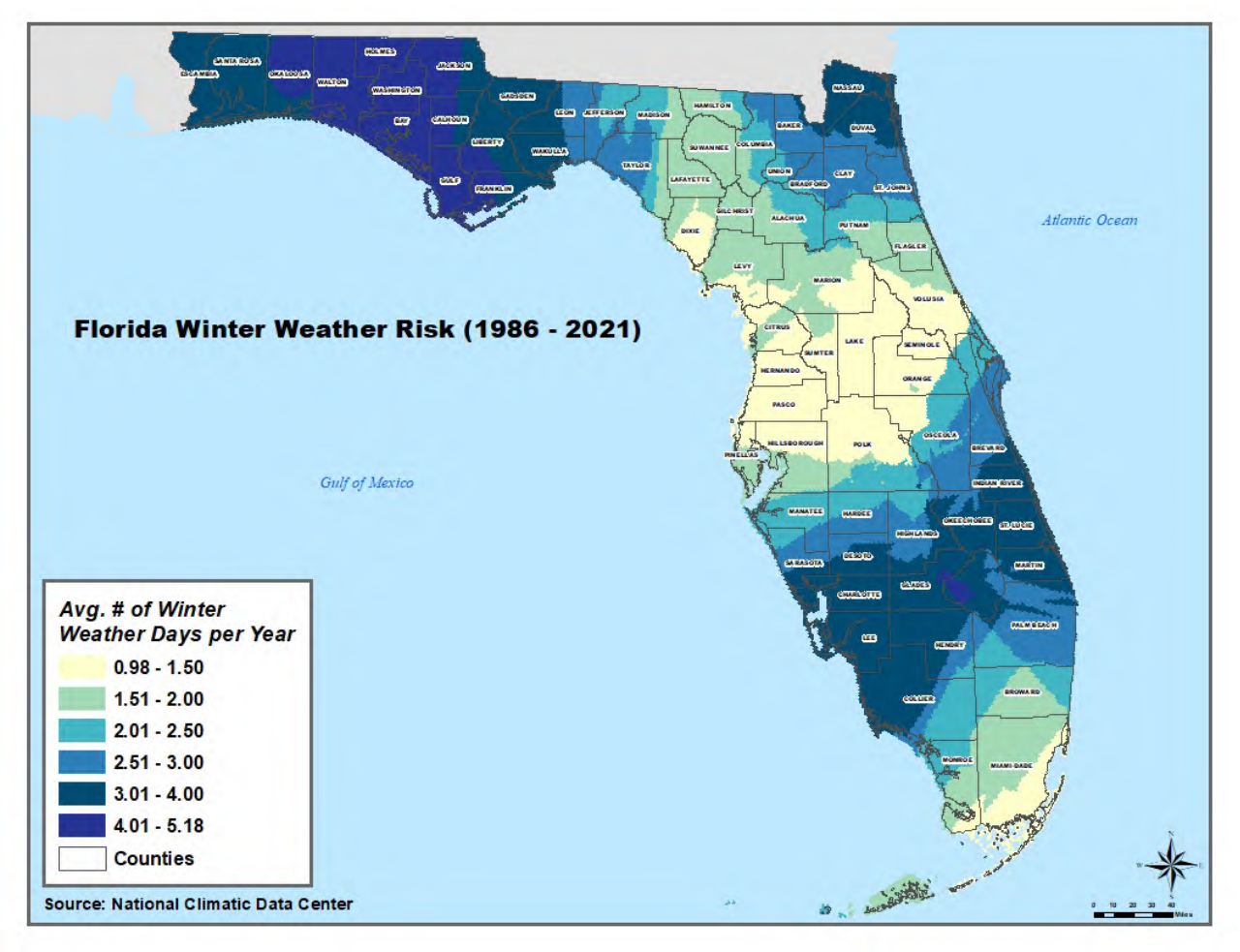
Severe winter storms will not disappear. Specifically, isolated or prolonged winter freeze events in Florida will still occur.

2. Geographic Areas Affected by Winter Storm and Freeze

The northern portion of the state is affected by winter storm and freeze events more frequently than central and southern Florida. With that being said, central and southern Florida can still experience freeze events, and given the atmospheric nature of the hazard, the entirety of Pinellas County has uniform exposure to winter storm and freeze events.

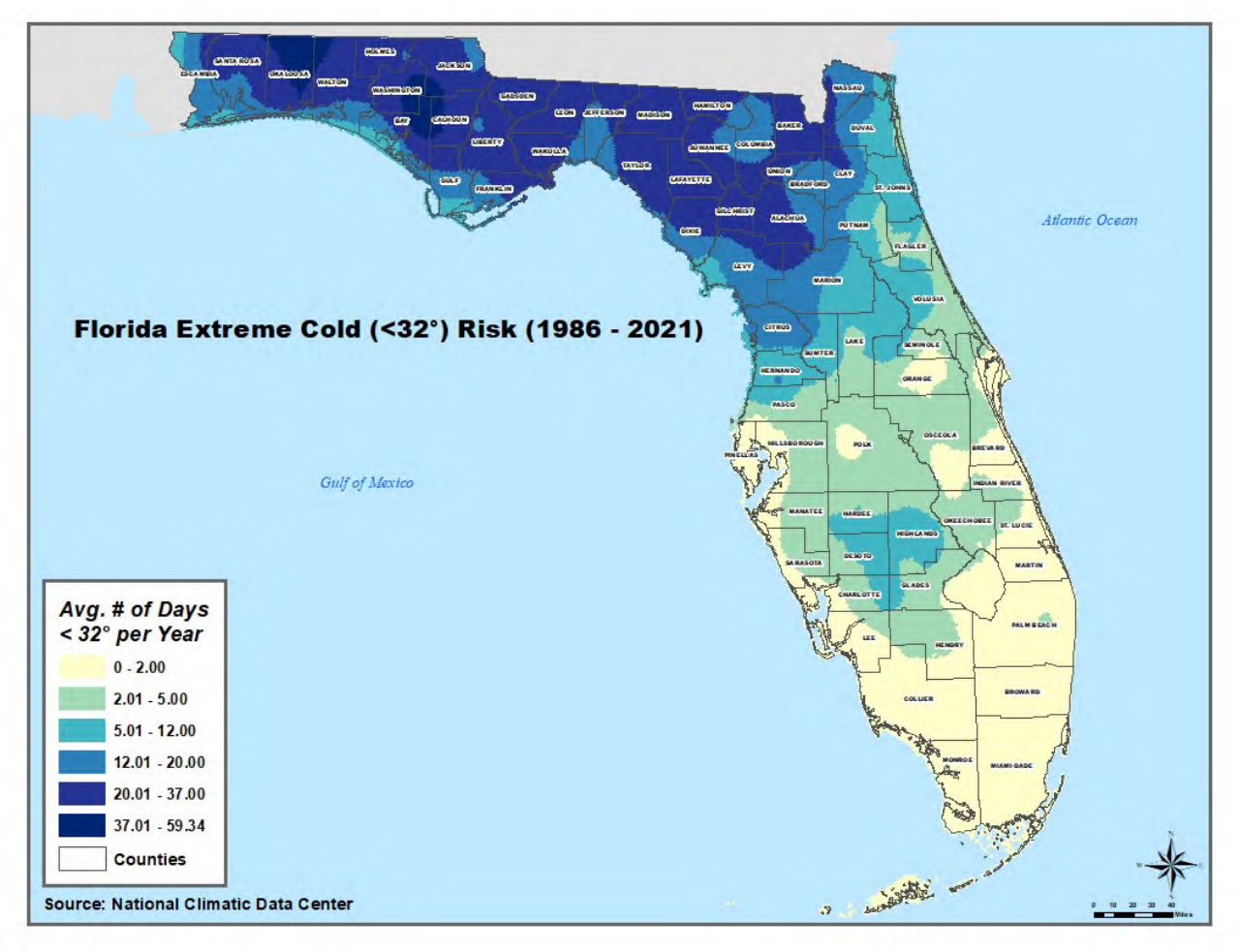
[128] http://www.nws.noaa.gov/om/winter/index/shtml
[129] Ingram and Carter (2012). Southeast region technical report to the National Climate Assessment. http://gyr.fortlauderdale.gov/home/showdocument?id=3153

Figure 4.62: Winter Weather Risk, 1986–2021



According to this data, Pinellas County is likely to receive less than 1 to 2 days of winter weather each year.

Figure 4.63: Florida Extreme Cold (<32 degrees) Risk, 1986–2021



According to this data, Pinellas County is likely to experience between 0 to 2 days of extreme cold, which is classified as less than 32 degrees, each year.

3. Historical Occurrences of Winter Storm and Freeze

The table below lists the significant winter storm and freeze events that affected Pinellas County.

Table 4.94: Significant Winter Weather and Freeze in Pinellas County[130]

Date	Description
January 24–25, 2003	A strong cold front ushered in cold temperatures and gusty northwest winds into the Florida peninsula, which created some of the coldest weather in several years. Wind chill temperatures ranged from 10 to 15 in Bronson, around 20 in Tampa and Lakeland, to 20 to 25 degrees in Fort Myers. Overnight low temperatures ranged from near 20 north to the upper 20s in the inland counties south, to the lower 30s along the coast near Fort Myers. A hard freeze (temperatures of 27 degrees or less for three or more hours) reached south into northeast Hillsborough and northern Polk counties. Citrus crops fared well because the freeze did not last long enough but strawberries took a $4.5 million loss and tropical fish a $4 million loss.
January 3, 2008	A strong cold front moved through the area with strong high pressure behind the front bringing an arctic airmass over the state on strong northerly flow. Freezing temperatures settled into Levy county Wednesday morning and then settled across the entire area for Thursday morning, with many locations seeing freezing temperatures for six or more hours. North winds of 10 to 15 mph Thursday morning also allowed wind chill values to fall to 15 to 20 degrees across the area. Temperatures moderated for Friday morning, but freezing temperatures were still felt across the Nature Coast for several hours. The ASOS at the St. Petersburg/Clearwater International Airport had a wind chill value of 19 degrees. Freezing conditions were felt across much of Pinellas county, with the ASOS at the St. Petersburg/Clearwater International Airport reaching a low of 31 degrees and the COOP station in Tarpon Springs reaching 29 degrees.
January 11, 2010	Pinellas County had below freezing temperatures for 2 to 3 hours. The ASOS station at the Albert Whitted Airport recorded a low of 33 degrees, breaking the previous low of 34 degrees set in 1977. The lowest temperature across the county of 26 degrees was recorded at a mesonet station in Palm Harbor. A 77-year-old man, his 72-year-old wife, and their 41-year-old daughter were hospitalized from being sickened by carbon monoxide after using a charcoal barbecue grill to heat their home for 12 hours due to the power going out from a blown transformer. The low temperature recorded at the Albert Whitted Airport was 35 degrees and the high temperature was 42 degrees, which set a new record low maximum temperature record. The previous record low maximum temperature was 48 degrees set in 1970.

130 https://www.ncdc.noaa.gov/stormevents/listevents.jsp?eventType=%28Z%29%2BBlizzard&eventType=%28Z%29%2BCold%2FWind%2BChill&eventType=%28Z%29%2BExtreme%2BCold%2FWind%2BChill&eventType=%28Z%29%2BFreezing%2BFog&eventType=%28Z%29%2BFrost%2FFreeze&eventType=%28Z%29%2BHeavy%2BSnow&eventType=%28Z%29%2BIce%2BStorm&eventType=%28Z%29%2BSleet&eventType=%28Z%29%2BWinter%2BStorm&eventType=%28Z%29%2BWinter%2BWeather&beginDate_mm=01&beginDate_dd=01&beginDate_yyyy=2006&endDate_mm=12&endDate_dd=31&endDate_yyyy=2011&county=ALL&hailfilter=0.00&tornfilter=0&windfilter=000&sort=DT&submitbutton=Search&statefips=12%2CFLORIDA

January 4, 2012	In 2012, a strong cold front moved through the Florida Peninsula on January 2nd dropping temperatures to well below freezing. The coldest temperatures were felt on the morning of January 4th with slightly warmer but still subfreezing temperatures on January 5th. Pinellas County recorded sub-freezing temperatures for around 4 hours at the COOP site at Tarpon Springs in the northern part of the county where temperature fell to 28 degrees.

Of the 18 FEMA-declared events in Pinellas County from 1953 until 2024, there have been 4 events that involved severe winter weather. These events all related to freezing and to a large degree focused on the overall impact to the local economy. Below is a table of the major disaster declarations related to severe winter weather as designated by FEMA.

Table 4.95: FEMA Major Disaster Declarations in Pinellas County, Winter Storm and Freeze, 1953–2024[131]

Disaster Number	Date	Name/Description
DR-526	January 31, 1977	SEVERE WINTER WEATHER – FREEZING
DR-851	December 23–25, 1989	SEVERE FREEZE
DR-982	March 12–16, 1993	TORNADOES, FLOODING, HIGH WINDS & TIDES, FREEZING
DR-1359	December 1, 2000–January 25, 2001	SEVERE FREEZE

According to the NCEI Storm Events Database, there were 9 reports of winter storm and freeze in Pinellas County from 2000 to 2024.[132] These winter storm and freeze events are only inclusive of those reported by NCEI from 1996 through 2024, and events are only reported at the county level. It is likely that additional events have affected Pinellas County. As additional local data becomes available, this hazard profile will be amended.

Table 4.96: Summary of Winter Storm and Freeze Occurrences in Pinellas County

Location	Number of Occurrences	Deaths	Injuries	Crop Damage (2024)*	Annualized Crop Loss
PINELLAS COUNTY TOTAL	**9**	**0**	**0**	**$1,731,238**	**$96,209**

*Adjusted dollar values were calculated based on the Consumer Price Index for All Urban Consumers (CPI-U) U.S. city average series for all items, not seasonally adjusted. This data represents changes in the prices of all goods and services purchased for consumption by urban households. This monthly index value has been calculated every year since 1913. The 2024 dollar values were calculated based on buying power in April 2024.

[131] https://www.fema.gov/media-library/assets/documents/28318

[132] https://www.ncdc.noaa.gov/stormevents/listevents.jsp?eventType=%28Z%29%2BCold%2FWind%2BChill&eventType=%28Z%29%2BExtreme%2BCold%2FWind%2BChill&eventType=%28Z%29%2BFrost%2FFreeze&eventType=%28Z%29%2BWinter%2BStorm&eventType=%28Z%29%2BWinter%2BWeather&beginDate_mm=01&beginDate_dd=01&beginDate_yyyy=1950&endDate_mm=12&endDate_dd=31&endDate_yyyy=2018&county=PINELLAS%3A103&hailfilter=0.00&tornfilter=0&windfilter=000&sort=DT&submitbutton=Search&statefips=12%2CFLORIDA

Table 4.97: Historical Winter Storm and Freeze Occurrences in Pinellas County

	Date	Type	Deaths	Injuries	Property Damage*	Crop Damage*
Pinellas County						
PINELLAS (ZONE)	12/31/2000	Frost/Freeze	0	0	$0	$0
PINELLAS (ZONE)	1/5/2001	Frost/Freeze	0	0	$0	$0
PINELLAS (ZONE)	1/24/2003	Extreme Cold/Wind Chill	0	0	$0	$1,406,428
PINELLAS (ZONE)	1/25/2003	Extreme Cold/Wind Chill	0	0	$0	$0
PINELLAS (ZONE)	1/3/2008	Cold/Wind Chill	0	0	$0	$0
PINELLAS (ZONE)	1/3/2008	Frost/Freeze	0	0	$0	$0
PINELLAS (ZONE)	10/28/2008	Cold/Wind Chill	0	0	$0	$0
PINELLAS (ZONE)	1/11/2010	Frost/Freeze	0	0	$0	$0
PINELLAS (ZONE)	1/4/2012	Frost/Freeze	0	0	$0	$0

*Damage is reported in 2024 dollars. All damage may not have been reported.

4. Probability of Future Occurrences of Winter Storm and Freeze

Based on the historical evidence, it is anticipated that a freeze is possible in Pinellas County. But there is no record of winter storm or winter weather events.

Probability Based on Historical Occurrences

An analysis of winter storm and freeze reports from 1996 to 2024 in Pinellas County from the NCEI Storm Events Database indicates that there will be approximately less than one cold/extreme cold/wind chill event and less than 1 frost/freeze event each year in Pinellas County.

Table 4.98: NCEI Winter Storm and Freeze Reports 1996–2024[133]

Type of Severe Storm	NCEI Reports	Average per Year
Cold/Extreme Cold/Wind Chill	4	< 1
Frost/Freeze	5	< 1
Winter Storm/Winter Weather	0	0
TOTAL	**9**	**< 1**

Based on historical information, this hazard was determined to have a probability level of possible (1 to 10% annual probability).

133 https://www.ncdc.noaa.gov/stormevents/listevents.jsp?eventType=%28Z%29%2BCold%2FWind%2BChill&eventType=%28Z%29%2BExtreme%2BCold%2FWind%2BChill&eventType=%28Z%29%2BFrost%2FFreeze&eventType=%28Z%29%2BWinter%2BStorm&eventType=%28Z%29%2BWinter%2BWeather&beginDate_mm=01&beginDate_dd=01&beginDate_yyyy=1950&endDate_mm=12&endDate_dd=31&endDate_yyyy=2018&county=PINELLAS%3A103&hailfilter=0.00&tornfilter=0&windfilter=000&sort=DT&submitbutton=Search&statefips=12%2CFLORIDA

5. Winter Storm and Freeze Impact Analysis

All jurisdictions could receive the following impacts due to winter storm and freeze.

- Public
  - Injury or death as well as possible property damage from car accidents because of ice on roads and bridges
  - Injury or death from exposure to cold weather, either because of being stranded outside or inside without proper heating systems
  - Deaths and injuries have resulted from accidents including automobile collisions due to poor driving conditions; emergency medical response can be severely hindered from the effects of a winter storm event; this is because Floridians are not accustomed to driving in winter weather conditions
- Responders
  - First responders are increasingly at risk as they respond to traffic incidents and calls for medical attention; they are vulnerable to the same transportation dangers as other citizens, but often have to go out in hazardous conditions when ordinary citizens would not
- Continuity of Operations (including continued delivery of services)
  - During a winter storm and the days that follow, many people do not travel due to the road conditions; the absenteeism of workers affects the overall continuity of operations of the government
- Property, Facilities, Infrastructure
  - Loss or damage of crops and agricultural revenue because of frost/freeze events
  - Roads and highways are most vulnerable to the effects of winter storms; roads frequently become iced over, resulting in accidents, injuries, deaths, and traffic congestion; roads can be heavily damaged due to winter weather events; potholes and cracks can be found on roadways after a winter weather event, resulting in the need for repairs, causing further economic losses to the local area
  - Electrical transmission lines are highly vulnerable to severe winter weather; trees frequently fall due to the extra weight of ice accumulating on branches; trees falling on nearby power lines cause disruption of power service, which results in additional costs for repairs and maintenance
  - Other impacts resulting from winter storms include damage to plumbing, sewers, and waterlines as well as minor roof damage and house fires resulting from portable heaters
- Environment
  - Loss or damage to environment, including green spaces, habitats, and species because of cold weather, winter weather, and/or frost/freeze events
- Economic Condition
  - Loss or damage to crops because of freezes result in the loss of tens and sometimes hundreds of millions of dollars; this affects individual farmers and industries, such as the citrus industry in Florida

- During a winter storm and the days that follow, many people do not travel due to the road conditions; the absenteeism of workers affects the economy

- Public Confidence in the Jurisdiction's Governance
  - A high number of motor vehicle accidents, school closures, power outages, or injuries and deaths may cause the public to believe that the government did not adequately prepare for the incident

6. Vulnerability Analysis and Loss Estimation by Jurisdiction

Historical Losses

The NCEI Storm Events Database information, presented in the Historical Occurrences section above, also contained property and crop damage dollar amounts, which is shown in the table below.

Table 4.99: Winter Storm and Freeze Events in Pinellas County, by Type, (1996–2024)[134]

Type of Event	No. of Events	Deaths	Injuries	Property Damage (2024 dollars)	Crop Damage (2024 dollars)
Cold/Extreme Cold/Wind Chill	4	0		$0	$1,707,416
Frost/Freeze	5	0	0	$0	$0
Winter Storm/ Winter Weather	0	0	0	$0	$0
TOTAL	**9**	**0**	**0**	**$0**	**$1,707,416**

The information can be analyzed to provide the average amount of property and crop damage that is likely each year. This information is shown in the chart below.

Table 4.100: NCEI Winter Storm and Freeze, 1996–2024

NCEI Storm Event (hazard)	Average Winter Storms and Freeze per Year	Annualized Property Loss (2024 dollars)	Annualized Crop Loss (2024 dollars)
All Types of Winter Storm and Freeze	< 1	$0	$94,856

According to the analysis, Pinellas County is historically vulnerable to $ 0 in property damages and approximately $78,135 in crop damages from less than one winter storm or freeze event each year.

134 https://www.ncdc.noaa.gov/stormevents/listevents.jsp?eventType=%28Z%29%2BCold%2FWind%2BChill&eventType=%28Z%29%2BExtreme%2BCold%2FWind%2BChill&eventType=%28Z%29%2BFrost%2FFreeze&eventType=%28Z%29%2BWinter%2BStorm&eventType=%28Z%29%2BWinter%2BWeather&beginDate_mm=01&beginDate_dd=01&beginDate_yyyy=1950&endDate_mm=12&endDate_dd=31&endDate_yyyy=2018&county=PINELLAS%3A103&hailfilter=0.00&tornfilter=0&windfilter=000&sort=DT&submitbutton=Search&statefips=12%2CFLORIDA

Exposure

Since winter storm and freeze is a hazard that does not have geographically definable boundaries, it was excluded from spatial analysis through GIS. However, because winter storms and freeze are considered atmospheric, they have the potential to affect all buildings and all populations in Pinellas County.

Winter storms and freeze usually do not cause direct damage to structures in the county. And, although large-scale property damage is rare with these events, crop damage is much more likely and could significantly impact the local agriculture and livestock industry. However, Pinellas County is an urban county with almost no acreage devoted to agriculture.

Winter storm and freeze can also have several negative externalities including hypothermia, cost of snow and debris cleanup, business and government service interruption, traffic accidents, and power outages. Furthermore, citizens may resort to using inappropriate heating devices that could lead to fire or an accumulation of toxic fumes. The population most vulnerable to winter storm and freeze is the elderly population or those medically dependent upon power.

7. Vulnerability Analysis and Loss Estimation of Critical Facilities

Winter storms and freeze can strike anywhere in Pinellas County; therefore, all of the county's critical facilities are equally vulnerable and at risk. However, winter storms and freeze usually do not cause direct structural damage to critical facilities. Winter storm and freeze impacts to structures, including to critical facilities, are listed above under Exposure.

8. Overall Vulnerability

Each of the five PRI categories was assigned a value from 1 to 4 and the pre-determined weighting factor was applied to calculate a PRI score. PRI scores can range from 1.0 to 4.0 and the overall vulnerability ranking or high, moderate, or low was assigned based on the PRI scores.

Based on the probability, impact, spatial extent, warning time, and duration, the overall vulnerability of this hazard was determined to be low, with a PRI score of 2.1.

WINTER STORM & FREEZE			Overall Vulnerability	
Overview				
Severe winter weather includes extreme cold, snowfall, ice storms, winter storms, and/or strong winds, and affects every state in the continental United States. Areas where such weather is uncommon, such as Florida, may experience a greater impact on transportation, agriculture, and people from relatively small events compared to other states that experience winter weather more frequently.			LOW	
			PRI Score	
			2.1	
Probability	**Impact**	**Spatial Extent**	**Warning Time**	**Duration**
Possible	**Minor**	**Large**	**> 24 hrs**	**< 1 week**

Seismic Event Hazard Profile

1. Seismic Event Description

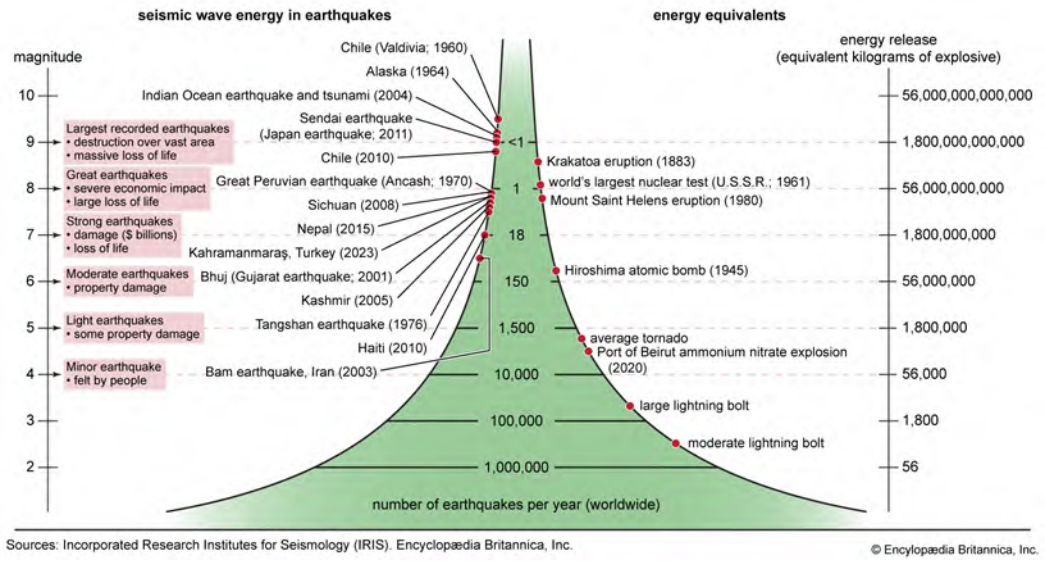
A seismic event, or an earthquake, is a sudden, rapid shaking of the earth caused by the breaking and shifting of rock beneath the earth's surface that creates seismic waves. This shaking can cause buildings and bridges to collapse; disrupt gas, electric, and phone service; and sometimes trigger landslides and tsunamis or indirectly cause flash floods or fires.

Measures

Earthquakes are measured in two ways, by magnitude and by intensity. Magnitude is defined as one number, while intensity varies based on what is experienced in a specific location.

The magnitude is measured on the moment magnitude (Mw) scale and measures how much energy is released from a seismic event, such as the amount of rock movement and the area of the fault or fracture surface. The moment magnitude scale ranges from 0 to 10, and as the magnitude increase, the damage exponentially increases, by a factor of roughly 32. As damage potential increases, probability decreases. The Figure below shows magnitudes and associated energy releases against the probability that level of earthquake has of occurring each year. Historical earthquakes and their magnitudes are also overlayed onto the graph.

Figure 4.64: Moment Magnitude Scale



The intensity of earthquakes is measured using the Modified Mercalli (MM) Intensity Scale, which attributes a number to the level of effects that people experience and the damages that are likely. The intensity scale consists of a series of certain key responses such as people awakening, movement of furniture, damage to chimneys, and finally total destruction. The scale is composed of 12 increasing levels of intensity that range from imperceptible shaking to catastrophic destruction and is designated by Roman numerals. It does not have a mathematical basis; instead, it is an arbitrary ranking based on

observed effects.

The Modified Mercalli Intensity value assigned to a specific site after an earthquake has a more meaningful measure of severity to the nonscientist than the magnitude. Being far from the epicenter of an earthquake would mean people and structures experience a lower intensity, so the MM value would be lower. Whereas being close to the epicenter of an earthquake would have a higher MM value because people and structures would experience a higher intensity. Structural engineers usually contribute information for assigning intensity values of VIII or above. The Modified Mercalli Intensity Scale is shown below.

Table 4.101: Modified Mercalli Intensity Scale

Modified Mercalli Intensity Scale	
I.	Not felt except by a very few under especially favorable conditions.
II.	Felt only by a few persons at rest, especially on upper floors of buildings.
III.	Felt quite noticeably by persons indoors, especially on upper floors of buildings. Many people do not recognize it as an earthquake. Standing motor cars may rock slightly. Vibrations similar to the passing of a truck. Duration estimated.
IV.	Felt indoors by many, outdoors by few during the day. At night, some awakened. Dishes, windows, doors disturbed; walls make cracking sound. Sensation like heavy truck striking building. Standing motor cars rocked noticeably.
V.	Felt by nearly everyone, many awakened. Some dishes, windows broken. Unstable objects overturned. Pendulum clocks may stop.
VI.	Felt by all, many frightened. Some heavy furniture moved; a few instances of fallen plaster. Damage slight.
VII.	Damage negligible in buildings of good design and construction; slight to moderate in well-built ordinary structures; considerable damage in poorly built or badly designed structures; some chimneys broken.
VIII.	Damage slight in specially designed structures; considerable damage in ordinary substantial buildings with partial collapse. Damage great in poorly built structures. Fall of chimneys, factory stacks, columns, monuments, walls. Heavy furniture overturned.
IX.	Damage considerable in specially designed structures; well-designed frame structures thrown out of plumb. Damage great in substantial buildings, with partial collapse. Buildings shifted off foundations.
X.	Some well-built wooden structures destroyed; most masonry and frame structures destroyed with foundations. Rails bent.
XI.	Few, if any (masonry) structures remain standing. Bridges destroyed. Rails bent greatly.
XII.	Damage total. Lines of sight and level are distorted. Objects thrown into the air.

Potential Effect of Climate Change

Climate change is not expected to affect the occurrence or magnitude of seismic events in Florida.

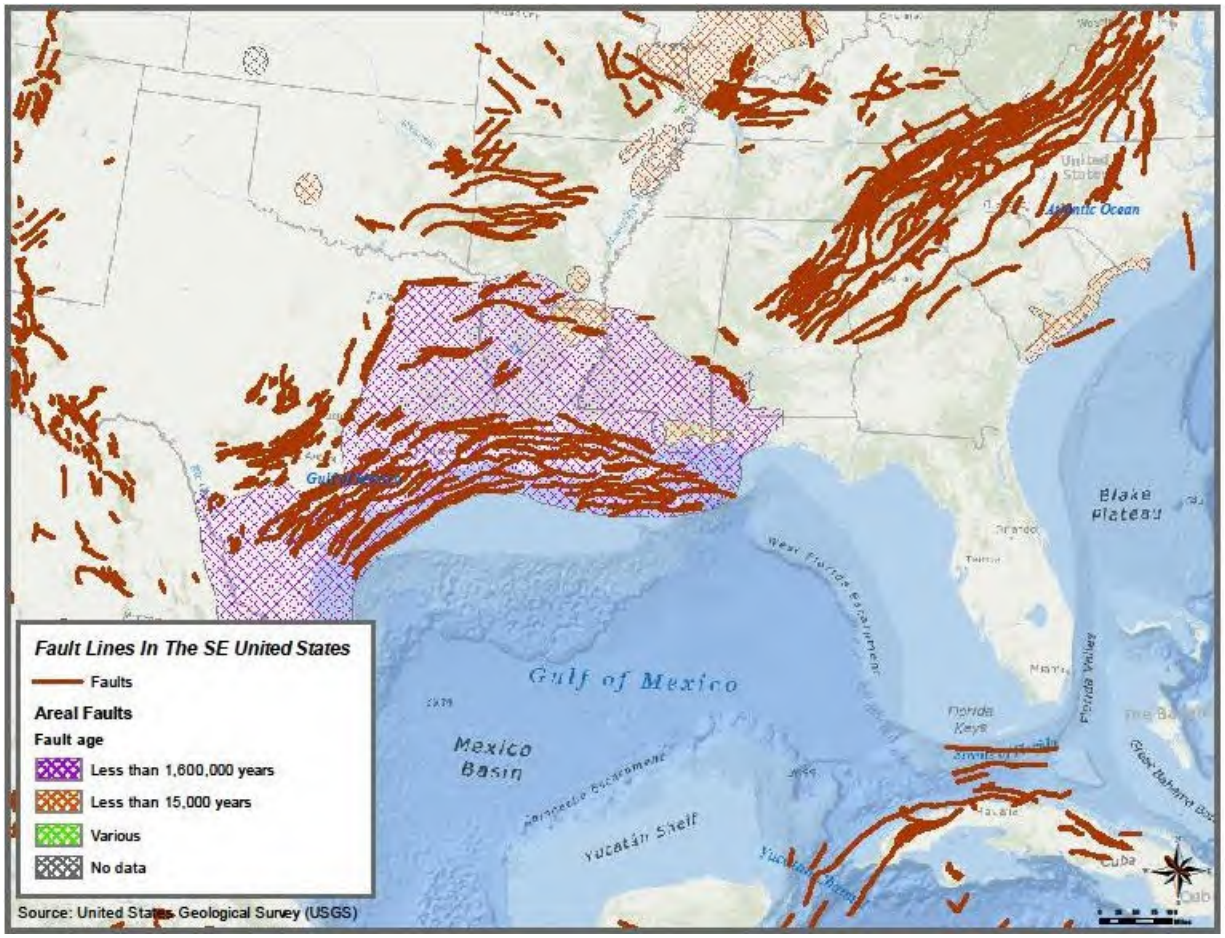
2. Geographic Areas Affected by Seismic Events

Seismic activity is rare in Florida and no earthquakes have had an epicenter in Florida. This is because there are no documented active faults in the State. Shaking felt in Florida comes from earthquakes

either in the Gulf of Mexico, the Caribbean, or from the small fault line that is northeast of the State near Charleston, South Carolina.

Below is a map of fault lines in the southeast United States. The map shows that there are no known fault lines in Florida and that any seismic activity felt in Pinellas County is likely from the faults to the north, west, or south.

Figure 4.65: Southeast United States Fault Lines



3. Historical Occurrences of Seismic Events

Earthquakes are very rare in Florida and there are no significant recorded incidents in the state. Additionally, many of the reports of earthquakes from before technological advancements have no proof and the original reports are lost.

Table 4.102: Florida Historical Occurrences, Seismic

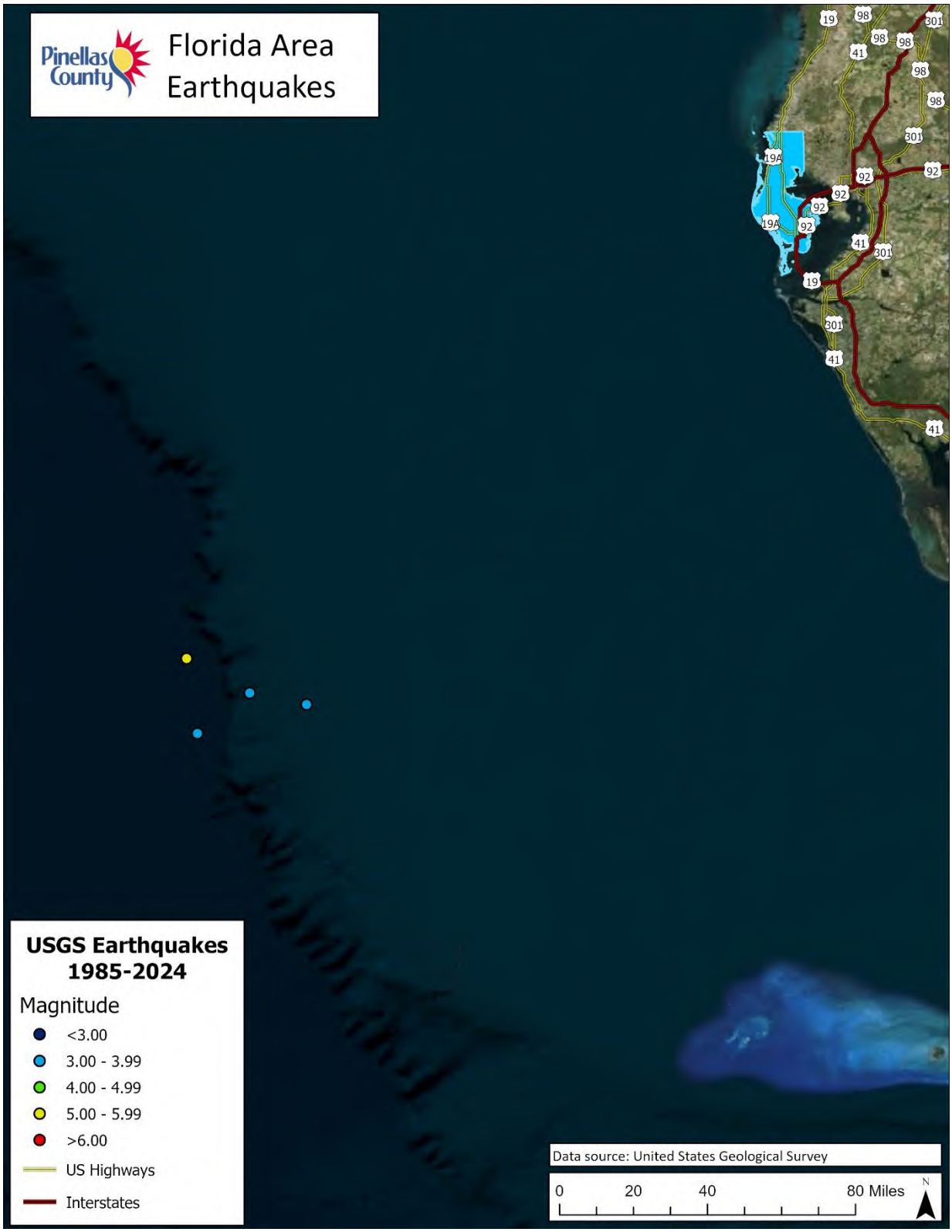
Date	Description
August 31, 1886	Known as the "great earthquake," a severe earthquake hit Charleston, South Carolina. It was so powerful that shaking was felt in St. Augustine and Tampa. There were also several aftershocks in the months after the quake that were felt in Florida.
January 5, 1945	Shaking was felt in Volusia County. Windows in a De Land courthouse shook violently.
October 27, 1973	A shock was felt in Seminole, Volusia, Orange, and Brevard counties with a maximum intensity of MM V.
January 13, 1978	Two shocks were felt in Polk County, each lasting about 15 seconds and one minute apart. It rattled doors and windows, but there were no injuries or damages.
November 13, 1978	A shock was felt in northwest Florida. The seismic station estimated that it originated in the Atlantic Ocean.[135]
September 10, 2006	A strong quake was felt in Florida and other Gulf Coast states. USGS determined it was magnitude 6 quake originating in the Gulf of Mexico, 250 miles southwest of the Apalachicola area.[136]
July 16, 2016	Some felt small shakes in Florida and USGS rated it as a 3.7 magnitude. It was later discovered that the "quake" was actually an experimental explosion in the ocean by the U.S. Navy.[137]

Many reports of earthquakes felt in Florida are unsubstantiated and only known because of personal accounts of "tremblors." The 1886 Charleston, South Carolina earthquake was felt in Florida. There was a shock felt in 1978 and then no seismic activity in Florida until 2006 when a quake in the Gulf of Mexico was reportedly felt in Florida. Shaking in 2016 was thought to be a rare earthquake affecting Florida, but it was actually shaking felt from explosion tests by the U.S. Navy.

The map below shows earthquakes with epicenters that occurred near Pinellas County between 1985 and 2024. No earthquakes occurred within the county boundaries during this period, but several did occur in the Gulf of Mexico.

[135] http://ufdc.ufl.edu/UF00001039/00001/13x
[136] http://publicfiles.dep.state.fl.us/FGS/FGS_Publications/Forum/forum_oct2006.pdf
[137] https://earthquake.usgs.gov/earthquakes/eventpage/us20006f8n#executive

Figure 4.66: Historical Earthquake Epicenters, 1985–2024



4. Probability of Future Occurrences of Seismic Events

The probability is extremely low that a major earthquake will affect the state of Florida and cause significant damage. According to USGS, Florida is classified as a stable geological area, which means that damage from any shaking or tremors felt from an earthquake is expected to be minimal. The map below shows zones of peak ground acceleration as a percentage of gravitational acceleration. There is a two percent probability that the given acceleration range will be exceeded in a 50-year period. Peak ground acceleration refers to the maximum shaking that occurs at a specific location during an earthquake.

Figure 4.67: Florida Peak Ground Acceleration



Generally, a peak ground acceleration of 0.01 m/s^2 is felt by humans and a peak ground acceleration of 0.2 m/s^2 can cause people to lose their balance. As shown in the map above from USGS, most of the state, including Pinellas County, would experience 0.20 m/s^2 peak ground acceleration in the event of an earthquake affecting Florida. To be clear, this does not mean that an earthquake that centered near Florida would be felt by all of Florida, but that shaking may be possible to feel.

Based on historical information, this hazard was determined to have a probability level of possible (1 to 10% annual probability).

5. Seismic Events Impact Analysis

All jurisdictions could receive the following impacts due to seismic events.

- Public
  - May feel slight shaking, but no injuries will result in shaking from an earthquake
- Responders
  - Unlikely to experience impacts
- Continuity of Operations (including continued delivery of services)
  - Unlikely to cause interruptions to operations
- Property, Facilities, Infrastructure
  - Some windows may be shattered from a large earthquake that sends shocks and shaking to Florida, but this is very unlikely
- Environment
  - Unlikely to impact the environment
- Economic Condition
  - Unlikely to impact the economy
- Public Confidence in Jurisdiction's Governance
  - Unlikely to impact the public confidence in the jurisdiction's governance

6. Vulnerability Analysis and Loss Estimation by Jurisdiction

According to the peak ground acceleration map above, Pinellas County has equally low vulnerability. But it is possible that the county may experience shaking during a future event centered near Florida.

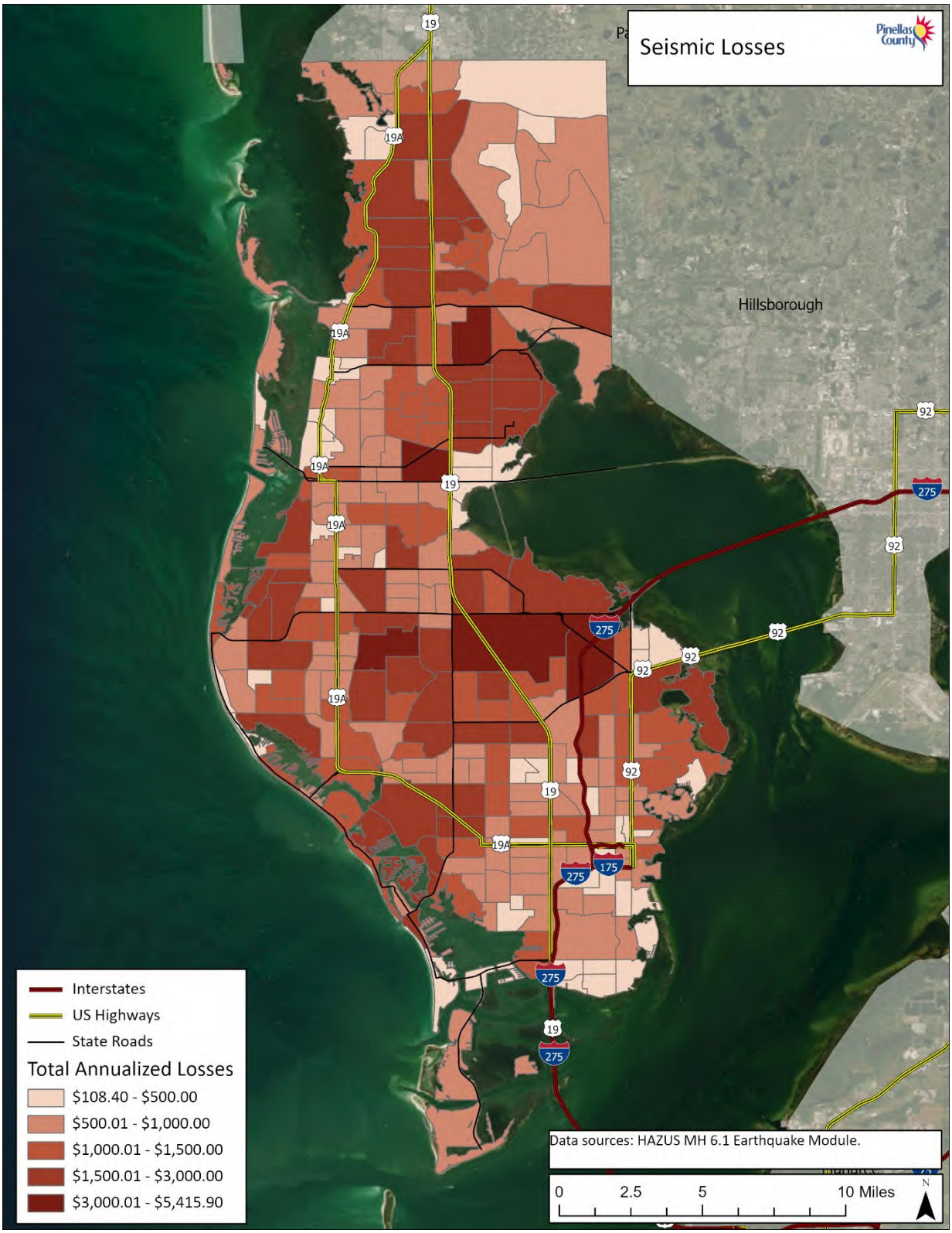
Hazus-MH

Hazus-MH was used to estimate the annualized loss for the county from a probabilistic earthquake scenario as shown below. Since the scenario is annualized, no building counts are provided. Losses reported include losses due to building damage (structural and non-structural), contents, inventory, relocation, capital, wages, and rental income.

Table 4.103: Estimated Annualized Loss for Probabilistic Earthquake Scenario

	Probabilistic Earthquake Scenario
Structural	$82,700
Non-Structural	$84,800
Contents	$12,500
Inventory	$1,020
Relocation	$56,700
Wages	$17,800
Rental Income	$23,200
TOTAL LOSS	**$278,720**

Figure 4.68: Seismic Annualized Losses



7. Vulnerability Analysis and Loss Estimation of Critical Facilities

Similar to the jurisdiction vulnerability and loss estimates, critical facilities have a low vulnerability to seismic events and there are minimal to no losses expected.

8. Overall Vulnerability

Each of the five PRI categories was assigned a value from 1 to 4 and the pre-determined weighting factor was applied to calculate a PRI score. PRI scores can range from 1.0 to 4.0 and the overall vulnerability ranking or high, moderate, or low was assigned based on the PRI scores.

Based on the probability, impact, spatial extent, warning time, and duration, the overall vulnerability of this hazard was determined to be low, with a PRI score of 2.0.

<table>
<tr><th colspan="3">SEISMIC EVENTS</th><th colspan="2" rowspan="2">Overall Vulnerability</th></tr>
<tr><th colspan="3">Overview</th></tr>
<tr><td colspan="3" rowspan="3">A seismic event, or an earthquake, is a sudden, rapid shaking of the earth caused by the breaking and shifting of rock beneath the earth's surface that creates seismic waves. This shaking can cause buildings and bridges to collapse; disrupt gas, electric, and phone service; and sometimes trigger landslides, and tsunamis or indirectly cause flash floods or fires.</td><td colspan="2">LOW</td></tr>
<tr><td colspan="2">PRI Score</td></tr>
<tr><td colspan="2">2.0</td></tr>
<tr><th>Probability</th><th>Impact</th><th>Spatial Extent</th><th>Warning Time</th><th>Duration</th></tr>
<tr><td>Possible</td><td>Minor</td><td>Moderate</td><td>< 6 hrs</td><td>< 6 hrs</td></tr>
</table>

Tsunami Hazard Profile

1. Tsunami Description

Tsunamis are among the most devastating of geologic disasters. Tsunamis are powerful waves created as a consequence of another non-meteorological hazard that is geologic in nature such as earthquakes, underwater landslides, volcanic eruptions, or other displacements of large amounts of water under the sea. As the waves travel towards land, they build up to higher heights as the depth of the ocean decreases and appear as walls of water or turbulent waves that resemble hurricane storm surge. The speed at which a tsunami travels depends on the ocean depth rather than the distance from the source of the wave. Deeper water generates greater speed, and the waves slow down when reaching shallow waters. Where the ocean is deep, tsunamis can travel at speeds up to 500 miles an hour. Tsunamis arrive on land with enormous force and recede with nearly equal force.

A tsunami is not a single wave but rather a series of waves often referred to as a "wave train." There can be as many as 60 miles between peaks of each wave series, and waves can be as far as one hour apart.[138] Tsunamis have a much smaller amplitude (wave height) offshore and a very long wavelength (often hundreds of kilometers long), which is why they generally pass unnoticed at sea, forming only a passing "hump" in the ocean. The number of arrivals and the amplitudes of each wave will vary depending on the coastal properties, the exact travel direction, and other specifics of how the tsunami was generated. They will vary from place to place and event to event. In the largest tsunamis, surge can continue for many hours and more than a day.

Scientists cannot predict when and where the next tsunami will strike, but Tsunami Warning Centers know which earthquakes are likely to generate tsunamis and can issue messages when they think it is possible.

Tsunami Monitoring and Forecasting

There is often no advance warning of an approaching tsunami. However, since earthquakes are often a cause of tsunamis, an earthquake felt near a body of water may be considered an indication that a tsunami could shortly follow. The first part of a tsunami to reach land is a trough rather than a crest of the wave. The water along the shoreline may recede dramatically, exposing areas that are normally submerged. This can serve as an advance warning of the approaching crest of the tsunami although the warning only gives a very short time before the crest, which typically arrives seconds to minutes later.[139]

The U.S. warning system is best equipped to detect earthquake-generated tsunamis. These messages provide alert levels (warning, advisory, watch, information statement) and an evaluation of the threat.

- Warning: Dangerous coastal flooding and powerful currents possible; move to higher ground
- Advisory: Strong currents and waves dangerous to those in/near water possible; stay away from beaches and waterways
- Watch: Dangerous tsunami possible; stay tuned for more information and prepare to act
- Information Statement: No threat or very distant event and threat not determined; relax.

[138] http://news.nationalgeographic.com/news/2007/04/070402-tsunami.html
[139] http://www.tsunami.gov/?page=tsunamiFAQ

Pinellas County Emergency Management would coordinate with the National Weather Service in issuing notices and actions to the public regarding any warnings.

NOAA's Pacific Marine Environmental Laboratory developed Deep-Ocean Assessment and Reporting of Tsunamis (DART) buoys to monitor tsunami systems in real time. These buoys are positioned at strategic locations throughout the ocean globally and play a critical role in tsunami forecasting. NOAA has two Tsunami Warning Centers:[140]

- The National Tsunami Warning Center in Palmer, Alaska, serves the continental United States, Alaska, Puerto Rico, Virgin Islands, and Canada
- The Pacific Tsunami Warning Center in Honolulu, Hawaii, directly serves the Hawaiian Islands and the U.S. Pacific territories and is the primary international forecast center for the warning systems of the Intergovernmental Oceanographic Commission of the United Nations Educational, Scientific, and Cultural Organization in the Pacific and the Caribbean and Adjacent Regions

NOAA's National Centers for Environmental Information (NCEI), formerly the National Geophysical Data Center (NGDC), is building high-resolution digital elevation models (DEMs) for select U.S. coastal regions. These combined bathymetric-topographic DEMs are used to support tsunami forecasting and modeling efforts at the NOAA Center for Tsunami Research, Pacific Marine Environmental Laboratory (PMEL). The DEMs are part of the Short-term Inundation Forecasting for Tsunamis (SIFT) system currently being developed by the PMEL for the NOAA tsunami warning centers and are used in the Method of Splitting Tsunami (MOST) model developed by the PMEL to simulate tsunami generation, propagation, and inundation.

Misnomers

Tsunamis are often referred to as tidal waves; however, oceanographers discourage this name because tides have little to do with these giant waves.[141]

There is another phenomenon often confused with tsunamis called rogue waves. There remains debate as to whether these waves are related to tsunamis. They are included in this section as the mitigation plans address the threat in the same relative manner. Rogue waves are unpredictable, and little is known about their formation, but they may be caused by regularly spaced ocean swells that are magnified by currents or the atmosphere.

Potential Effect of Climate Change

Climate change is not expected to affect the occurrence of tsunamis in Florida.

2. Geographic Areas Affected by Tsunami

Tsunami events occur most often in the Pacific Ocean, but they are a global phenomenon, and all are potentially dangerous though they may not damage every coastline they strike. Analyzing the past 150 years of tsunami records shows that the most frequent and destructive tsunamis to affect the United

[140] http://www.tsunami.gov/?page=tsunamiFAQ
[141] http://oceanservice.noaa.gov/facts/tsunami.html

States have occurred along the coasts of California, Oregon, Washington, Alaska, and Hawaii.[142] Overall, Florida has experienced few destructive tsunami or rogue wave events, but there were several small events.

There are two ways of identifying geographic locations that could be affected by a tsunami event. The first way is to consider the fact that there is scientific evidence that shows that there is the potential for a geological event, such as a massive landslide, to take place with Cumbre Vieja in the Canary Islands. If this event were to occur, a large-scale tsunami could affect the United States' eastern coastline, and it is expected that the eastern coastline of the state of Florida would suffer extensive damage and loss of life.

Earthquakes are frequently the cause for tsunami events, and because there is no way of knowing exactly when and where future earthquake events might take place, it has been concluded that all geographic areas of Florida that border the Atlantic Ocean or Gulf of Mexico, including Pinellas County, are at risk. However, sediment deposits in the Gulf of Mexico and Great Bahama Bank may lead to underwater landslide activity. The following vulnerabilities are organized by threat to the Atlantic Coast or Gulf Coast and Keys and list the potential causes of a tsunami that would put the state at risk:[143]

- Florida's Atlantic Coast
- Puerto Rico Trench
- Cumbre Vieja Volcano in Canary Islands
- Azores-Gibraltar Fracture Zone
- Florida's Gulf Coast and Keys
- Puerto Rico Trench (minor effect as wave wraps around islands)
- Large Meteorite into Gulf of Mexico

A coastal event could impact any waterfront jurisdiction (23 of the 25 have some frontage). The cities of Kenneth City and Pinellas Park are inland and at higher elevations and thus would be less likely to see an impact.

3. Historical Occurrences of Tsunami

There have been four reported tsunami events in the history of Florida. However, all four of these tsunamis occurred on the Atlantic Coast. Below are the causes of these tsunamis.[144]

- 1 was caused by an Atlantic Coast earthquake
- 1 was caused by a non-Atlantic earthquake
- 2 were caused by a Caribbean earthquake

While no known tsunamis have ever affected the Florida Gulf Coast, and Pinellas County, a tsunami in that location is not impossible. Additionally, while tsunamis have historically affected the Caribbean many times, it is unlikely that those tsunamis will also affect Florida.

[142] http://nws.weather.gov/nthmp/documents/GoM-Final01regionalAssessment.pdf
[143] http://www.rsmas.miami.edu/news-events/press-releases/2016/study-models-tsunami-risk-for-florida-and-cuba
[144] http://nws.weather.gov/nthmp/documents/Tsunami_Assessment_Final.pdf

While it was not officially a "tsunami," there was a tsunami-like event on July 7, 1992 when a large "rogue wave" suddenly appeared along the coast in the Daytona area. The wave was reportedly about 10 feet above normal waves and stretched 27 miles long from Ormond Beach to New Smyrna Beach. There was 1 death, over 20 people injured, and damage to about 100 cars parked near the coastline. The best theory is that the wave was caused by winds from a storm front.[145]

4. Probability of Future Occurrences of Tsunami

Based on a historical analysis and the frequency of prior tsunami events from around the world, it can be concluded that the probability of future tsunami events affecting the state of Florida is low.

Since earthquakes cause most tsunamis and Florida is in a seismically stable region, there is a low probability that a tsunami will affect Florida. However, underwater landslides can also trigger tsunamis. Such landslides are unlikely but not impossible.[146]

Based on historical information, this hazard was determined to have a probability level of unlikely (less than 1% annual probability).

5. Tsunami Impact Analysis

All waterfront jurisdictions could receive the following impacts due to tsunami. The cities of Kenneth City and Pinellas Park are inland and at higher elevations and thus would be less likely to see an impact.

- Public
  - There may be injury or death
- Responders
  - Rescue missions may be life threatening if buildings are not structurally stable or if rescuing from waters of unknown depth
- Continuity of Operations (including continued delivery of services)
  - If a structure were severely damaged or flooded, operations would be disrupted
- Property, Facilities, Infrastructure
  - If a major tsunami were to occur in Florida, many structures and critical infrastructure would be severely damaged from the force of the waters and from flooding effects
- Environment
  - The coast could be altered, including intra-coastal areas, beaches, mangroves, etc.
- Economic Condition
  - If a major tsunami were to occur in Florida, there would be many businesses damaged and forced to close, and employee absenteeism would also be a challenge
- Public Confidence in Jurisdiction's Governance
  - If a major tsunami were to occur in Florida and response and recovery efforts were not fast enough, the public may lose confidence in the jurisdiction's governance

[145] https://www.deseretnews.com/article/235629/ROGUE-WAVE-CRASHES-ASHORE-IN-FLORIDA.html
[146] http://dep.state.fl.us/geology/geologictopics/hazards/tsunamis.htm

6. Vulnerability Analysis and Loss Estimation by Jurisdiction

Exposure

Historically, large-scale tsunami events have not been a major threat to the state of Florida; however, that exposure has increased as more people move into areas of close proximity to the coast and more coastal development occurs.

Approximately 33% of the state's total population lives within 20 miles of the coast, and that number is increasing. The majority of the state's residents are not educated on the warning signs or effects of a tsunami and would be put at a higher risk of exposure should a large-scale event occur.

Further analysis could not be conducted because, as explained above, tsunami data for Florida is not available because NOAA has not yet completed the models.

7. Vulnerability Analysis and Loss Estimation on Critical Facilities

As explained above, tsunami data for Florida is not available because NOAA has not yet completed the models. As such, the vulnerability of critical facilities could not be analyzed. However, it is possible that critical facilities located near the coast could potentially be impacted by a tsunami.

8. Overall Vulnerability

Each of the five PRI categories was assigned a value from 1 to 4 and the pre-determined weighting factor was applied to calculate a PRI score. PRI scores can range from 1.0 to 4.0 and the overall vulnerability ranking or high, moderate, or low was assigned based on the PRI scores.

Based on the probability, impact, spatial extent, warning time, and duration, the overall vulnerability of this hazard was determined to be low, with a PRI score of 1.8.

TSUNAMI			Overall Vulnerability	
Overview				
Tsunamis are powerful waves created as a consequence of another non- meteorological, geologic in nature, hazard such as earthquakes, underwater landslides, volcanic eruptions, or other displacements of large amounts of water under the sea. As the waves travel towards land, they build up to higher heights as the depth of the ocean decreases and appear as walls of water or turbulent waves that resemble hurricane storm surge.			LOW	
			PRI Score	
			1.8	
Probability	**Impact**	**Spatial Extent**	**Warning Time**	**Duration**
Unlikely	**Limited**	**Small**	**< 6 hrs**	**< 6 hrs**

Red Tide Hazard Profile

1. Red Tide Description

The term red tide is commonly used to describe certain kinds of harmful algal blooms (HABs), a proliferation of a toxic or nuisance microalgal species. Not all red tides are red, and not all harmful algal blooms discolor the water. HABs can include both toxic and non-toxic species; however, all HABs have one important characteristic in common, they can negatively affect natural resources, local economies, and human health.[147]

Native to the Gulf of Mexico, *Karenia brevis* is a microscopic alga that blooms almost annually off the west coast of Florida and is the organism responsible for Florida red tide. Background concentrations of *K. brevis* are always present in the Gulf of Mexico ecosystem, and a Florida red tide is caused by an increase, or bloom, and higher-than-normal concentration. Nutrient enrichment of coastal waters can make blooms worse and longer lived.[148]

K. brevis does produce toxins, called brevetoxins, that can be mixed with airborne sea spray and have harmful effects on people, fish, marine mammals, and bids. People may experience varying degrees of eye, nose, and throat irritation. When a person leaves an area with a red tide, symptoms usually go away. People with severe or chronic respiratory conditions such as asthma or chronic lung disease are cautioned to avoid areas with active red tides. The blooms can also cause large fish kills, result in bird and marine animal deaths, and discolor water along the coast. Additionally, people who consume shellfish contaminated with toxins can suffer Neurotoxic Shellfish Poisoning (NSP); however, commercial shellfish beds are well monitored and there have been no NSP cases from consumption of regulated shellfish on the Florida coast.[149]

The table below describes the possible effects of *K. brevis* at various concentration levels.[150]

Table 4.104: Possible Effects of *K. brevis*

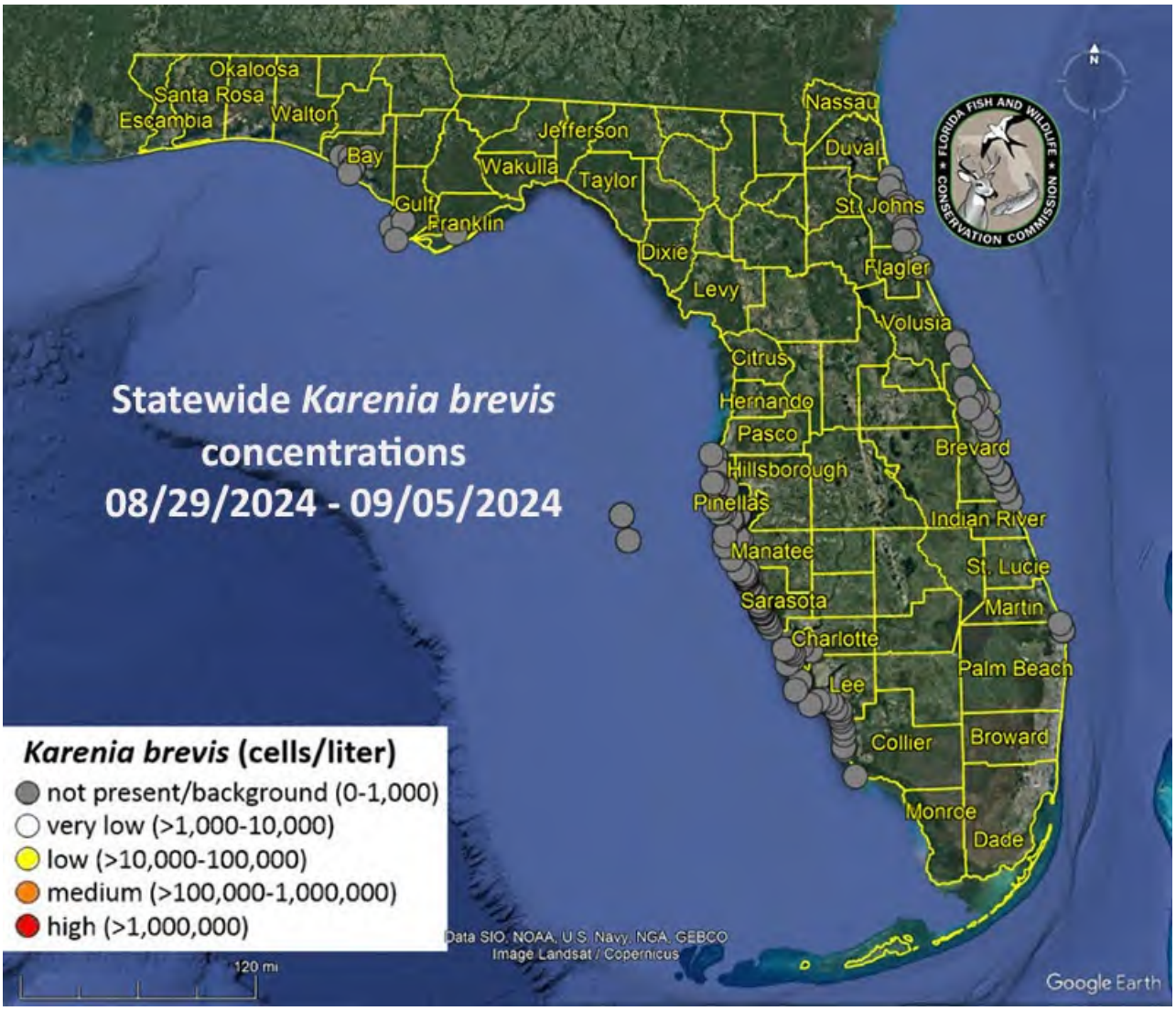
Description	*K. brevis* Abundance (cells/liter)	Possible Effects
NOT PRESENT-BACKGROUND	background levels of 1,000 cells/L or less	No effects anticipated
VERY LOW	> 1,000 - 10,000 cells/L	Possible respiratory irritation; shellfish harvesting closures when cell abundance equals or exceeds 5,000 cells/L
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

[147] https://myfwc.com/media/16370/2013-ecphab-brochure_red-tides-on-the-west-florida-shelf.pdf
[148] https://myfwc.com/media/16370/2013-ecphab-brochure_red-tides-on-the-west-florida-shelf.pdf
[149] http://www.pinellascounty.org/environment/watershed/red-tide.htm
[150] https://myfwc.com/research/redtide/statewide/

Description	*K. brevis* Abundance (cells/liter)	Possible Effects
HIGH	> 1,000,000 cells/L	As above, plus water discoloration

Weekly red tide status updates are available from the Florida Fish and Wildfire Conservation Commission. These updates include current conditions, fish kills, and forecasts.[151] The map below is the status map for the week of August 29, 2024.

Figure 4.69: Statewide Red Tide Status Map, June 28, 2024



[151] https://myfwc.com/research/redtide/statewide/

While blooms are not a new phenomenon in this region, they have resulted in increased economic costs for the west coast of Florida. Coastal regions of Florida have experienced some of the most rapid population growth and development in the United States. Beach cleanups, tourism-related losses, medical expenses, and lost work days during red tide events can average over a million dollars lost annually.[152]

Potential Effect of Climate Change

Scientists predict that climate change will have many effects on freshwater and marine environments. These effects, along with nutrient pollution, might cause HABs to occur more often, in more waterbodies, and to be more intense.[153]

Harmful algae usually bloom during the summer season or when water temperatures are warmer than usual. Warmer water due to climate change might favor harmful algae in a number of ways:

- Warmer temperatures prevent water from mixing, allowing algae to grow thicker and faster.
- Warmer water is easier for small organisms to move through and allows algae to float to the surface faster.
- Algal blooms absorb sunlight, making water even warmer and promoting more blooms.

Other impacts related to climate change including more droughts which make freshwater saltier, higher levels of carbon dioxide in the air and water, changes in rainfall patterns that lead to alternating periods of drought and intense storms that cause more nutrient runoff into waterbodies, sea level rise that creates more shallow and stable costal water, and altered timing and intensity of coastal upwelling that delivers an excess of nutrients to the coast could all be factors that contribute to more blooms.

2. Geographic Areas Affected by Red Tide

Red tides vary greatly in size, expanding as far as 10,000 square miles, and can be present from the surface of the water to the sea floor.[154] Blooms occur most commonly in the area off Clearwater south to Fort Meyers. The map below illustrates the red tide events on the west coast of Florida from 1957 to 2012. Each red dot indicates a year when a bloom was observed.[155] Historically, Red Tide has not been observed much further north than the city of Clearwater, meaning Tarpon Springs is the only beachfront community on the gulf coast with a slightly lower likelihood than the other jurisdictions. Also, the inland communities of Kenneth City and Pinellas Park are not likely to be impacted directly.

[152] https://myfwc.com/media/16370/2013-ecphab-brochure_red-tides-on-the-west-florida-shelf.pdf
[153] https://www.epa.gov/nutrientpollution/climate-change-and-harmful-algal-blooms
[154] https://myfwc.com/research/redtide/faq/
[155] https://myfwc.com/media/16370/2013-ecphab-brochure_red-tides-on-the-west-florida-shelf.pdf

Figure 4.70: Historical Red Tide Events on West Coast of Florida, 1957–2012



3. Historical Occurrences of Red Tide

K. *brevis* blooms are not a new phenomenon on the west Florida shelf, as ships' logs suggest bloom-related events (fish kills) dating back to the 1500s.[156] Blooms have occurred in all months of the year but are most common in the late summer and fall. The following table highlights historical red tide events that occurred in Florida over the past several years.

Table 4.105: Florida Historical Occurrences, Red Tide[157]

Date	Description
Winter 2001–Spring 2002	A large and lengthy dark water event began offshore of Charlotte Harbor in late 2001 and spread south to the Florida Keys by March 2002. During this time period, the area covered by dark water ranged from more than 1,200 square miles to almost 3,700 square miles. Nontoxic mat-forming diatoms were most abundant in the dark water, but a waning toxic red tide from the West Florida Shelf was also present. The co-occurring blooms combined with water containing colored dissolved organic matter from rivers to cause the dark color. Clockwise water circulation retained the dark water in early 2002, likely contributing to its size and duration.

[156] https://myfwc.com/media/16369/2013-ecohab-newsletter_red-tides-of-the-west-florida-shelf_science-and-management.pdf
[157] https://myfwc.com/media/18871/bloom-historic-database.pdf

Date	Description
March–April 2004	A dolphin mortality event was initially reported from St. Joseph Bay in northwest Florida on March 11 and 12, 2004. A limited number of dead fish and horseshoe crabs were also reported. By the end of April, dolphin mortalities totaled 107. Dolphin tissues contained elevated brevetoxin levels and trace amounts of domoic acid (significance of low levels of domoic acid in bottlenose dolphins is unknown).
2005	The 2005 bloom of *Karenia brevis*, the Florida red tide organism, was extensive and persistent, spanning more than 500 square miles and lasting nearly 13 months. This bloom killed fish, manatees, dolphins, and sea turtles. Shellfish harvesting areas were closed for more than a year because brevetoxins, the neurotoxins produced by *K. brevis*, had accumulated in clams and oysters. Additionally, separation of the water column into distinct layers trapped *K. brevis* in the bottom water layers between New Port Richey south to Sarasota, leading to deaths of bottom-dwelling animals. The bloom was first detected approximately 20 miles west of St. Petersburg in January 2005. During the next two weeks, the bloom moved rapidly inshore. *K. brevis* concentrations remained high in the nearshore region between St. Petersburg and Lee County's Sanibel Island through late March. By June 2005, the main patch of *K. brevis* spread from the Tampa Bay area and adjacent coastal waters northwest to the Florida-Alabama border. The bloom eventually ended in February 2006. As with most *K. brevis* blooms, fish kills were common; however, the extent and duration of this bloom resulted in severe effects on fish populations. Commercial fishing boats reported severe declines in catches. When FWRI researchers compared fish abundance during this period to that of the previous 10 years, they found population declines of juvenile spotted seatrout, sand seatrout, and red drum. Researchers also noted changes in the sand seatrout spawning aggregations in the Tampa Bay area. Unique to the 2005–2006 bloom was the widespread deaths of bottom-dwelling animals caused by oxygen depletion in bottom waters from New Port Richey south to Sarasota approximately 3 to 23 miles offshore. Researchers estimated the bloom affected bottom communities within a 2,162-square-mile area. During the first week of August 2005, diving and fishing charter businesses reported mass die-offs of fish and other reef animals. Reports also mentioned a smell similar to rotten eggs and divers' silver jewelry and coins turning black, conditions that indicate low oxygen concentrations. Researchers confirmed low dissolved oxygen in the affected areas. Organisms affected included fish (ranging from baitfish to goliath grouper), sponges, corals, worms, molluscs, crabs, sea urchins, starfish, and sea turtles. Bottom visibility was also considerably reduced. Several factors contributed to the widespread animal die-offs. First, the 2005–2006 bloom extended across a large area and persisted for a long period. Such blooms have greater effects than localized and short blooms. It was suggested that the 2004 hurricane season triggered pulses of groundwater release in offshore springs that provided substantial nutrients to the 2005 red tide bloom. Then, in summer 2005, the sun heated up coastal surface waters leading to a layering of warmer, less dense water over a

Date	Description
2005, *cont.*	cooler, denser layer near the bottom. This layering trapped red tide cells in the cooler bottom layer, where bottom-dwelling animals were present. Through time, bacterial decomposition of dead animals and *K. brevis* cells decreased oxygen concentrations to the point that low oxygen (hypoxia) and no oxygen (anoxia) near the bottom caused mass die-offs. The considerable temperature difference between the two water layers further prevented dissolved oxygen in surface layers from reaching the bottom, worsening the oxygen depletion. Fish killed on the surface by the red tide toxin may have also sunk to the bottom during decay, further reducing oxygen.
January 2006	The FWC's Fish and Wildlife Research Institute (FWRI) Fish Kill Hotline received reports of dead and dying aquatic animals, mainly fish, in the Garnier Bayou Area of Choctawhatchee Bay in the Florida Panhandle. Mortalities included gulf sturgeon, bay anchovies, skipjack shad, hickory shad, longnose gar, juvenile spot, lion's mane jellyfish, and blue crabs. Although no *Karenia brevis* cells were observed and only background levels of neurotoxic brevetoxins were present in water samples, dying fish from the affected areas behaved as if they had been exposed to brevetoxins and high concentrations of brevetoxins were found in the internal organs or multiple samples of fish which indicated toxin exposure. Based on the results of further testing, brevetoxin is considered the primary cause of the fish kills. These findings also indicate that a reservoir of brevetoxin from a previous bloom along the Florida Panhandle may have been present in Choctawhatchee Bay. This event exemplifies how effects from red tide can continue long after (weeks to months) a bloom has ended.
September 2007–January 2008	In September of 2007 through January 2008, a *Karenia brevis* bloom occurred on the northeast coast of Florida, but it was not the first time red tide had occurred in the Jacksonville area. In 1980, a *K. brevis* bloom moved inshore at Jacksonville via a warm water meander and was transported south along the coastline via inshore currents. Respiratory irritation and fish kills were reported. The last time a red tide occurred in the Jacksonville area was 1999. East Coast red tides usually persist for a month or less. The Gulf Stream System, which included the Loop and Florida Currents and the Gulf Stream, plays a major role in the distribution of red tide. Prevailing winds and currents can move blooms from offshore to inshore. When blooms are held inshore by winds and currents impacts to beach goers and coastal communities are more acute.
Winter 2011–Spring 2012	A dark water event began as phytoplankton bloom in the Gulf of Mexico north of Charlotte Harbor in Fall 2011. The dark water expanded and moved south, extending from the coast to the waters north of the Florida Keys by January 2012 and dissipating by April. The size of the dark water event covered, on average, about 500 square miles. The patches of dark water off southwest Florida contained relatively low concentrations of colored dissolved organic matter but high phytoplankton biomass, with varying concentrations of *Karenia brevis* (Florida red tide organism) and nontoxic mat-forming diatoms, which are microscopic phytoplankton with cell walls made of silica.

Date	Description
2017–2018	An unusually persistent harmful algal bloom (red tide) affected portions of the coasts of Florida between 2017 and 2018, dissipating in the winter of 2018/2019. It persisted on the southwest coast beginning in October 2017 and spread to the Panhandle and the east coast of Florida. This red tide resulted in serious impacts to fish, marine mammals, marine birds, residents, and coastal businesses. Many beaches had dead fish, odor, and poor air quality.[158] The 2017–2018 red tide had severe economic impacts on businesses in Pinellas County. Economic costs are associated with four main sectors: recreation and tourism, commercial fisheries, public health, and monitoring and management costs. As of September 2018, 738 tons of red tide debris, such as dead marine life, had been collected in the county and 40 businesses had reported more than $128 million in losses.[159]
2020-2021	An algae bloom started off the coast of southern Florida in December 2020 and worked its way up to St. Petersburg by April 2021. Experts at the time claimed it was the worst bloom seen in 50 years, noting its unusual summer timing, wide dispersion area, and high concentrations of *Karenia brevis*. The red tide killed thousands of fish and other marine life off Florida's Gulf Coast. By July 2021, Pinellas County had collected more than 2.5 million pounds of red tide-related debris. [160]
2022-2023	Within a month after Hurricane Ian made landfall in late 2022, medium levels of red tide were documented along the Gulf Coast outside of Sarasota. The bloom spread from Collier County to Pinellas County, causing thousands of pounds of dead fish to wash ashore and threatening manatee populations in Sarasota and Charlotte counties. By March 2023, workers in Pinellas County had removed over two tons of ocean debris (mostly dead fish) from Pinellas County beaches.[161] The bloom lasted until late spring 2023. While Hurricane Ian did not directly cause the bloom because red tide is typical for that time of year, it likely pushed the red tide inland.

The table below provides a record of the red tides that have occurred off Florida's West Coast from 1878 to 2019 according to the Florida Fish and Wildfire Conservation Commission.

[158] https://oceanservice.noaa.gov/news/redtide-florida/
[159] https://www.wtsp.com/article/news/red-tide/economic-impacts-of-red-tide-on-businesses-in-pinellas-county-worse-than-expected/67-598909555
[160] https://www.abcactionnews.com/news/in-depth/red-tide-is-nothing-new-to-tampa-bay-so-why-is-this-years-bloom-so-bad
[161] https://nypost.com/2023/03/12/florida-red-tide-kills-fish-sickens-residents-and-cancels-events/

Table 4.106: Red Tides off Florida West Coast, 1878–2023[162]

Red Tide (MEDIUM levels or greater; >100,000 cells/L)
Suspected continuance of red tide not confirmed by water sample

Year	Month											
	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
1878												
1879	Reports of fish kills; no duration											
1880												
1882												
1883	Reports of fish kills; no duration											
1884	Reports of fish kills; no duration											
1885												
1908	Reports of fish kills; no duration											
1916												
1935	Reports of fish kills; no duration											
1946												
1947												
1948	Reports of fish kills; no duration											
1952												
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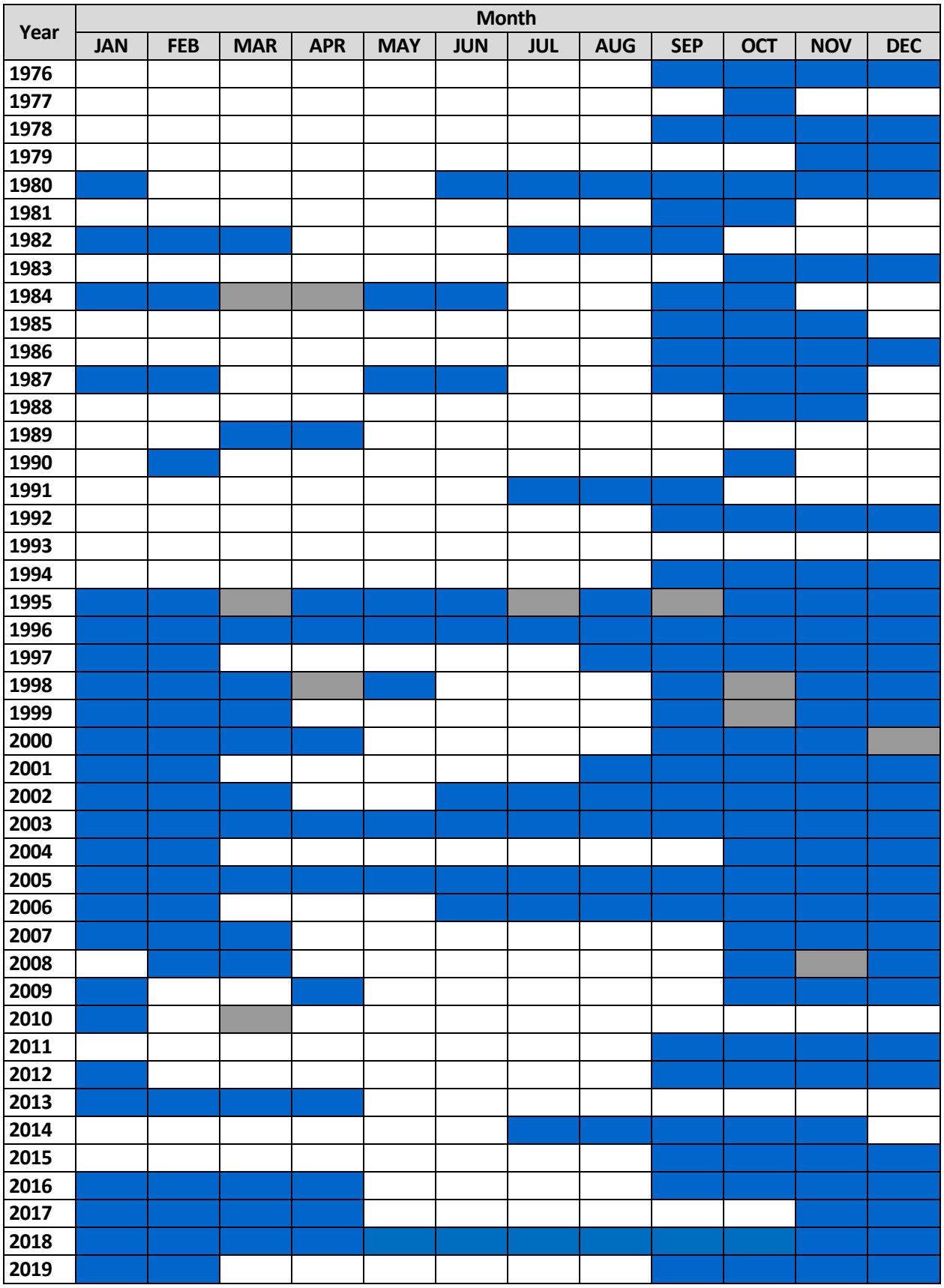
[162] https://myfwc.com/media/dr0fc1sm/bloom-historic-database.pdf


Year
Month
JAN
FEB
MAR
APR
MAY
JUN
JUL
AUG
SEP
OCT
NOV
DEC
1976
1977
1978
1979
1980
1981
1982
1983
1984
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2019

Year	Month											
	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
2020												
2021												
2022												
2023												

4. Probability of Future Occurrences of Red Tide

Florida red tides are not uncommon and occur almost annually in the Gulf of Mexico.

Based on historical information, this hazard was determined to have a probability level of likely (between 10 and 100% annual probability) for the jurisdictions along the coast and Tampa Bay. The inland jurisdictions of Kenneth City and Pinellas Park have no probability of red tide but could potentially have residents impacted by air quality or indirect economic losses.

5. Red Tide Impact Analysis

The jurisdictions along the coast and Tampa Bay could receive the following impacts due to red tide. The inland jurisdictions of Kenneth City and Pinellas Park could potentially have residents impacted by air quality or indirect economic losses.

- Public
  - Human health impacts from exposure to brevetoxins
    - Eye, nose, throat, and respiratory irritation (coughing, sneezing, and tearing)
    - Asthma attacks or chronic pulmonary symptoms
    - Skin and eye irritation, including itching, burning, and rashes, from contact with water or sea foam
    - Nausea, vomiting, diarrhea, abdominal pain, and, in rare cases, acute liver failure from coming in contact with algae or swallowing water
    - Neurotoxin Shellfish Poisoning (NSP) if brevetoxin-laden shellfish (oysters, clams) are consumed – results in rapid onset of gastrointestinal symptoms and/or neurological symptoms but no fatalities have been attributed to NSP to date
- Responders
  - Human health impacts from exposure to brevetoxins
    - Eye, nose, throat, and respiratory irritation (coughing, sneezing, and tearing)
    - Asthma attacks or chronic pulmonary symptoms
    - Skin and eye irritation, including itching, burning, and rashes, from contact with water or sea foam
    - Nausea, vomiting, diarrhea, abdominal pain, and, in rare cases, acute liver failure from coming in contact with algae or swallowing water
- Continuity of Operations (including continued delivery of services)
  - Unlikely to cause interruptions to operations

- Property, Facilities, Infrastructure
  - Unlikely to impact property, facilities, and infrastructure
- Environment
  - Inhalation, direct contact, or ingestion of brevetoxins in high concentration can harm and kill fish, birds, turtles, and marine mammals
  - Toxic ocean waters
  - Depletion of oxygen in the ocean, can cause a dead zone
- Economic Condition
  - Negative impacts to recreation and tourism industries and local businesses
  - Sale losses for commercial fisheries and aquaculture industry
  - Health costs attributed to medical expenses
  - Lost work days associated with respiratory illness
  - Clean-up costs associated with disposal of dead fish and marine life
- Public Confidence in Jurisdiction's Governance
  - Lost confidence in ability to keep beaches open and safe as well as clean-up, monitoring, and management efforts
  - Tourists may reconsider visiting Florida

6. Vulnerability Analysis and Loss Estimation by Jurisdiction

Exposure

Since red tide is a hazard that does not have geographically definable boundaries, it was excluded from spatial analysis through GIS. Furthermore, red tide does not result in damage to the built environment and does not have the potential to affect any buildings in Pinellas County.

Although red tide does not cause damage to the built environment, it does have the potential to affect people, fish, marine mammals, and birds. Red tide can result in varying levels of eye and respiratory irritation for people, which may be more severe for those with preexisting respiratory conditions (such as asthma). The blooms can also cause large fish kills and discolored water along the coast.

Florida's tourism-related businesses are also particularly affected by red tide blooms as dead marine animals wash ashore and public health advisories are posted for beach activities and shellfish consumption during a bloom. The damage to the food chain and the respiratory pollution caused by the smell of large amounts of decomposing marine life discourages tourism and is harmful to the fishing industry. Shellfish borne illness, respiratory problems, and the decline in hotel stays and holiday rentals have significant cumulative direct and indirect impacts on the Florida economy.

7. Vulnerability Analysis and Loss Estimation on Critical Facilities

Because red tide does not result in damage to the built environment, it does not have the potential to affect any of the county critical facilities.

8. Overall Vulnerability

Each of the five PRI categories was assigned a value from 1 to 4 and the pre-determined weighting factor was applied to calculate a PRI score. PRI scores can range from 1.0 to 4.0 and the overall vulnerability ranking or high, moderate, or low was assigned based on the PRI scores.

Based on the probability, impact, spatial extent, warning time, and duration, the overall vulnerability of this hazard was determined to be moderate, with a PRI score of 2.4.

<table>
<tr><th colspan="3">RED TIDE</th><th colspan="2" rowspan="2">Overall Vulnerability</th></tr>
<tr><th colspan="3">Overview</th></tr>
<tr><td colspan="3" rowspan="3">The term red tide is commonly used to describe certain kinds of harmful algal blooms (HABs), a proliferation of a toxic or nuisance microalgal species. Not all algal blooms are red, and not all harmful algal blooms discolor the water. HABs can include both toxic and non-toxic species; however, all HABs have one important characteristic in common, they can negatively affect natural resources, local economies, and human health.</td><td colspan="2">MODERATE</td></tr>
<tr><td colspan="2">PRI Score</td></tr>
<tr><td colspan="2">2.4</td></tr>
<tr><th>Probability</th><th>Impact</th><th>Spatial Extent</th><th>Warning Time</th><th>Duration</th></tr>
<tr><td>Likely</td><td>Limited</td><td>Small</td><td>> 24 hrs</td><td>> 1 week</td></tr>
</table>

Transportation Incident Hazard Profile

1. Transportation Incident Description

Transportation systems are designed to move people, goods, and services efficiently, economically, and safely from one point to another. As the movement of people, goods, and services increases due to population growth and technological innovation, the need to plan for events becomes increasingly important. As one of the critical infrastructure sectors, the Department of Homeland Security (DHS) categorizes the transportation sector into the following seven modes:

- Aviation
- Maritime
- Highways and motor carriers
- Freight rail
- Pipeline
- Mass transit and passenger rail
- Intermodal[163]

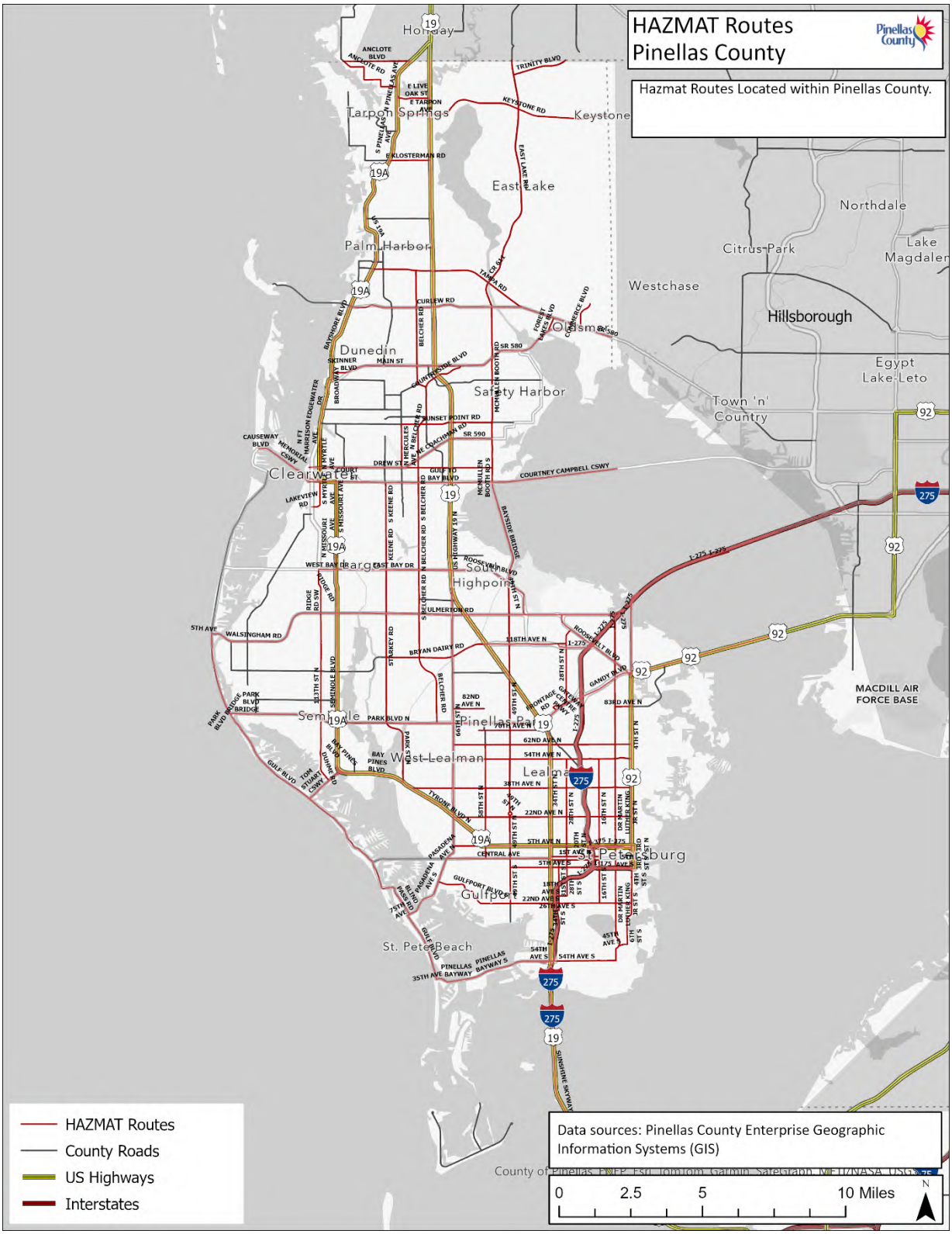
Pinellas County has a large transportation network that consists of airports, major highways, railroads, marine ports, and pipelines. These transportation systems provide lifeline services for communities and are vitally important for response and recovery operations. The vast network of public and private critical infrastructure owners and operators, the infrastructure and services they manage, and the extensive interdependencies among the transportation modes and other sectors indicate the need for coordinated planning to manage all hazards efficiently and effectively.

[163] https://www.tsa.gov/sites/default/files/tsa_biennial_nsts_20230418_signed_508c.pdf

Figure 4.71: Pinellas County Corridor Map



Figure 4.72: Pinellas County HAZMAT Route Map



The identification of critical transportation infrastructure requires consideration of federal, state, regional, and local jurisdictions, including their interests and hazard risk. At the national level, critical infrastructure contributes to national security, economic stability, and public health and safety. At the regional, state, and local levels, the necessity of infrastructure is primarily determined by the business, lifestyle, and emergency needs of the community.

Risks to critical transportation infrastructure include natural disasters as well as man-made physical and cyber threats. Man-made threats include terrorism, vandalism, theft, technological failures, and accidents. Cyber threats to the sector are an area of concern because of the growing reliance on cyber-based control, navigation, tracking, positioning, and communications systems as well as the ease with which actors can exploit cyber systems serving transportation. While engineered hazards such as road curve geometry can be addressed through design, hazards such as terrorist attacks and extreme weather can be difficult to predict and mitigate.

Terrorism

Terrorist attacks, whether physical or cyber, can significantly disrupt vital transportation services and cause long-term sociological and economic consequences. The risk of a terrorist attack on transportation infrastructure is typically assessed using attack scenarios to evaluate the threats, vulnerabilities, and consequences. Transport vehicles are abundant, moving virtually unnoticed within industrial locations and major population centers, across borders, and in the case of mail and express package services, to nearly every household, business, and government office in the country. As seen on September 11, 2001, modes of transportation, such as airplanes, can be used as the weapons themselves. The very nature of the transportation enterprise is to be open, efficient, and accessible, which can make it a target for terrorist attacks. For more on terrorism please see the *Terrorism Hazard Profile*.

Natural Disasters and Extreme Weather

Global transportation infrastructure today is confronted with significant vulnerabilities, including the evolving threats of our changing climate. Natural disaster risks to Pinellas County transportation systems include wildfires, flooding, severe storms, tropical cyclones, and drought, all of which have the potential for widespread disruption of transportation services. Risks from natural disasters vary by location depending on prevailing weather patterns, geological trends, topographical features, and population density.

Heavy rainfall events can disrupt transportation services and damage infrastructure and facilities. During or following periods of heavy rainfall, inundation and washouts can block transportation routes, damage facilities, and interrupt power supplies. Tropical cyclones can damage critical infrastructure such as roads and bridges, causing delays in critical response, services, and the ability to move throughout the state. Tornados have similar effects while also creating dangerous situations with people on the roads.

Fog

Fog is a cloud form at the surface of the earth made of small water droplets suspended in the air. The greatest problem with fog is visibility. Heavy fog is generally defined as visibility below one quarter of a mile. A Dense Fog Advisory means that dense fog has reduced visibility to one-quarter of a mile or less within the advisory area. These conditions make travel difficult.

A Freezing Fog Advisory is issued when fog develops and surface temperatures are at or below freezing. The miniscule liquid droplets in the fog can freeze instantly to any surface, including vehicles and road surfaces. Freezing fog makes driving, boating, flying, and other forms of transportation particularly hazardous. Visibilities are typically at or below one mile. [164]

Fog, particularly when dense, can be hazardous to drivers, mariners, and aviators, contributing to numerous travel accidents every year. Restrictions in visibility resulting from fog can also impact takeoff and landing procedures and requirements for pilots and can be the cause of weather-related aviation delays.

Aging Infrastructure

The condition of Florida's transportation infrastructure is also a concern because of the advanced age and deterioration of many structures throughout the state's transportation network. Aging infrastructure threatens the resilience of these systems and can multiply risks from other factors such as man-made or natural disasters. The impact of losing of a key asset, such as a bridge, poses an immediate threat and can have cascading impacts to passenger and freight movement as well as potentially large-scale impacts such as supply chain disruption.[165]

About half of America's onshore natural gas transmission pipelines were installed before 1970; pipelines can carry hazardous liquids such as gasoline, diesel, and jet fuel.[166] Pipelines are just a fraction of the nation's vast network of transportation infrastructure — the roads, cables, wires, conduits, drains, satellites, and switches that enable the flow of everything from sewage to gas. The pipelines within Florida are owned by numerous private companies and have differing levels of condition, making the system vulnerable to accidents and failure. Meanwhile, the government-owned infrastructure — roads, bridges, rail, and mass transit — is under severe financial strain because maintenance costs have increased.

Cyber

Cyber-based technologies in transportation operations enable greater economies and efficiencies, improve customer service, enhance operational controls, and provide better security capabilities. Consequently, transportation companies are increasingly dependent on cyber systems for business, security, and operational functions. Cyber technologies used by transportation services include positioning, navigation, tracking, shipment routing, industrial system controls, access controls, signaling, communications, and data and business management. These technologies are often interconnected through networks and remote access terminals, which may allow malicious actors easier access to key areas. For more information, please see the *Cyber Incident Hazard Profile*.

Types of Transportation

The Florida Department of Transportation (FDOT) is the lead agency in committing to a safe transportation system that ensures the mobility of people and goods, enhances economic prosperity,

[164] https://www.weather.gov/safety/fog-ww#:~:text=A%20Dense%20Fog%20Advisory%20is,are%20at%20or%20below%20freezing.
[165] https://www.cisa.gov/sites/default/files/publications/nipp-ssp-transportation-systems-2015-508.pdf
[166] https://www.phmsa.dot.gov/data-and-statistics/pipeline-replacement/pipeline-replacement-background

and preserves the quality of the environment and communities. FDOT has implemented the Strategic Intermodal System (SIS), the state's highest priority for transportation investments. SIS also has a focus for implementing the Florida Transportation Plan (FTP) which is the state's long-term transportation vision and policy. SIS is a transportation system that:

- is made up of facilities and services of statewide and interregional significance;
- contains all forms of transportation for moving both people and goods, including linkages that provide for smooth and efficient transfers between modes and major facilities; and
- integrates individual facilities, services, modes of transportation, and linkages into a single, integrated transportation network.[167]

The system was established to efficiently serve the mobility needs of Florida citizens, businesses, and visitors and to help Florida become a worldwide economic leader, enrich quality of life, and reflect responsible environmental stewardship.

The SIS represents a statewide network of high-priority transportation facilities, including Florida's largest and most significant airports, spaceports, deepwater seaports, freight rail terminals, passenger rail and intercity bus terminals, rail corridors, waterways, highways, military access facilities, intermodal logistics centers, and fixed guideway transit corridors. These facilities represent the state's primary means for moving people and freight between Florida's diverse regions as well as between Florida and other states and countries.[168]

Locally, Forward Pinellas serves to provide transportation plans that provide viable mobility options and sustainable development patterns. The transportation system internal to Pinellas County is part of a larger regional multimodal transportation system serving the Tampa Bay area. Regional connections in Pinellas serve a vital role for business, tourism, and the mobility of the county's residents and goods. The regional connections in Pinellas are critical for all modes of travel. To aid its goals, Pinellas County joined the Sun Coast Transportation Planning Alliance (SCTPA), which comes together to plan, prioritize, and fund transportation improvements that will shape the future.[169]

Aviation

Florida is home to leading manufacturers of all types of aircraft and aircraft components, and has one of the most comprehensive and progressive airport systems in the country. Florida's aviation sector drives a large portion of the state's economy. In 2022, aviation and related industries contributed $336 Billion to Florida's economic output. Off-airport air cargo is the largest portion of this revenue. The second largest is tourism, and over one-third of all visitors to the state arrive by air.

Pinellas County has one commercial airport, St. Petersburg-Clearwater International Airport, and two general aviation airports, Albert Whitted Municipal Airport and Clearwater Airpark. In 2022, St. Petersburg-Clearwater International Airport employed a total of 20,774 people and had an annual

[167] http://www.fdot.gov/info/moredot/mvv.shtm
[168] https://fdotwww.blob.core.windows.net/sitefinity/docs/default-source/planning/systems/programs/mspi/pdf/sis-facility-designation-finn.pdf?sfvrsn=2fc5ce3f_1#:~:text=The%20SIS%20represents%20a%20statewide,highways%2C%20military%20access%20facilities%2C%20intermodal
[169] http://forwardpinellas.org/the-way-you-move/regional-transportation/

economic impact was estimated to be $3.4 Billion. [170]

Air transportation hazards can include crashes and issues with the airplanes themselves but can also include potential hazards at the airport or within the surrounding areas. Causes and contributors to airplane accidents could include faulty parts and defects, operational or pilot error, system malfunctions, and outside forces such as extreme weather. Airports and the surrounding areas could also potentially cause additional hazards. One such hazard is bird strikes, and while unlikely to cause a crash, birds can cause flight delays and emergency landings.[171] Terrorist attacks could be targeted at major airports or involve the use of airplanes as a weapon.

Airplane crashes could lead to cascading hazards as a crash could lead to wildfires, flooding from dam or levee damage, roadway blockage and damage, and utility damage from downed power lines. Air transportation hazards could also lead to damage or destruction of goods and freight and loss of life.

Florida is also a premier aerospace and space flight location and is a top state for aerospace manufacturing. Pinellas County aerospace companies excel in areas from aircraft parts and assembly to intelligence, surveillance, and reconnaissance. Florida also offers tremendous space launch assets. Florida has three spaceports and conducted 72 spaceport launches in 2023 alone.[172]

Highway and Motor Carrier

This mode of transportation includes highways, roadways, bridges, trucks, commercial freight vehicles, motor coaches, and school buses. Florida has almost 124,000 public road miles; 12,913 highway bridges; and almost 50 public transit systems. In May 2024, there were 24 million total registered vehicles in the state.[173] Pinellas County has about 4,500 miles of roadway and more than 400 bridges. It is also the most densely populated county in Florida.[174] Consequently, today's roadways are dangerously overcrowded, turning the focus to identifying serious roadway hazards.

Accidents are the highest risk on roadways, and according to the Florida Department of Transportation, there were 397,620 crashes with 3,553 fatalities in 2022.[175] Accidents involving freight could lead to losses of revenue for businesses, disruption of wages for drivers, and delays for the consumers waiting on the cargo being transported. Hazardous materials are routinely transported along Pinellas County's road system and can affect the environment and surrounding population in the event of a spill. For more information regarding the transportation of hazardous materials, please see the *Hazardous Materials Incident Hazard Profile*. Pinellas's 142 bridges within the County can malfunction or be degraded to the point of structural instability, causing not only roadway hazards but waterway hazards as well.

Good, efficient roads make commuting feasible; however, aging roads can lead to hazards and accidents. Recent studies have shown that over 40% of public roadways are in poor or mediocre condition. Most of the backlog for the roadway system needs is in repairing existing roads, while the

[170] https://www.fdot.gov/aviation/economicimpact22.shtm
[171] https://wsvn.com/news/local/broward/bird-strike-forces-southwest-flight-to-make-emergency-landing-at-fll-no-injuries-on-board/
[172] http://www.fdot.gov/planning/fastfacts.pdf
[173] http://www.fdot.gov/planning/fastfacts.pdf
[174] http://www.pinellascounty.org/facts.htm
[175] http://www.fdot.gov/planning/fastfacts.pdf

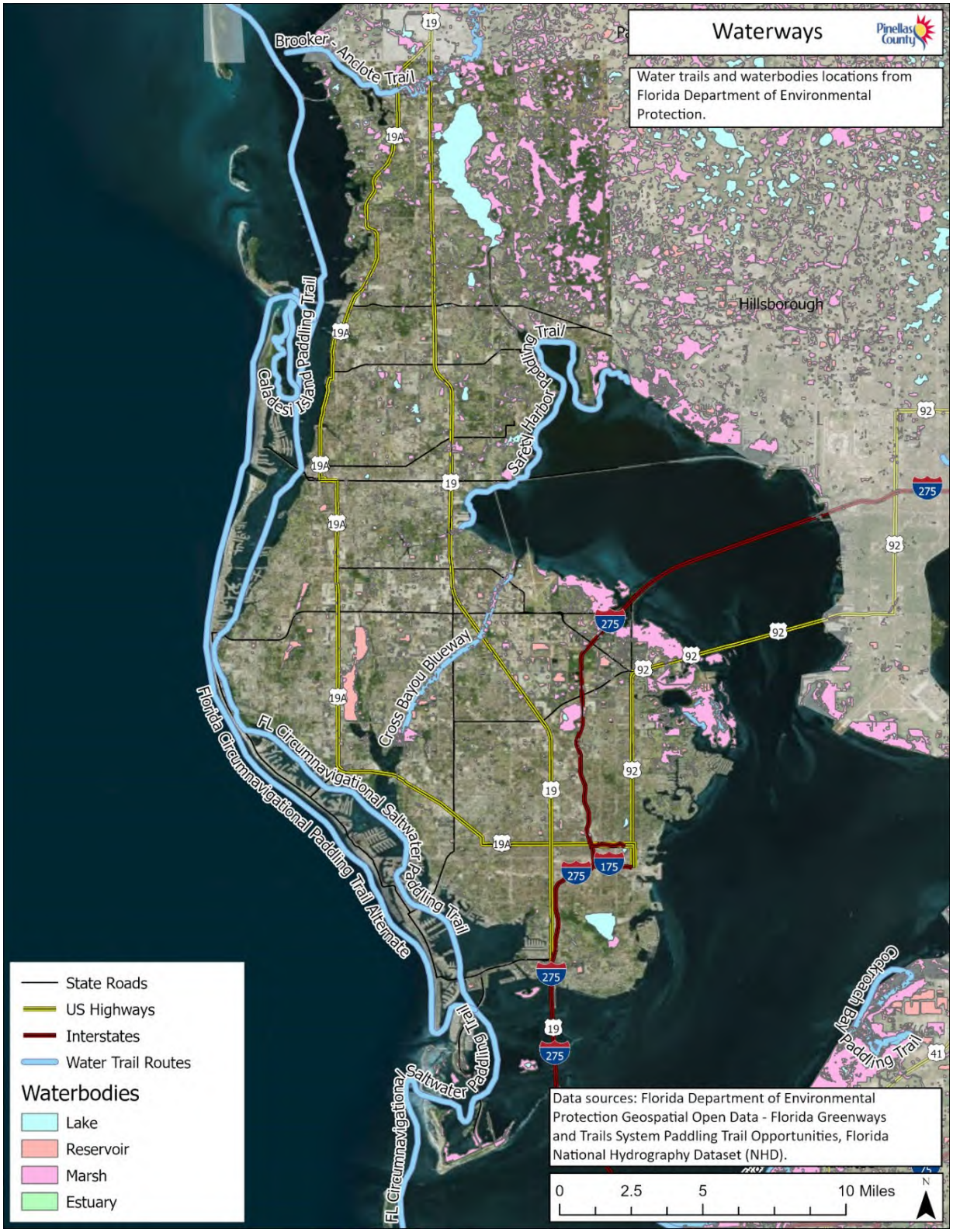
second highest category is bridge repair.[176]

Maritime

Florida has a total water area of 12,113 square miles and has a unique position of having multiple large rivers while being located on a peninsula. The state has 1,350 statute miles of coastline and 2,276 statute miles of tidal shorelines. This includes 663 miles of beaches. [177]Pinellas County is a peninsula with nearly 588 miles of coastline. There are 35 miles of sandy beaches on 11 barrier islands. [178]There is also one seaport, the Port of St. Petersburg. The map below shows Pinellas County's waterways.

[176] https://infrastructurereportcard.org/cat-item/roads-infrastructure/
[177] https://dos.fl.gov/florida-facts/quick-facts/
[178] https://pinellas.gov/about-pinellas-facts/#:~:text=Pinellas%20County%20is%2038%20miles,first%20incorporated%20city%20in%201887.

Figure 4.73: Pinellas County Waterways



The Florida Department of Transportation and the Maritime Administration (MARAD), along with Customs and Border Patrol (CBP), monitor the maritime transportation system in Florida, including waterborne transportation, landside infrastructure, the shipbuilding and repair industry, and labor. They integrate the economy with a vast network of systems that moves large quantities of consumer goods, people, agricultural products, energy, and raw materials. [179]

Florida Fish and Wildlife Conservation Commission (FWC) oversees and coordinates statewide regulatory waterway markers to ensure compliance with the uniform marking system and to improve compliance of state boating and resource protection zones for the long-term well-being and benefit of all waterway users and the fish and wildlife resources. FWC regulates licenses and permits related to boating and fishing and manages waterways within the state.[180]

Mass Transit and Passenger Rail

Mass transit and passenger rail includes terminals, operational systems, and supporting infrastructure for passenger services by transit buses, trolleybuses, monorail, heavy rail—also known as subways or metros—light rail, passenger rail, and vanpool or rideshare.[181] Florida has a complex public transportation network with over 150 million public transit riders in 2022.[182] Public transportation in Florida is a crucial part of the solution to the state's economic, energy, and environmental challenges – helping to bring a better quality of life and economic prosperity. In increasing numbers, people are using public transportation, and local communities are expanding public transit services. The Florida Public Transportation Association (FPTA) is one of the most active state transit associations in the nation. FPTA is a nonprofit association whose members include every major public transit agency in Florida as well as interested citizens and businesses.[183]

Florida's rail system has 2,738 mainline miles. There are 16 operating freight railroads, as well as 81 miles owned by the State of Florida. Roughly 60 percent of all rail mileage in the state is owned by CSX Transportation and Florida East Coast Railway. [184]

Railroad hazards could include train collisions, derailments, accidents involving cars or pedestrians, rail worker accidents, and hazardous materials spills. Natural hazards also cause issues for railways including freezing tracks and malfunction with train car operations such as brakes. Dense fog could cause visual obstructions, animals on the tracks could lead to derailments, and all accidents can lead to the damage or destruction of freight, property, and loss of life. These accidents could also be caused by equipment failure, operator error, signal failure, and track damage or failure.[185]

Florida also has an extensive bus system with almost 60,000 registered buses throughout the state.[186] Public transportation provides access to job opportunities for Floridian's as well as a transportation

[179] https://www.cbp.gov/
[180] http://myfwc.com/
[181] https://www.cisa.gov/topics/critical-infrastructure-security-and-resilience/critical-infrastructure-sectors/transportation-systems-sector
[182] http://www.fdot.gov/planning/fastfacts.pdf
[183] https://floridatransit.org/about-us
[184] https://fdotwww.blob.core.windows.net/sitefinity/docs/default-source/rail/plans/rail/rail-system-plan-2023/rsp-october-version/fdot_rsp_ch-1_ada-(nov).pdf?sfvrsn=606135b_4
[185] http://www.fdot.gov/rail/PlanDevel/Documents/FinalInvestmentElement/G-Chapter2-FreightRail.pdf
[186] https://www.statista.com/statistics/196342/total-number-of-registered-buses-in-the-united-states-by-state/

option to get to work, school, visit friends, or go to a doctor's office. Public transportation saves America about 4.2 billion gallons of gasoline each year. According to FPTA, Florida currently ranks third among all states in total gasoline consumption. The 4.2 billion gallons of gasoline saved by the transit industry represents Florida's entire gasoline consumption for about seven months.

The Pinellas Suncoast Transit Authority (PSTA) is the county public transit provider with 206 Transit vehicles on 46 routes, including 2 express routes to Hillsborough County. Total ridership in fiscal year 2019 was 10.4 million annually; 33,158 on the average weekday.[187]

Pipeline Systems

Energy pipelines are a fundamentally safe and efficient means of transporting materials key to the U.S. energy supply but, given that they often carry toxic, volatile, or flammable material, energy pipelines have the potential to cause injury and environmental damage.[188] There are a total of 29,860 miles of pipeline within Florida:

- 4,843 miles of Gas Transmission,
- 25,017 miles of Gas Distribution, and
- 471 miles of Hazardous Liquid.[189]

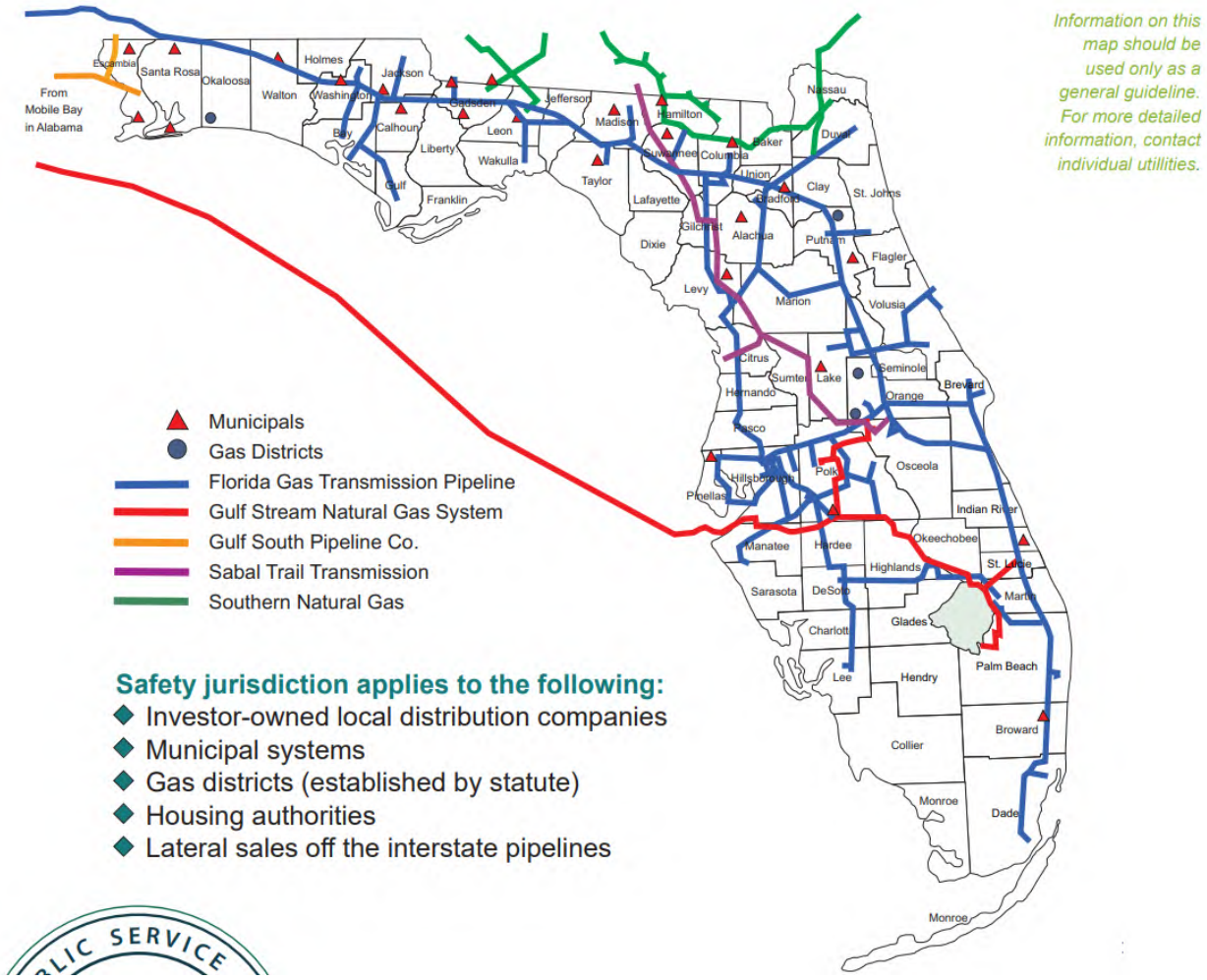
Clearwater Gas and TECO Peoples Gas are the only two providers for Pinellas County.

Increased urbanization is resulting in more people living and working closer to existing transmission pipelines. Growth in population, urbanization, and land development near transmission pipelines, together with the addition of new facilities to meet demands, may increase the likelihood of pipeline damage due to human activity and the exposure of people and property to pipeline failures. Compounding the potential risk is the age and gradual deterioration of the transmission pipeline system due to natural causes.[190]

Causes and contributors to pipeline failures include construction errors, material defects, internal and external corrosion, pressure buildups, operational errors, control system malfunctions, and outside force damage. Natural hazards such as sinkholes or land subsidence, earthquake or seismic activity, and flooding can all put pressure on existing pipelines resulting in bursts, spills, or leaks of natural gas, oil, and hazardous substances. For more information on pipelines, also see the *Hazardous Materials Incident Hazard Profile*. The map below shows the major pipelines and the companies that own them.

[187] https://www.psta.net/about-psta/history-and-facts/
[188] https://sgp.fas.org/crs/misc/R44201.pdf
[189] https://www.ncsl.org/energy/state-gas-pipelines
[190] https://www.phmsa.dot.gov/data-and-statistics/pipeline-replacement/pipeline-replacement-background

Figure 4.74: Florida Natural Gas Pipelines[191]



Freight Rail

Recognizing the increasing demand for rail services and the importance of rail in the state's overall mobility, Florida has been one of the nationwide leaders in promoting public-private partnerships and supporting the rail system. There are 3,858 track-miles in Florida (2,738 mainline miles). Roughly 60 percent of the rail mileage in the state is owned by CSX Transportation and Florida East Coast Railway. The remaining miles in the state are owned by Norfolk Southern Railway, the short line railroads, and the state of Florida.[192]

[191] https://www.floridapsc.com/pscfiles/website-files/PDF/publications/consumer/brochure/NaturalGasBrochure.pdf

[192] https://fdotwww.blob.core.windows.net/sitefinity/docs/default-source/rail/plans/rail/rail-system-plan-2023/rsp-october-version/fdot_rsp_ch-1_ada-(nov).pdf?sfvrsn=606135b_4

There are 16 freight railroads operating in Florida. Freight rail companies are the shippers that depend on rail to transport their goods in the global marketplace, to stock their shelves with the latest products for Florida residents and visitors, and to haul construction materials to keep pace with the rapid population growth. In 2018, In 2018, Florida's freight railroads carried 80.1 million tons (13% of total freight) of freight that originated in or terminated in the State of Florida; these shipments had a total cargo value of $115.97 billion (equating to $1,449/ton) and were transported in 1.78 million units.[193] The map below shows Florida's rail system.

Figure 4.75: Florida Rail System



Source: FDOT, 2023

[193] https://fdotwww.blob.core.windows.net/sitefinity/docs/default-source/rail/plans/rail/rail-system-plan-2023/rsp-october-version/fdot_rsp_ch-1_ada-(nov).pdf?sfvrsn=606135b_4

CSX Transportation (CSXT) is the only operator of a railroad system in Pinellas County, which is only freight. There is one set of tracks with 97 crossings, of which 63 have gates. The Federal Railroad Administration reports that there were four railroad incidents on CSXT facilities in the last 20 years. Two were minor accidents at railroad crossings and two were a track defect causing a minor derailment. The last incident occurred at the Tampa Port. There were no injuries or fatalities in any cases.

Phosphates and Fertilizers

Florida is home to one of the richest phosphate deposits in the world. Mineral deposits in West Central Florida make the state a world leader in the production of phosphate rock. With the exception of Hamilton County in northern Florida, the state's phosphates production is concentrated in Polk, Hillsborough, and Hardee counties. The phosphates and fertilizers produced in Florida are shipped nationwide and to markets throughout the world; Florida supplies nearly of a quarter of the global demand for phosphorus, often referred to as the "white gold" that helps crops grow.[194] Pinellas County has not produced elemental phosphorous since 1981, according to the most recent report.[195]

Climate Change and Transportation Infrastructure

A changing climate can modify the types and quantity of food we eat, where we live, the types of available jobs, and how people and goods move. The transportation infrastructure has potential vulnerabilities to rising sea levels, rising temperatures, more intense storms, and extreme drought. The table summarizes climate change factors and the effects they could have on transportation infrastructure.[196]

Table 4.107: Transportation Infrastructure Climate Change Impacts

Climate Change Factor	Transportation Effect
Increased storm frequency and severity • Higher drought probability • More extreme precipitation	• Maintenance costs will rise • Costs for erosion and flood control prevention will rise
Change in ocean temperature • Loss of ocean protection from storm surge and damage • Coral reef damage and losses	• Coastal infrastructure will be more vulnerable to extreme and severe weather events • Reduction in commercial fishing
Rising temperatures • More days with temperatures above 95 degrees • Increased risk of wildfire	• Transportation infrastructure degrading • Increased maintenance costs • Increased energy costs for transportation facilities
Rising sea levels and storm surges • Reduced amount of protective barrier islands and coastal wetlands • Loss of coastal land	• Coastal infrastructure degrading • Impacts to supply chains • Rail and road infrastructure damage

[194] https://www.wlrn.org/environment/2023-06-30/florida-phosphate-industry-fertilizer-history
[195] https://citeseerx.ist.psu.edu/document?repid=rep1&type=pdf&doi=3f6a0acfefc506aef1ccaa6c48820ffb37dbf3c8
[196] https://www.google.com/url?sa=t&rct=j&q=&esrc=s&source=web&cd=&ved=2ahUKEwi-p63SvM-HAxXIRjABHXpaKW8QFnoECBoQAQ&url=https%3A%2F%2Frosap.ntl.bts.gov%2Fview%2Fdot%2F12115%2Fdot_12115_DS1.pdf%3F&usg=AOvVaw2ku-iEGfyVjCLYEeXLKZV2&opi=89978449

2. Geographic Areas Affected by Transportation Incidents

Transportation incidents can occur anywhere within the County. Areas of high traffic are particularly vulnerable to transportation hazards. Large urban areas with large populations and different forms of transportation are considered high traffic areas, meaning the risk is elevated. Due to the large number of railways, roadways, airports, pipelines, and seaports, the entire County is at risk for transportation hazards. Areas surrounding the airports and ports are even more susceptible. These hazards also involve the transportation of hazardous materials, which carry their own risks and can be found in the *Hazardous Materials Incident Hazard Profile*. Five major roadway corridors service the County from the north, east, and south. Marine delivery routes border the county on the east, south, and west. One main railroad corridor services the county. Thus, the county is vulnerable to a transportation accident.

Aviation

The crash of a large passenger aircraft into a densely populated area in either St. Petersburg or Pinellas Park represents the maximum threat in the southern portion of the County. In the north, the same situation exists if a large aircraft would crash in Safety Harbor, or striking the Countryside High School, during a school day. In either case, the crash would threaten 50 to 100 homes and 200-400 people. The crash of a large aircraft into Countryside High School would place over 2,700 staff and students at risk. In this situation, it is expected that fatalities and injuries would be extremely high.

Railroad/Waterway Incidents

An incident such as the MV Summit Venture in 1980 in which a bulk carrier struck the Skyway Bridge represents a serious threat impacting the transportation infrastructure (highway and port) and economy as well as injuries and loss of life. A derailment of a rail car carrying hazardous materials could also pose a significant threat to local neighborhoods and major transportation facilities.

Hazardous Materials (Fixed Facilities)

The largest threat is from Brenntag Mid-South, a facility that stores approximately 1.25 million pounds of chlorine (maximum) on site. The chlorine is repackaged at the facility into containers of various sizes, contributing to the possibility for a leak or other release to occur. The facility is located in the center of the County. A release of the worst case would be the failure of one of the largest containers, on a day with high humidity, with little to no wind, and during tourist season. This would be a 180,000-pound (one rail car) release at 1.0 miles per hour wind speed, atmospheric stability class D that would generate a vulnerability zone of at least a 10-mile radius from the site. The potential number of citizens affected by this incident could be well over 500,000 persons, depending on time of day and year.

Hazardous Materials (Transportation)

Rail deliveries of chlorine to Clearwater pose the largest threat. The threat would exactly duplicate the Hazardous Materials (fixed facility) scenario above, except that the location would be unknown. This incident could occur at any point along the rail delivery corridor throughout the northern half of the county.

3. Historical Occurrences of Transportation Incident

Due to the vast number of transportation routes, transportation incidents are fairly common. The following are significant historical waterway accidents in the waterways in/near Pinellas County:

- January 28, 1980: USCGC *Blackthorn*, a 180-foot seagoing buoy tender, and the tanker SS *Capricorn* collided near the Sunshine Skyway Bridge. The *Blackthorn* capsized and sank, killing 23 of her crew.
- May 9, 1980: The freighter MV *Summit Venture* collided with a support column of the Sunshine Skyway in a thunderstorm, causing a section of the bridge to collapse. Six cars, a truck, and a passenger bus fell into the water, killing 35 people.
- August 10, 1993: Two fuel barges and a phosphate freighter collided near the entrance to Tampa Bay, causing a spill of about 330,000 gallons of heavy fuel oil and 32,000 gallons of jet fuel, diesel, and gasoline.

4. Probability of Future Transportation Incident

There is no sure way to predict future transportation incidents since most typically occur without warning. The probability of a major transportation event in Pinellas County is perceived to be high. The Florida Department of Transportation (FDOT) is part of an ongoing assessment of the state's vulnerability and coordinates efforts to prepare for, prevent, mitigate, respond to, and recover from transportation events that affect the state. In coordination with other transportation agencies such as the FAA, PHMSA, USCG, and CBP, FDOT ensures the safe travel and transportation of people and goods throughout the state.

This hazard was determined to have a probability level of possible (1 to 10% annual probability).

5. Transportation Incident Impact Analysis

- Public
  - Mass casualties
  - Injury or death
  - Delays
- Responders
  - Danger in reaching victims/survivors
  - Injury or death during rescue efforts
- Continuity of Operations (including continued delivery of services)
  - Normal transportation operations may not return to return to normal for a significant time due to repairs
  - Goods cannot be delivered or accepted
- Property, Facilities, Infrastructure
  - Potential damage to infrastructure and public transportation programs
  - Shutting down affected highways, railways, airports, etc.
- Environment
  - Hazardous material spills

- Pipeline burst/leak

- Economic Condition
  - Costs for repairs and down time
  - Could cause loss in revenue or wages
    - Loss in shipping revenues
    - Loss of tourism
- Public Confidence in Jurisdiction's Governance
  - Citizens may lose trust in particular public transportation services
  - Tourists may reconsider visiting Pinellas County

6. Vulnerability Analysis and Loss Estimation by Jurisdiction

Due to the nature and unpredictability of technological hazards, all property and infrastructure in the County is at risk to these events. Due to the significant tourism in the County, all municipalities are at risk. Pinellas is at a higher risk with large transportation hubs, especially within the metropolitan area of Tampa such as the airports, port, and cruise terminal.

7. Vulnerability Analysis and Loss Estimation of Critical Facilities

Due to the nature and unpredictability of technological hazards, all property and infrastructure in the County are at risk to these events. Large transportation hubs such as airports or ports are at a higher risk.

The County recognizes that critical facilities are vulnerable to transportation incidents. There is a lack of data to quantify the vulnerability of facilities to these hazards compared to natural hazards.

8. Overall Vulnerability

Each of the five PRI categories was assigned a value from 1 to 4 and the pre-determined weighting factor was applied to calculate a PRI score. PRI scores can range from 1.0 to 4.0 and the overall vulnerability ranking or high, moderate, or low was assigned based on the PRI scores.

Based on the probability, impact, spatial extent, warning time, and duration, the overall vulnerability of this hazard was determined to be high, with a PRI score of 2.8.

TRANSPORTATION INCIDENTS	Overall Vulnerability
Overview	
Transportation systems are designed to move people, goods, and services efficiently, economically, and safely from one point to another. As the movement of people, goods, and services increases due to population growth and technological innovation, the need to plan for events becomes increasingly important. Pinellas County has a large transportation network that consists of airports, major highways, passenger railroads, marine ports, and pipelines. These transportation systems provide lifeline services for communities and are important for response and recovery operations. The vast network of public and private critical infrastructure owners and operators, the infrastructure and services they manage, and the extensive interdependencies among the transportation modes and other sectors indicate the need for coordinated planning to manage all hazards efficiently and effectively.	**HIGH** **PRI Score** **2.8**

Probability	Impact	Spatial Extent	Warning Time	Duration
Possible	**Critical**	**Moderate**	**< 6 hrs**	**< 1 week**

Cyber Incident Hazard Profile

1. Cyber Incident Description

Cyber incidents are becoming more common and more costly in our society. Because of this, cyber incidents will be profiled as a hazard to the state of Florida. The word cyber refers to anything that contains, is connected to, or is controlled by computers and computer networks. A computer is a machine that can take instructions and perform computations based on those instructions. Cyber-technology refers to the computers and computer networks and the information and services we rely upon. For example, critical infrastructure relies on such computers and the Internet. Critical infrastructure includes sectors such as communications, energy, financial services, health care, transportation, and water and wastewater systems among others. A cyber incident, then, refers to an incident involving computers, networks, and information or services that affect daily operations of critical infrastructure.

Cyber incidents differs from traditional hazards such as a flood, which makes them difficult to plan for, respond to, recover from, and mitigate against. For example, there is often a lack of physical presence or evidence of a cyber incident, making it difficult to understand the scope of the incident. Furthermore, the scope will likely cross municipal jurisdictions because of the nature of cyber-technology. In 2022, communities most reported cyberattacks as top three events most stressing to their capabilities.[197]

There are many causes of a data breach or a cyber incident. A cyber incident could be a malicious attack, or it could stem from a system glitch or human error. In 2023, the average cost of a data breach to an organization in the United States was $9.48 million.[198] With so much at stake, it is important to be prepared for a cyber incident. Key aspects of cyber preparedness include understanding the types of cyber incidents likely to occur; engaging service owners and operators; identifying critical services and related dependencies; prioritizing and planning for service and system disruptions; clearly identifying roles and responsibilities; and providing integrated communication and public messaging.[199]

Cyberattacks

Some cyber incidents are cyberattacks, meaning they have a malicious intent. A cyberattack attempts to gain unauthorized access to system services, resources or information, or an attempt to compromise system integrity. [200]The most significant risk for exposure to attack stems from human error. Any computer system that is accessible from the Internet is a potential target. Additionally, cyber warfare and cyber espionage, carried out by other nation states, are possible.

Malware

Cyberattacks are conducted using different types of malware. Malware is *mal*icious soft*ware* that can infect a computer or network and cause harm. Malware can destroy all data, damage networks, or steal

[197] FEMA. (2023). National Preparedness Report. Page 3.
[198] https://www.morganlewis.com/blogs/sourcingatmorganlewis/2024/03/study-finds-average-cost-of-data-breaches-continued-to-rise-in-2023
[199] FEMA. (2023). Planning Considerations for Cyber Incidents. Page 28.
[200] FEMA. (2023). Planning Considerations for Cyber Incidents. Page 49.

information. Malware must be introduced to a computer or network using methods such as removable media, phishing, and drive by downloads. This can be completed using tools such as a virus, worm, trojan, or adware.

Methods

Attackers use several methods to complete their goals. The following will be discussed here: social engineering, botnets, denial-of-service (DoS) attacks, zero-day exploits, web-based attacks, malicious insider attacks, and unintentional actions or errors.

Social engineering is a very common method to conduct attacks that involves manipulating legitimate users and convincing them to perform actions or give confidential information using email, phone, in-person encounters, dumpster diving, or insider threats. People are often the weakest link in the cybersecurity chain, and social engineering takes advantage of that. There are several types of social engineering, but phishing is one of the most common. Phishing is when an attacker sends an email that appears to originate from a legitimate source, such as a bank, to trick people into clicking a link that will then download malicious software (malware) or reveal login credentials. Similarly, spear phishing is when an attacker sends a phishing email to a specific organization or person with personalized messages that deceive the receiver into trusting the message. Whaling is when attackers attempt to spear phish a high priority target, such as a CEO.

Botnets are another method to conduct an attack. A "bot" is malware that allows attackers to take control of the computer. A "botnet," then, is a ro*bot net*work of infected computers used to conduct malicious activities. A botnet is created when one bot infects several computers and then networks them together. Botnets can be used for denial-of-service attacks, malware distribution, and covert intelligence gathering. Owners of computers that are part of a botnet often have no idea their computer has been compromised. A botnet can include thousands or millions of bots and may remain quietly operational for years. This method is successful because it distributes the activities to several computers, making it more difficult to track and block.

Denial-of-service (DoS) attacks are simply what they sound like: the attackers attempt to prevent legitimate users from accessing information or services of a computer system or network by overwhelming the system with more traffic than it can handle. When you type an address into your web browser, you are sending a request to that site's computer server to view the page. The server can only process a certain number of requests at one time, so when it is overloaded, the website does not work. A distributed DoS (DDoS) attack occurs when attackers use multiple computers and multiple Internet connections to conduct the attack. This greatly increases the magnitude of false requests that can be sent, meaning a larger DDoS attack. Attackers sometimes use botnets, as discussed above, to carry out DDoS attacks. These types of attacks can be used against a wide variety of targets from retail websites to nation states.

A zero-day exploit is an attack that takes advantage of a security risk on the same day that the risk becomes known to the public. Because there is no known solution to the risk yet, attackers are able to conduct attacks without being stopped. These exploits can be purchased from those who find these security risks and choose not to report to them to the company but rather sell the information to would-be attackers. Attacks such as these have been used to target programs like Microsoft Word, PowerPoint, Excel, Adobe, and Flash Player.

Web-based attacks involve websites redirecting the browser to a malicious website where malicious

software downloads to the computer. These attacks are known as drive by downloads and involve malicious code downloading in the background of a computer just from visiting a certain site without clicking on anything. These attacks require no action from the target and they often have no idea their computer has been infected.

Another method is to use a malicious insider to conduct an attack. A malicious insider is a person with special advantage, influence, or proprietary knowledge who uses it for malicious intent. These could be current or former employees or even contractors or vendors. Malicious insiders risk the theft of confidential information and the sabotage of systems.

As stated earlier, humans are the weakest link in cybersecurity. Unintentional actions or errors can provide an opportunity for attackers to steal information and gain unauthorized access. For example, unintentional acts or failures directly compromise the security of a computer network or a resource dependent on the network. This includes not properly installing, configuring, or maintaining hardware and software.

Vulnerabilities

Critical infrastructure often relies upon cybertechnology and the Internet, making critical infrastructure vulnerable to cyber incidents. Additionally, many critical infrastructure systems are interconnected, so even if a particular critical sector is not reliant upon cybertechnology, it may be reliant upon a critical sector that is reliant upon cybertechnology. These possible cascading impacts are very important to consider when planning for hazard mitigation. This can be complicated though as not all critical infrastructure sectors are controlled by the government, some include privately owned companies, like a private energy company, financial institution, or hospital. Sometimes the priorities of privately owned organizations differ from those of the government. For example, while the government is concerned with protecting all critical infrastructure from cyberattacks, these privately owned organizations may be more concerned with profits or public reputation. Furthermore, the interconnectivity of sectors expands the scope from one geographical area to large regional areas that likely cross political jurisdictions, making planning more complicated.

Another vulnerability is that the Internet was designed with efficiency and access concerns, not specifically with security considerations. Now that cybertechnology and Internet capabilities have expanded, vulnerabilities are appearing. For example, many critical infrastructure systems are controlled remotely using systems called Supervisory Control and Data Acquisition (SCADA) Systems (DCS). These systems are used to manipulate functions and services of systems remotely, so people do not have to deploy to sites in the field where equipment is located but can instead alter systems. This is a concern because these systems can be hacked and controlled by enemies.

2. Geographic Areas Affected by Cyber Incidents

Because cyber incidents occur in “cyberspace,” there are not always geographic areas affected by cyber incidents. However, cyber incidents may cause physical disruptions in critical infrastructure, which could affect a jurisdiction or a power grid. It is important to note that power grids are vast, sometimes crossing state lines, meaning that a cyber incident at one facility at one location could cause disruptions at other locations hundreds of miles away.

3. Historical Occurrences of Cyber Incidents

A record of historical occurrences of cyber incidences in Pinellas County is not available at this time.

4. Probability of Future Cyber Incidents

The probability of cyber incidents occurring is increasing every day. Hospitals are highly likely, but so are local jurisdictions and federal and state agencies.

In 2023, there were 2,365 cyberattacks with 343,338,964 victims; 2023 also saw a 72% increase in data breaches since 2021, which held the previous record. [201]By 2031, it is predicted that new ransomware attacks (on a consumer or business) will occur every two seconds.[202]

This hazard was determined to have a probability level of possible (1 to 10% annual probability).

5. Cyber Incident Impact Analysis

- Public
  - Release of sensitive information including bank accounts and social security numbers
  - Financial loss
    - Possible loss of wages if organization is forced to close
- Responders
  - Long hours outside of regular work hours to stop and/or remediate attack
  - First responders may not be able to respond properly if a cyberattack targets emergency or public safety systems
- Property, Infrastructure, Facilities
  - Incident could lead to damage of equipment for infrastructure
  - Organization may lose revenue and may have significant costs for remediation, legal fees, and public relations
  - Organization may lose customer confidence or may sustain damage to their reputation or to their market share
- Continuity of Operations (including continued delivery of services)
  - Incident could force operations offline for an indefinite amount of time and/or make information inaccessible or distribute false information
  - Interrupt public safety or other critical services
  - Loss of productivity
  - Loss of critical systems or data
  - May disable emergency or public safety systems
- Environment
  - Incident could cause a release of some hazardous material, which could damage the environment

[201] https://cybersecurityventures.com/global-ransomware-damage-costs-predicted-to-reach-250-billion-usd-by-2031/
[202] https://www.forbes.com/advisor/education/it-and-tech/cybersecurity-statistics/

- Economic Condition
  - Incidents cost millions of dollars to consumers and organizations in the form of lost wages, lost revenue, and recovery and remediation costs
- Public Confidence in Jurisdiction's Governance
  - Lost confidence in ability to keep services operational and safe
  - Private organization – loss of public or consumer confidence in an organization leading to loss of market share and possibly loss of future sales

6. Vulnerability Analysis and Loss Estimation by Jurisdiction

Without having access to each jurisdiction's Cyber Incident Plan and the ability to analyze that plan, it is impossible to determine the vulnerability of a jurisdiction. However, it is reasonable to assume that the County and municipalities will continue to be vulnerable to cyber incidents. Any jurisdiction that utilizes computers and the Internet for major utilities, transportation routes, or data storage is vulnerable to a cyber incident.

Cyberattacks are very costly. A single data breach, for example, costs $4.45 million on average. [203]

The top seven cyber-attacked industries in 2023 were manufacturing; finance and insurance; professional, business, and consumer services; energy; retail and wholesale; healthcare, and government.[204]

7. Vulnerability Analysis and Loss Estimation of Critical Facilities

It is reasonable to assume that most jurisdictions will continue to be vulnerable to cyber incidents. Any department that utilizes computers and the Internet is vulnerable to a cyber incident.

8. Overall Vulnerability

Each of the five PRI categories was assigned a value from 1 to 4 and the pre-determined weighting factor was applied to calculate a PRI score. PRI scores can range from 1.0 to 4.0 and the overall vulnerability ranking or high, moderate, or low was assigned based on the PRI scores.

Based on the probability, impact, spatial extent, warning time, and duration, the overall vulnerability of this hazard was determined to be medium, with a PRI score of 2.5.

[203] https://www.forbes.com/advisor/education/it-and-tech/cybersecurity-statistics/
[204] https://www.statista.com/statistics/1315805/cyber-attacks-top-industries-worldwide/

CYBER INCIDENT			Overall Vulnerability	
Overview				
Cyber incidents are described as involving computers, networks, information, or services that affect daily operations of critical infrastructure. These hazards lack a physical presence as well as physical evidence, making them unlike traditional hazards and, therefore, difficult to plan for, respond to, and recover from.			MEDIUM	
			PRI Score	
			2.5	
Probability	**Impact**	**Spatial Extent**	**Warning Time**	**Duration**
Possible	**Limited**	**Moderate**	**< 6 hrs**	**< 1 week**

Hazardous Materials Incident Hazard Profile

1. Hazardous Materials Incident Description

A hazardous material is any substance that poses a threat to humans, animals, or the environment. The term hazardous materials, commonly referred to as HazMat, generally comprises hazardous substances, petroleum, natural gas, synthetic gas, and acutely toxic chemicals. Hazardous materials are defined and regulated in the United States primarily by laws and regulations administered by the EPA, OSHA, DOT, and the Nuclear Regulatory Commission (NRC).

The Occupational Safety and Health Administration (OSHA) further explains that HazMat is any substance or chemical that is a health hazard or physical hazard, [205]including:

- chemicals that are carcinogens, toxic agents, reproductive toxins, irritants, corrosives, neurotoxins, or sensitizers;
- agents that act on the hematopoietic system;
- agents that damage the lungs, skin, eyes, or mucus membranes;
- chemicals that are combustible, explosive, flammable, oxidizers, reactive, unstable, or water-reactive; and
- compressed gases.[206]

Hazardous materials typically fall into one of three categories: biological hazards, chemical hazards, or radiological hazards. All hazardous materials have both short-term and long-term effects based on the timing of detection and the response time to mitigate the effects of the hazard.

Biological Hazards

Biological hazards are materials or incidents that involve exposure to a biological or living agent that causes harm. These agents include microorganisms, viruses, and any toxins originating from biological sources. Examples of biological hazards include anthrax, bloodborne pathogens, molds, Ebola, smallpox, and any medical waste that comes into contact with such microorganisms or viruses. Biological hazards are extremely contagious and pose a threat to any populations that are exposed. For more information on biological hazards, please refer to the *Biological Incident Hazard Profile*.

Chemical Hazards

Chemical hazards are hazards or incidents that involve exposure to chemicals that cause harm. Chemical HazMats include neurotoxins, immune agents, dermatologic agents, carcinogens, and other toxins. Chemical hazards can be introduced to populations through ingestion, inhalation, or physical contact. Chemicals enter the body through the eyes, skin, lungs, and digestive tract. Once in the body, the effect depends on the dosage and toxicity. The type of chemical, how it entered the body, and the susceptibility of the individual all affect the outcome of exposure. Once exposed to chemical substances, there can

[205] https://www.osha.gov/chemical-hazards
[206] https://www.epa.gov/epcra/definition-hazardous-chemical-and-oshas-msds-requirement-determining-applicability-epcra

be acute (immediate) or chronic (long-term) health issues for the community. The effects of chemical hazards on an exposed population are not limited to the development of lesions and burns on skin and respiratory issues.

Radiological Hazards

Radiological hazards are hazards or incidents that involve exposure to materials that have encountered radioactive substances, thus making them contaminated. Exposure to radiological materials have both short-term and long-term effects; some short-term effects include radiation burns and radiation sickness, while long-term effects include radiation poisoning and radiation damage. For more information on radiological hazards, please look at the *Radiological Incident Hazard Profile*.

With the passage of the Federal Emergency Planning and Community Right-To-Know Act (EPCRA) in 1986, FDEM began implementation of a statewide Hazardous Materials Emergency Planning Program. For the first time, passage of the EPCRA allowed emergency planners, responders, and the public access to facility- specific information regarding the identification, location, and quantity of particular hazardous materials at fixed sites.

The law requires facilities with certain threshold quantities of federally mandated substances to report annually to state and local emergency officials. In addition, facilities must immediately notify officials of any releases of harmful chemicals that have the potential to result in offsite consequences. This information is utilized to prepare emergency plans for HazMat incidents, allow responders to receive training based on specific known threats, and inform and educate the public regarding the chemicals present in their communities. The term extremely hazardous substance (EHS) is used in Title III of the Superfund Amendments and Reauthorization Act of 1986 to refer to those chemicals that could cause serious health effects following short-term exposure from accidental releases. Florida has more than 4,500 fixed facility locations that report the presence of an EHS in federally mandated threshold amounts.

The State Emergency Response Commission (SERC) is responsible for implementing the Federal Emergency Planning and Community Right-To-Know Act (EPCRA) provisions in Florida. The SERC, along with the Local Emergency Planning Committees (LEPCs), works to mitigate the effects of a release or spill of hazardous materials by collecting data on the storage of hazardous chemicals above planning quantities. The Technological Hazards Unit at the Florida Division of Emergency Management provides programmatic support for the SERC.[207]

Hazardous Waste

Hazardous waste is unwanted or discarded hazardous materials that may harm the health or wellbeing of people or the environment. As hazardous materials are produced, stored, and used, hazardous waste is created and must be disposed of. A hazardous waste site can be any place, whether a landfill or former industrial facility, where chemicals have made contact with the water, soil, or air. Ensuring that hazardous wastes (HW) are handled in accordance with federal and state rules and laws is the responsibility of the Compliance and Enforcement staff at DEP. This group interacts with the public and with the Resource Conservation and Recovery Act (RCRA) branch of the Federal EPA to develop policies and guidance, to provide compliance assistance to the public and the regulated community, and to

[207] https://www.floridadisaster.org/dem/response/technological-hazards/serc/

enforce the laws regulating the handling of hazardous waste.

Due to the unregulated process of dumping hazardous materials and waste, Congress signed the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) in 1980. This became known as the "Superfund" Act and gave the Environmental Protection Agency (EPA) authority to clean up hazardous waste sites and spills. The Superfund Program, through the EPA, is responsible for cleaning some of the most contaminated areas in the United States and responds to emergencies involving the environment such as oil spills, hazardous material spills, and hazardous waste sites. To assist with this task the National Priorities List (NPL) was created to track the known releases or threatened releases of hazardous substances, pollutants, or contaminants. The NPL has four distinct categories:

- *Proposed* – The site has been contaminated by hazardous waste and is a candidate for cleanup. The site is not on the list yet.
- *Final* – These sites are currently on the list and pose a real or potential threat to the environment or community. The EPA will be part of the cleanup process.
- *Deleted* – These sites have been removed from the NPL because the cleanup goals were accomplished, and the area requires no further response. [208]

As of August 2024, Florida has 54 final sites on the NPL and 1 proposed site.[209]

Pipelines

There is a total of 45,747 miles of pipeline within Florida. The breakdown of pipeline types are as follows:

- 642 miles Intrastate Natural Gas Transmission
- 4,943 miles Interstate Natural Gas Transmission
- 117 miles Propane
- 412 miles Liquid Hazardous Materials
- 44 miles Oil
- 276 miles Refined Petroleum Products
- 31,292 miles Natural Gas Distribution Systems[210]

Energy pipelines are a fundamentally safe and efficient means of transporting materials key to the U.S. energy supply but, given that they often carry toxic, volatile, or flammable material, energy pipelines have the potential to cause injury and environmental damage.

The Pipeline and Hazardous Materials Safety Administration (PHMSA) identifies "serious" and "significant" pipeline incidents. Serious incidents are those involving a fatality or injury requiring hospitalization. Significant incidents have the following conditions:

[208] https://www.epa.gov/superfund/superfund-national-priorities-list-npl
[209] https://www.epa.gov/fl/list-superfund-sites-florida
[210] https://portal.phmsa.dot.gov/phmsapub/faces/PHMSAHome?attempt=0&req=-2685831814252126419

a) fatality or injury requiring hospitalization,
b) $50,000 or more in total costs (measured in 1984 dollars),
c) highly volatile liquid releases of five or more barrels or other liquid releases of fifty barrels or more, and
d) liquid release that results in fire or explosion. [211]

As of 2004, PHMSA does not include gas distribution incidents that are caused by nearby fire or explosion and impacts the pipelines.

In the State of Florida, from 2020-2023, there were 11 pipeline incidents. During this period, two people died and three people were injured from pipeline incidents. These incidents resulted in total costs of $6,181,410.[212]

Historically, nationwide, the most common threats to energy pipelines have been accidents and seismic activity; however, more recently, DHS has warned that U.S. natural gas pipelines are targets of cyberattacks. DHS has been working with critical infrastructure owners and operators in the oil and natural gas sector to address a series of cyber intrusions targeting natural gas pipeline companies. Publicly available information does not indicate the extent to which systems have been infiltrated, but cybersecurity officials warn that, with sufficient access, a hacker could potentially "manipulate pressure and other control system settings, potentially reaping explosions or other dangerous conditions." Additionally, sufficient access could shut down energy transit, significantly disrupting U.S. energy supply.

Within the State of Florida, the Department of Environmental Protection is the lead agency for the Emergency Support Function (ESF) that deals with HazMat and environmental affecting incidents. Florida Fish and Wildlife Conservation Committee (FWC) is an additional supporting agency that assists with HazMat incidents if the material or incident in question is an environmental crime. The Department of Health (DOH) is a supporting agency for radiological incidents as well. The PHMSA is responsible for safety of interstate natural gas transmission lines, propane, and liquid transporting pipelines in Florida. The Florida Public Service Commission is responsible for natural gas safety of intrastate and distribution systems.

811 Call Before You Dig

Pipelines exist almost everywhere throughout the country, and Florida has an extensive pipeline and utility grid. One nationwide program that works to mitigate the risks associated with utility or pipeline damage is 811. According to data collected by the Common Ground Alliance (CGA), more than half the annual reported damaged were caused by professional contractors. The most common cause of these damages was "no notification made to the 811 center," meaning the damage could have been avoided if excavators contacted 811. This is a free service and should be used to avoid damaging any critical utilities or pipelines.[213]

[211] https://www.phmsa.dot.gov/data-and-statistics/pipeline/pipeline-incident-20-year-trends
[212] https://portal.phmsa.dot.gov/phmsapub/faces/PHMSAHome;PHMSAPUB_SESSIONID=LK_dsA-yEuzMIt1ZGuJPrtWlIGoBMgGMww5aE1jLKHVFVrxjSQzG!-852625280?req=5101963262359436663&attempt=0
[213] https://dirt.commongroundalliance.com/

Oil Spill

An oil spill is the release of crude oil, or liquid petroleum, into the environment. This is usually associated with marine spills but can also happen on land. Oil spills are caused by the release of oil from offshore platforms, drilling rigs, tankers, ships that have sunk, and any vehicle used to transport crude oil over the water or land. These spills have far-reaching effects including continued damage to the environment and a financial loss to communities affected.

As of August 2023, there are 17 operating rigs in the Gulf of Mexico, all used for crude oil.[214] There are currently no drilling rigs on the east coast of Florida. In 2022, Florida produced 1.2 million barrels of crude oil.[215]

Given Pinellas County's coastal location on the Gulf of Mexico and dependence on tourism and the related sales tax revenue, an oil spill, which is classified as a type of HazMat event, could affect any of Pinellas County's many natural resources, which could be catastrophic.

In addition to economic impacts, an oil spill in Florida or off its shores could have severe consequences for wildlife, ecosystems, and the ecology. The Deepwater Horizon spill affected the wildlife populations of numerous species of turtles, birds, bottlenose dolphins, whales, and fish. Gulf states saw a decrease in bottlenose reproduction and a rise in deaths; the Kemp's Ridley sea turtle, already endangered, saw a massive drop in numbers; and scientists estimate the habitats on the bottom of the Gulf could take anywhere from multiple decades to over a hundred years to fully recover.[216]

2. Geographic Areas Affected by Hazardous Materials

Hazardous material incidents can occur during the production, transportation, use, and storage of those hazardous materials and can happen anywhere within the county. As these materials are processed and stored, those in the immediate vicinity are at risk of toxic fumes, soil contamination, and water contamination. Even those communities removed from production or storage facilities are at risk given that hazardous materials are routinely and frequently transported via roadways, railways, pipelines, and waterways, concluding that all areas of the state are potentially at risk.

Five hundred and forty fixed facilities in the county produce, store, or use reportable hazardous substances, with approximately 200 producing, storing, or using extremely hazardous substances. The Pinellas County Hazardous Materials Response Team responded to 563 incidents from 2015 through 2018. Most of these releases were small, affecting only the building of origin and, in a few instances, immediately adjacent buildings.

The largest threat is from Brenntag Mid-South, a facility that stores approximately 1.25 million pounds of chlorine (maximum) on site. The chlorine is repackaged at the facility into containers of various sizes, contributing to the possibility for a leak or other release to occur. The facility is located in the center of

[214] https://www.wtrg.com/rotaryrigs.html

[215] https://www.eia.gov/state/analysis.php?sid=FL#:~:text=Since%201978%2C%20statewide%20production%20has,was%20about%201.2%20million%20barrels.&text=Geologists%20believe%20there%20may%20be,Mexico%20off%20Florida%27s%20western%20coast

[216] https://www.fisheries.noaa.gov/national/marine-life-distress/sea-turtles-dolphins-and-whales-10-years-after-deepwater-horizon-oil

the County. A release of the worst case would be the failure of one of the largest containers, on a day with high humidity, little to no wind, and during tourist season. This would be a 180,000-pound (one rail car) release at 1.0 miles per hour wind speed, atmospheric stability class D that would generate a vulnerability zone of at least a 10-mile radius from the site. The potential number of citizens affected by this incident could be well over 500,000 persons, depending on time of day and year.

3. Historical Occurrences of Hazardous Materials Incidents

Pinellas County is surrounded by water with hundreds of commercial and private marine vessels traveling its waterways daily. The Port of Tampa resides to the east of the county and is one of the busiest in the Gulf of Mexico, making the probability of a major spill more likely to occur. The last major incident occurred in 1993 when three ships collided at the entrance to Tampa Bay causing a major fire and oil spill, which affected the southern third of the county significantly. More than 330,000 gallons of No. 6 oil were spilled following a three-vessel collision. In July 1993, the U.S. Coast Guard responded to the worst hazardous materials incident in recent history involving the motor vessel OCELOT. In September 1995, the USCG also responded to a 5,000-gallon diesel spill in the east Tampa Bay requiring multiple clean-up contractors. The spill would later prove to be the nation's fifth most resource intensive oil spill that year at a cost of $500,000.

4. Probability of Future Hazardous Materials Incidents

Reports of hazardous material spills and releases are increasingly commonplace. Thousands of new chemicals are developed each year and transported domestically and internationally, increasing the risk for accidents and spills. Small fuel spills occur in the waters surrounding Pinellas daily. Most are due to overfilling boat fuel tanks, and a few are due to boat sinking. Law enforcement agencies routinely receive reports of illegal oil dumping from the public.

Major chemicals spills can occur at any facility that produces, uses, or stores chemicals. These include chemical manifesting plants, laboratories, shipyards, railroad yards, warehouses, or chemical disposal areas. Illegal dumpsites can appear anywhere. Accidents involving the transportation of hazardous materials can occur at any time and severely impact the affected community. Recent evidence shows that hazardous materials incidents may be the most significant threat facing local jurisdictions.

This hazard was determined to have a probability level of possible (1 to 10% annual probability).

5. Hazardous Materials Incident Impact Analysis

- Public
  - Loss of life or injury from contamination
  - Diseases may be exacerbated
- Responders
  - Loss of life or injury from contamination, explosions, cleanup, and destruction
  - Diseases
  - Cleanup and destruction at waste sites and incident sites
- Continuity of Operations (including continued delivery of services)
  - Lost material, such as gas, is unusable and could lead to shortages and price increases
- Property, Facilities, Infrastructure
  - Damage due to excavation and removal of soil and water
  - Inability to rebuild in affected areas
  - Services could be closed or blocked due to the contaminant
    - Roads
    - Trains
    - Airplanes
    - Bridges
    - Waterways
  - Long-term contamination at hazardous waste sites
- Environment
  - Death or illness to pets or wildlife near the spill
  - Damage to plants and wildlife
  - Airborne issues such as toxic fumes, gases, or vapors caused by chemicals
  - Water contamination
  - Soil contamination
  - Loss of critical or endangered species
  - Pollution
- Economic Condition
  - Business closures may lead to lost revenue and wages
  - Loss of tourism and income
  - Loss of product
  - Cost of cleanup and restoration
- Public Confidence in Jurisdiction's Governance
  - Distrust of the government if the incident is not properly communicated to the public
  - Skepticism of the government's capabilities if the incident is not resolved quickly

6. Vulnerability Analysis and Estimated Losses by Jurisdiction

Major HazMat incidents can occur at any facility that produces, uses, or stores hazardous materials. These include chemical manifesting plants, laboratories, shipyards, railroad yards, warehouses, or chemical disposal areas. Illegal dumpsites can appear anywhere. Accidents involving the transportation of hazardous materials can occur at any time and severely impact the affected community. The northern half of the county could be largely affected if there was a chlorine release during transport based on the delivery corridor route.

7. Vulnerability Analysis and Estimated Losses of Critical Facilities

Hazardous Materials Incidents can, and do, occur anywhere and at any time. In most cases, they do not result in serious impacts to critical facilities. However, critical facilities that store or handle hazardous chemicals listed in the Environmental Protection Agency (EPA) Superfund Amendments and Reauthorization Act (SARA) Title III are most vulnerable.

8. Overall Vulnerability

Each of the five PRI categories was assigned a value from 1 to 4 and the pre-determined weighting factor was applied to calculate a PRI score. PRI scores can range from 1.0 to 4.0 and the overall vulnerability ranking or high, moderate, or low was assigned based on the PRI scores.

Based on the probability, impact, spatial extent, warning time, and duration, the overall vulnerability of this hazard was determined to be high, with a PRI score of 2.9.

HAZARDOUS MATERIALS INCIDENT			Overall Vulnerability	
Overview				
A hazardous material is any substance that poses a threat to humans, animals, or the environment. The term hazardous materials, commonly referred to as HazMat, generally comprises hazardous substances, petroleum, natural gas, synthetic gas, and acutely toxic chemicals. Hazardous materials are defined and regulated in the United States primarily by laws and regulations administered by the EPA, OSHA, DOT, and the Nuclear Regulatory Commission (NRC). Hazardous materials typically fall into one of three categories: biological hazards, chemical hazards, or radiological hazards.			**HIGH**	
			PRI Score	
			2.9	
Probability	**Impact**	**Spatial Extent**	**Warning Time**	**Duration**
Possible	**Critical**	**Moderate**	**< 6 hrs**	**> 1 week**

Space Weather Hazard Profile

1. Space Weather Description

Space weather is a broad term used to describe atmospheric events that have the potential to adversely affect conditions on Earth. Space weather events are caused by the interaction of Earth with emissions from the Sun. There are two causes of space weather events: coronal mass ejections (CMEs) and solar flares, which are different incidents that occur on the Sun. CMEs and solar flares can cause three different types of space weather events on Earth: geomagnetic storms, solar radiation storms, and radio blackouts.

When space weather does interact with Earth and its magnetic field, the technology on Earth can be disrupted, affecting critical infrastructure. For example, communications networks, satellite and airline operations, navigation systems, and the electric power grid could be disrupted, causing severe problems and damage.

According to the Implementation Plan of the National Space Weather Strategy and Action Plan, published in December 2023, space weather poses a significant risk to the security of our country, including infrastructure and the economy. This is because our nation is becoming more and more dependent on technology, and the failure of one critical infrastructure facility or system could lead to failures in many other systems.[217]

Causes

As stated before, space weather events are caused by two types of incidents on the surface of the Sun. These will be discussed below.

Coronal Mass Ejections

Coronal mass ejections (CMEs) are large eruptions of plasma and magnetic field structures in the Sun's atmosphere, which then travel through space at millions of miles per hour, eventually reaching Earth and affecting Earth's own magnetic field. When CMEs erupt from active regions on the Sun, they are often accompanied by large solar flares.

Solar Flares

Solar flares are sudden bursts of electromagnetic radiation, including x-rays and ultraviolet light. The Sun continually streams out solar wind, which consists of charged particles, or plasma, travelling at high speeds. Solar wind carries the solar magnetic field into space where it interacts with magnetic fields of planets. When solar wind is very fast or turbulent, it can cause changes in the magnetic fields of planets; this is the basis of a geomagnetic storm. X-rays from solar flares affect Earth's ionosphere by preventing it from reflecting long-range radio waves, which results in a radio blackout event. The plasma from solar flares can damage satellites and cause high-frequency radio blackouts in polar

[217] Implementation Plan of the National Space Weather Strategy and Action Plan, National Science and Technology Council, December 2023.

regions and the Sun-facing side of Earth.

Space Weather Events

CMEs and solar flares can cause three different types of space weather events on Earth. These will be discussed below.

Geomagnetic Storms

Geomagnetic storms occur when CMEs affect Earth's magnetic field. Earth's magnetic field attempts to adjust to the large amounts of energy from the Sun carried in solar wind. CMEs from the Sun can disturb Earth's geomagnetic field for days, and several CMEs at once may cause prolonged disturbed periods. Geomagnetic storms usually last from a few hours to a few days, but stronger storms can last up to a week.

These storms induce currents that can have significant impacts on technological systems and critical infrastructure, including electrical transmission equipment. Electric power companies have procedures in place to mitigate the impact of geomagnetic storms. Strong geomagnetic storms are visible from Earth, in the form of aurora, which becomes brighter and moves closer to the equator during a storm.

Geomagnetic storms are measured on a scale from G1: Minor to G5: Extreme. The chart below from the National Oceanic and Atmosphere Administration (NOAA) describes the effects and frequency in detail.[218]

Table 4.108: Geomagnetic Storm Scale

Scale	Description	Effect	Physical measure	Average Frequency (1 cycle = 11 years)
G5	Extreme	**Power systems:** Widespread voltage control problems and protective system problems can occur; some grid systems may experience complete collapse or blackouts. Transformers may experience damage. **Spacecraft operations:** May experience extensive surface charging, problems with orientation, uplink/downlink and tracking satellites. **Other systems:** Pipeline currents can reach hundreds of amps, HF (high frequency) radio propagation may be impossible in many areas for one to two days, satellite navigation may be degraded for days, low-frequency radio navigation can be out for hours, and aurora has been seen as low as Florida and southern Texas (typically 40° geomagnetic lat.).	Kp = 9	4 per cycle (4 days per cycle)

[218] https://www.swpc.noaa.gov/noaa-scales-explanation

Scale	Description	Effect	Physical measure	Average Frequency (1 cycle = 11 years)
G4	Severe	**Power systems:** Possible widespread voltage control problems and some protective systems will mistakenly trip out key assets from the grid. **Spacecraft operations:** May experience surface charging and tracking problems, corrections may be needed for orientation problems. **Other systems:** Induced pipeline currents affect preventive measures, HF radio propagation sporadic, satellite navigation degraded for hours, low-frequency radio navigation disrupted, and aurora has been seen as low as Alabama and northern California (typically 45° geomagnetic lat.).	Kp = 8	100 per cycle (60 days per cycle)
G3	Strong	**Power systems:** Voltage corrections may be required, false alarms triggered on some protection devices. **Spacecraft operations:** Surface charging may occur on satellite components, drag may increase on low-Earth-orbit satellites, and corrections may be needed for orientation problems. **Other systems:** Intermittent satellite navigation and low-frequency radio navigation problems may occur, HF radio may be intermittent, and aurora has been seen as low as Illinois and Oregon (typically 50° geomagnetic lat.).	Kp = 7	200 per cycle (130 days per cycle)
G2	Moderate	**Power systems:** High-latitude power systems may experience voltage alarms, long-duration storms may cause transformer damage. **Spacecraft operations:** Corrective actions to orientation may be required by ground control; possible changes in drag affect orbit predictions. **Other systems:** HF radio propagation can fade at higher latitudes, and aurora has been seen as low as New York and Idaho (typically 55° geomagnetic lat.).	Kp = 6	600 per cycle (900 days per cycle)
G1	Minor	**Power systems:** Weak power grid fluctuations can occur. **Spacecraft operations:** Minor impact on satellite operations possible. **Other systems:** Migratory animals are affected at this and higher levels; aurora is commonly visible at high latitudes (northern Michigan and Maine).	Kp = 5	1700 per cycle (900 days per cycle)

Solar Radiation Storms

Solar radiation storms occur when there is a giant eruption from a sunspot region, causing large quantities of charged particles, or plasma, to accelerate through space and cover the near-Earth satellite environment with high-energy particles. These storms occur about 30 minutes to several hours after a solar flare, and they can last from a few hours to a few days. Sometimes these storms can penetrate Earth's surface.

Solar radiation storms cause the loss of high frequency (HF) radio communications in the polar region. Because of the increase in radiation, astronauts, as well as passengers and crew in aircraft at high altitudes and latitudes, are at risk of increased radiation exposure. Additionally, these storms can cause navigation position errors and damage to satellite systems.

Solar radiation storms are measured on a scale from S1: Minor to S5: Extreme. The chart below from NOAA describes the effects and frequency in detail.[219]

Table 4.109: Solar Radiation Storm Scale

Scale	Description	Effect	Physical measure	Average Frequency
S5	Extreme	**Biological:** Unavoidable high radiation hazard to astronauts on EVA (extra-vehicular activity); passengers and crew in high-flying aircraft at high latitudes may be exposed to radiation risk. **Satellite operations:** Satellites may be rendered useless, memory impacts can cause loss of control, may cause serious noise in image data, star-trackers may be unable to locate sources; permanent damage to solar panels possible. **Other systems:** Complete blackout of HF (high frequency) communications possible through the polar regions, and position errors make navigation operations extremely difficult.	10^5	Fewer than 1 per cycle
S4	Severe	**Biological:** Unavoidable radiation hazard to astronauts on EVA; passengers and crew in high-flying aircraft at high latitudes may be exposed to radiation risk. **Satellite operations:** May experience memory device problems and noise on imaging systems; star-tracker problems may cause orientation problems, and solar panel efficiency can be degraded. **Other systems:** Blackout of HF radio communications through the polar regions and increased navigation errors over several days are likely.	10^4	3 per cycle
S3	Strong	**Biological:** Radiation hazard avoidance recommended for astronauts on EVA; passengers and crew in high-flying aircraft at high latitudes may be exposed to radiation risk. **Satellite operations:** Single-event upsets, noise in imaging systems, and slight reduction of efficiency in solar panel are likely. **Other systems:** Degraded HF radio propagation through the polar regions and navigation position errors likely.	10^3	10 per cycle

[219] https://www.swpc.noaa.gov/noaa-space-weather-scales#s_scales

Scale	Description	Effect	Physical measure	Average Frequency
S 2	Moderate	**Biological:** Passengers and crew in high-flying aircraft at high latitudes may be exposed to elevated radiation risk. **Satellite operations:** Infrequent single-event upsets possible. **Other systems:** Small effects on HF propagation through the polar regions and navigation at polar cap locations possibly affected.	10^2	25 per cycle
S1	Minor	**Biological:** None. **Satellite operations:** None. **Other systems:** Minor impacts on HF radio in the polar regions.	10	50 per cycle

Radio Blackouts

Radio blackouts are caused by the bursts of x-rays and ultra-violet radiation from solar flares. These x-ray and ultra-violet ray emissions that come along with solar flares ionize the sunlit side of Earth by increasing electron densities, which increases the amount of energy lost as radio waves pass through the region. These blackouts are the fastest and among the most common of space weather events to affect Earth. Earth is impacted after about eight minutes because the x-rays travel at the speed of light, and it takes about eight minutes for the light from the Sun to reach Earth. This makes advance warning for these events difficult. These blackouts usually last for several minutes but can last up to a few hours.

High frequency (HF) communications ranging from 3 to 30 MHz can be disrupted by solar flares. Very high frequency (VHF) communications range from 30 to 300 MHz can be faded or have diminished reception because of solar flares. Like solar radiation storms, radio blackouts affect HF and VHF communications, polar regions, and the sunlit side of Earth, with impacts being primarily felt by aviation and marine industries.

Radio blackouts are measured from R1: Minor to R5: Extreme. The chart below from NOAA describes the effects and frequency in detail.[220]

[220] https://www.swpc.noaa.gov/noaa-space-weather-scales#s_scales

Table 4.110: Radio Blackout Scale

Scale	Description	Effect	Physical measure	Average Frequency
R5	Extreme	**HF Radio:** Complete HF (high frequency) radio blackout on the entire sunlit side of the Earth lasting for a number of hours. This results in no HF radio contact with mariners and en route aviators in this sector. **Navigation:** Low-frequency navigation signals used by maritime and general aviation systems experience outages on the sunlit side of the Earth for many hours, causing loss in positioning. Increased satellite navigation errors in positioning for several hours on the sunlit side of Earth, which may spread into the night side.	X20	Less than 1 per cycle
R4	Severe	**HF Radio:** HF radio communication blackout on most of the sunlit side of Earth for one to two hours. HF radio contact lost during this time. **Navigation:** Outages of low-frequency navigation signals cause increased error in positioning for one to two hours. Minor disruptions of satellite navigation possible on the sunlit side of Earth.	X10	8 per cycle (8 days per cycle)
R3	Strong	**HF Radio:** Wide area blackout of HF radio communication, loss of radio contact for about an hour on sunlit side of Earth. **Navigation:** Low-frequency navigation signals degraded for about an hour.	X1	175 per cycle (140 days per cycle)
R2	Moderate	**HF Radio:** Limited blackout of HF radio communication on sunlit side, loss of radio contact for tens of minutes. **Navigation:** Degradation of low-frequency navigation signals for tens of minutes.	M5	350 per cycle (300 days per cycle)
R1	Minor	**HF Radio:** Weak or minor degradation of HF radio communication on sunlit side, occasional loss of radio contact. **Navigation:** Low-frequency navigation signals degraded for brief intervals.	M1	2000 per cycle (950 days per cycle)

Protection

Earth's magnetosphere, ionosphere, and atmosphere protect us from the most hazardous effects of space weather. However, the amount of protection from space weather events depends on the location of impact. The polar regions are most affected because the magnetic field lines at the poles extend vertically downwards, allowing particles to spiral down the field lines and penetrate the atmosphere, increasing ionization. Extreme storms can produce disruptive and potentially damaging effects to medium and low Earth orbit satellites and lower mid-latitude terrestrial electric grids. Both satellite communications and ground-based utilities have mitigation measures that can be activated, such as temporarily ceasing non- essential maintenance operations, reducing the load on vulnerable equipment, increasing reactive reserve power, and taking steps to maximize system reliability.

Forecasting

Space weather can be predicted and forecasted. There are three levels of alerts that can be sent out for space weather: a watch, a warning, and an alert.

A watch is when the risk of a potentially hazardous space weather event has increased significantly, but its occurrence or timing is still uncertain. A space weather watch is intended to provide enough advance notice, usually a few hours or days, for protection plans to be implemented.

Warnings are sent out when a significant space weather event is occurring, imminent, or likely. These alerts are short term and there is a high confidence of occurrence. The warning is intended to give an advance time of a few minutes to a few hours.

An alert is sent out to indicate observed conditions, usually after a warning has been sent out, to inform that a space weather event has already started.

Solar Cycle

The solar cycle is the length of time the Sun requires to release magnetic energy. It has a duration of 9-14 years, with an average of 11-years. The peak is the solar maximum, when there may be hundreds of sunspots visible at any time. The low is the solar minimum, when there can be many days in a row with no sunspots visible.

The first recorded solar cycle began in 1755. We are currently in cycle 25, which began in 2019.[221]

2. Geographic Areas Affected by Space Weather

As mentioned in the section above, any region of Earth is susceptible to the effects of space weather. The sunlit side of Earth – whichever that happens to be at the time of impact – will have more effects than the unlit side of Earth. Additionally, there are stronger effects on communication systems and radiation exposure at higher altitudes and higher latitudes, such as at the polar regions.

The effects of space weather can affect more than the physical location of the impact. In fact, space weather could affect the whole of North America at the same time, and potentially become a global incident. For example, there may be cascading impacts. Because our power grids and communication systems are interconnected, an outage in one location could have far-reaching effects.

Florida has not been significantly affected by space weather since modern infrastructure began to be built in the 1950s. However, due to the high uncertainty of the location of geomagnetically induced impacts, extreme geomagnetic storms could produce electrical system disturbances and possibly widespread disruptions or blackouts.

3. Historical Occurrences of Space Weather

There has not been a space weather event to significantly affect Florida since our country began recording such incidents other than the Northern Light phenomenon that occurred in May 2024. This storm, rated G5 on the National Oceanic and Atmospheric Administration's Geomagnetic Storm Scale, disrupted GPS

[221] https://www.weather.gov/news/201509-solar-cycle

communications enough to throw off tractor guidance.[222] This storm served as a reminder that space weather can affect any region at any time.

Table 4.111: Historical Occurrences of Space Weather

Date	Description
September 1859	The strongest geomagnetic storm in recorded history, called the Carrington Event, occurred. Excess currents caused telegraph lines to fail, and some caught fire. The aurorae from this event were seen as far south as Cuba and Hawaii.
May 1921	A powerful geomagnetic storm called the New York Railroad Storm caused similar effects as the Carrington Event. There was interference in telegraph equipment, trans-Atlantic cable communications (telephone and telegraph), and railroad switching systems. Fires were also ignited in telegraph switchgear.
August 1972	A large solar flare disrupted long distance telephone communications across Illinois.
March 1989	A very powerful Geomagnetic Storm led to a major blackout in Canada, which left 6 million people without electricity for 9 hours. The storm disrupted electric power transmission from a generating station in Quebec and damaged power transformers in New Jersey.
October and November 2003	The Halloween geomagnetic storms were the strongest since March 1989. Both terrestrial electric utilities, aviation and spacecraft operations were affected by storms, but most were recoverable without incident. Temporary blackouts were reported in northern Europe. The November 20th storm also caused blackouts in northern Europe and South Africa. Several high-voltage transformers were damaged or destroyed in South Africa.
December 2005	X-rays from a solar storm disrupted satellite to ground communications and global positioning systems (GPS) navigation systems for 10 minutes.
September 2017	Knocked out radio blackout. This included aviation, maritime, ham radio, and other emergency bands at the same time Irma was passing through the Caribbean.
February 2022	40 new Starlink internet satellites destroyed shortly after deployment.
May 2024	A large geomagnetic storm temporarily disrupted GPS communications across most of the US.

4. Probability of Future Space Weather

Power outages due to space weather are rare; however, significant effects could occur.

The entire State of Florida and its population and infrastructure is susceptible to solar storms; however, the effect that minor solar events could have on the public, property, environment, and operations would be minimal. If a rare, major solar storm were to occur, there could be a much larger impact on the population, property, and operations. However, the environment would still not be affected.

This hazard was determined to have a probability level of unlikely (less than 1% annual probability).

[222] https://www.cbsnews.com/news/how-do-solar-storms-affect-electronics-gps-power-grid-internet/

Geomagnetic Storms

The frequency of geomagnetic storms on Earth depends on the solar cycle, with most storms occurring around the solar maximum. The current solar cycle's peak sunspot activity is expected in 2025.[223] These storms are also common in the declining phase, due to an increase in solar wind speeds. However, severe space weather can be observed at any time during the solar cycle.

Additionally, a CME may intensify a geomagnetic storm as it approaches Earth. With sufficient time, a CME with a southward oriented magnetic field will cause geomagnetic storming by compressing and agitating Earth's magnetic field. Weak sub-storm to strong storming is common with hundreds of occurrences per solar cycle and less than 10-year long-term occurrence rates.

Solar Radiation Storms

Solar radiation storms can occur at any time during the solar cycle but are most common around solar maximum.

Radio Blackouts

Radio blackouts are caused by solar flares, which are quite common. In fact, minor events or R1 events, occur about 2,000 times each solar cycle.

5. Space Weather Impact Analysis

- Public
  - Traffic accidents caused by power outages
  - Power outages
    - Lost wages
    - Perishable food and medications
- Responders
  - N/A
- Continuity of Operations (including continued delivery of services)
  - Power outages may interrupt operations or delivery of services in government, private businesses, etc.
- Property, Facilities, Infrastructure
  - Damage to electrical lines, transformers, etc. may take several days or weeks to repair
  - Damage to lines may cause fires
  - Disruptions to computer systems, telephone systems, and other communications systems
  - Disruptions to water and wastewater distribution systems
  - Disruptions and/or delays affecting public transportation systems
  - Power outages affecting electrical systems that do not have back up power
  - Disruptions to heating/air conditioning and electrical lighting systems
  - Damage to fuel distribution systems and fuel pipelines

[223] https://www.weather.gov/news/201509-solar-cycle

- Environment
  - N/A
- Economic Condition
  - Extensive power outages would close businesses, causing them to lose revenue and employees to lose wages
  - High cost of repairing damage to utilities may put a burden on utility companies and they may have to raise rates
  - Disruptions in GPS communications can interfere with industries that GPS-guided technology, such as the agricultural sector
- Public Confidence in the Jurisdiction's Governance
  - Diminished confidence in jurisdictional capabilities if communications or utilities are disrupted for an extended period

6. Vulnerability Analysis and Estimated Losses by Jurisdiction

In 2013, the state mitigation group, Mitigate Florida, identified space weather as an emerging threat. As of the 2023 update, there is no way to accurately assess risk and vulnerability of jurisdictions to space weather. This is because no one county or area in Florida is more vulnerable to space weather than another. Additionally, space weather impacts are not distributed geographically like natural hazard often are, but instead are based on the power grid. Because of this, there may be impacts in Florida from damage in another state caused by space weather.

7. Vulnerability Analysis and Estimated Losses of Critical Facilities

As explained above, Mitigate Florida identified solar storms as a potential emerging threat in 2013. According to current data, there is no way to assess risk and vulnerability of State Facilities to space weather. This is because no one area in Florida is more vulnerable than another to this hazard. Additionally, no state facilities are particularly more vulnerable than others to be affected by space weather because the geographic distribution of impacts would be based on the power grid.

8. Overall Vulnerability

Each of the five PRI categories was assigned a value from 1 to 4 and the pre-determined weighting factor was applied to calculate a PRI score. PRI scores can range from 1.0 to 4.0 and the overall vulnerability ranking or high, moderate, or low was assigned based on the PRI scores.

Based on the probability, impact, spatial extent, warning time, and duration, the overall vulnerability of this hazard was determined to be high, with a PRI score of 2.8.

SPACE WEATHER EVENTS			Overall Vulnerability	
Overview				
Space weather is a broad term used to describe atmospheric events that have the potential to adversely affect conditions on Earth. Space weather events are caused by the interaction of Earth with emissions from the Sun. There are two causes of space weather events: coronal mass ejections (CMEs) and solar flares, which are different incidents that occur on the Sun. CMEs and solar flares can cause three different types of space weather events on Earth: geomagnetic storms, solar radiation storms, and radio blackouts.			HIGH	
			PRI Score	
			2.8	
Probability	**Impact**	**Spatial Extent**	**Warning Time**	**Duration**
Unlikely	**Catastrophic**	**Large**	**< 6 hrs**	**< 6 hrs**

Radiological Incidents Hazard Profile

1. Radiological Incidents Description

Radioactive material is a substance that gives off radiation. Radiation is a form of energy that is naturally present in our everyday lives. Humans, along with all forms of animals, are exposed to radiation every day from naturally occurring sources like ground soil or from manufactured sources such older television sets. Not all radiation is dangerous – some radiation can be beneficial. However, radioactive material can be harmful depending on the circumstance. There are two types of radiation: ionizing and non-ionizing. Non-ionizing radiation is used in lasers, microwaves, infrared lamps, and radio waves. This type of radiation is not strong enough to break molecular bonds and is therefore not damaging to living cells. Ionizing radiation has more energy than non-ionizing radiation. When ionizing radiation moves through a material, it leaves enough energy to break molecular bonds and remove electrons from atoms. Ionizing radiation, also called particle radiation, is used to generate electric power, treat cancer, and power x-rays. Over time, radioactive particles lose their potency in a process called radioactive decay, also known as "half-life," or the time it takes a half of an atom of a radioisotope to decay by emitting radiation. This time can range from fractions of a second to millions of years.

Radiation is also used in certain industries, such as health care facilities, research institutions, and some manufacturing facilities. While these amounts are typically smaller than the levels found in a power plant, the materials must still be handled properly to avoid contamination or exposure. The U.S. Nuclear Regulatory Commission exists to regulate the use of radioactive materials.[224]

Types of Incidents

There are many types of emergencies that may involve radiation or radioactive materials. These incidents may be intentional or unintentional. According to the CDC, the incidents involving radiation that are most likely to occur are: a release from a radiological dispersal device, a radiological exposure device, a nuclear power plant accident, a transportation accident, and an occupational accident.

A nuclear emergency would involve the detonation of a nuclear weapon, which includes an intense pulse of heat, light, air pressure, and radiation. A nuclear detonation would produce radioactive fallout, which when given the right conditions, could be carried long distances.

A radiological dispersal device (RDD), also known as a dirty bomb, mixes explosives with radioactive materials. These bombs do not create an atomic blast, but they can spread the radioactive material to the surrounding area when detonated.

A radiological exposure device (RED) contains radioactive material and is hidden so that people are exposed to the radiation without their knowledge. An explosion would be involved with this type of incident.[225]

The transportation and disposal of radioactive materials and waste creates problems because of the long life of radioactive materials. The launch of spacecraft from the Kennedy Space Center also

[224] https://www.nrc.gov/about-nrc/radiation/health-effects/radiation-basics.html
[225] https://www.cdc.gov/radiation-emergencies/about/index.html

represents a significant threat to the state for launch vehicles carrying radioisotope thermoelectric generators (RTG). The primary threat is an in-flight explosion within the first two minutes of vehicle liftoff. The Space Coast of Florida uses nuclear material as a fuel source for some launches. Because of this, the EPA and other agencies are involved with the launches.

A nuclear power plant incident could involve the release of a large amount of radiation from the plant. This type of release would likely be in the form of a plume, or a large cloud of radiation, which could move from plant facility grounds to the surrounding areas and possibly contaminate people, buildings, food, water, and livestock. In this plume form, radioactive material could enter the body via inhalation or by ingesting contaminated food or water.

Incidents at a nuclear power plant are classified using specific classification levels and criteria.

Table 4.112: Nuclear Power Plant Incident Classifications[226]

Classification	Description
Unusual Event	An off-normal incident or condition at the plant for which no significant degradation of safety has occurred or is expected. Any releases of radioactive material which may have occurred or are expected to occur are minor and constitute no appreciable health hazard. An unusual event is a minor incident, often non-nuclear, such as a plant worker injury or severe weather. No public action is required.
Alert	An event that involves an actual or potential substantial degradation of safety, combined with a potential for limited uncontrolled releases of radioactivity from the plant. This is still a relatively minor incident, and no public action is required.
Site Area Emergency	An event that involves actual or likely major failures of plant functions needed for protection of the public, combined with a potential for significant uncontrolled releases of radioactivity. Sirens within the 10-mile emergency planning zone around the plant would sound, alerting the public to tune to local radio and television stations for official information. Non-essential plant personnel would evacuate. This category involves a serious incident, such as a reactor coolant leak or fire in a safety system.
General Emergency	An event involving actual or imminent substantial core degradation and potential loss of containment integrity combined with a likelihood of significant uncontrolled releases of radioactivity. This is the most severe emergency. Sirens within the 10-mile zone would sound, alerting people to tune to local radio and television stations for official information. Some public protection measures would be likely.

Effects of Radiation

There are three radiation exposure pathways: direct or external exposure, inhalation, and ingestion. After contamination, the contaminated person or property must be decontaminated properly. However, being exposed to radiation does not necessarily mean that contamination has occurred.

Low frequency sources of non-ionizing radiation are not known to cause health risks. However, high

[226] https://www.floridadisaster.org/dem/response/technological-hazards/rep/nuclear-power-plants-emergency-classification-levels/

frequency sources of non-ionizing radiation, such as ultraviolet radiation, can cause burns and tissue damage with overexposure.

Ionizing radiation can damage living tissue by changing the cell structure and damaging DNA. The level of damage depends on many things, including the type of radiation, the exposure pathway, and the amount of radiation absorbed. The greatest risk from ionizing radiation is developing cancer.[227]

Other risks of radiation contamination include Acute Radiation Syndrome, which involves nausea, vomiting, headache, and diarrhea. Additionally, radiation emergencies may cause emotional and psychological distress or mass panic.

A developing fetus is the most susceptible to negative health effects from radiation exposure, and radioactive material can also be passed from mothers to babies via breast milk. Infants, children, the elderly, pregnant women, and those with compromised immune systems are more susceptible to health effects of radiation exposure.[228]

There are some medical treatments available after radiation exposure or contamination; however, the effectiveness of these treatments depends upon the type of radioactive material. For example, potassium iodide (KI) is safe and effective in blocking the uptake of radioactive iodide into the thyroid. Calcium-DTPA and zinc-DTPA are effective treatments for contamination of plutonium, americium, or curium. Radiogardase, also known as Prussian Blue, is an effective treatment for contamination from cesium-137 or thallium. It is important to note that KI is only effective against radioactive iodine and only prevents thyroid cancer later in life by decreasing the amount of radioactive material that the thyroid absorbs.[229]

There is also a risk for radioactive materials contaminating crops or livestock. For example, an incident at a nuclear power plant could spread radioactive materials many miles from the plant. In this scenario, crops may need to be de-contaminated or left alone until the radiation dissipates. Additionally, livestock may need to be sheltered from the radioactive plume and fed uncontaminated stored feed until the radiation dissipates from the grazing fields. This is of particular concern for dairy animals because of the quick turnaround from the time the milk is gathered to the time the consumer buys it. Because of this, milk may need to be tested and quarantined until the radiation dissipates.

Security and Authority

The Nuclear Regulatory Commission (NRC) is responsible for licensing and regulating the civilian uses of certain radioactive materials, including uranium, thorium, enriched uranium and plutonium, and byproduct materials. The Code of Federal Regulations requires protections like dose limits for workers, monitoring of materials, and labeling and signage.

The NRC is also responsible for the nuclear security in the United States. Because of security requirements, nuclear power plants are well protected. Additionally, the NRC is responsible for the security of radioactive materials.[230] The NRC also works with the International Atomic Energy Agency

[227] https://www.cancer.gov/about-cancer/causes-prevention/risk/radiation
[228] https://www.cdc.gov/radiation-emergencies/signs-symptoms/index.html
[229] https://www.fda.gov/Drugs/EmergencyPreparedness/BioterrorismandDrugPreparedness/ucm063807.htm
[230] https://www.nrc.gov/about-nrc/radiation/protects-you/reg-matls.html

(IAEA), which works to ensure peaceful use of nuclear materials and prevent the spread of nuclear explosive capabilities.

The Environmental Protection Agency (EPA) has the ability and authority to respond to many types of radiological incidents in a coordinating role.[231]

2. Geographic Areas Affected by Radiological Incidents

There are no nuclear power plants in Pinellas County. The nearest plant is the Crystal River Power Plant located in Crystal River (Citrus County). This plant has been closed; although there is some material stored at the site. This risk of a catastrophic release of radioactive material at the plant is extremely low. Even if one were to occur, the prevailing winds would tend to blow most of the radioactive isotopes towards the east. Pinellas County is located outside the plant's 50-mile ingestion pathway.

3. Historical Occurrences of Radiological Incidents

A record of historical occurrences of radiological incidents in Pinellas County is not available at this time.

4. Probability of Future Radiological Incidents

While it is unlikely that a radiological incident will occur, the consequences could be devastating. Radiological incidents can range from a minor emergency with no offsite effects to a major emergency that may result in an offsite release of radioactive materials. The probability of a radiological incident is impossible to predict with certainty, and even threats that can be anticipated require a large and concentrated effort to mitigate the potential damage.

This hazard was determined to have a probability level of unlikely (less than 1% annual probability).

5. Radiological Incident Impact Analysis

- Public
  - Contamination or radiation poisoning
- Responders
  - Contamination or radiation poisoning
  - Special equipment will be needed to handle radioactive materials
- Continuity of Operations (including continued delivery of services)
  - Disruption of nuclear power plant
  - Disruption of production of crops and milk
- Property, Facilities, Infrastructure
  - Require de-contamination of facilities
  - Damage to surrounding properties
- Environment
  - Require de-contamination or closing of areas until the radiation dissipates on its own
  - Could affect animal species and habitats, leading to decreasing populations
- Economic Condition

[231] https://www.epa.gov/radiation/radiological-emergency-response-authorities

- Disruption of a nuclear power plant would be costly to owners and consumers; there would be lost wages, lost revenues, and cost of recovery and remediation
- Disruption of food and milk production or delivery would be costly to farmers, distributors, grocery stores, and consumers; there would be lost wages, lost revenue, and cost of recovery, remediation, and replacement

- Public Confidence in Jurisdiction's Governance
  - Loss of public confidence in the jurisdiction and widespread fear
  - Public could take their own protective measures, such as evacuations, even if authorities told them they were safe

6. Vulnerability Analysis and Estimated Losses by Jurisdiction

For nuclear power plant incidents, areas at risk are normally designated as (1) within the plume emergency planning zone (EPZ) of such facilities (i.e., jurisdiction located within a 10-mile radius of a nuclear power plant) or (2) within the ingestion emergency planning zone (IPZ) (i.e., jurisdictions within a 50-mile radius of a nuclear power plant). However, Pinellas County is not within the 10-mile radius of a nuclear power plant, so there is little to no vulnerability.

7. Vulnerability Analysis and Estimated Losses of Critical Facilities

Critical facilities are not vulnerable to radiological incidents involving the nuclear power plants within Pinellas County. If a facility were to become contaminated, it may need to be closed and decontaminated, which may interrupt normal state operations.

8. Overall Vulnerability

Each of the five PRI categories was assigned a value from 1 to 4 and the pre-determined weighting factor was applied to calculate a PRI score. PRI scores can range from 1.0 to 4.0 and the overall vulnerability ranking or high, moderate, or low was assigned based on the PRI scores.

Based on the probability, impact, spatial extent, warning time, and duration, the overall vulnerability of this hazard was determined to be unlikely, with a PRI score of 1.3.

RADIOLOGICAL INCIDENTS			Overall Vulnerability	
Overview				
Radiation is a form of energy that is naturally present in our everyday lives, and radioactive material is a substance that gives off radiation. There are many types of emergencies that may involve radiation or radioactive materials and may be intentional or unintentional. According to the CDC, the incidents involving radiation that are most likely to occur are: a nuclear emergency, a release from a radiological dispersal device, a radiological exposure device, a nuclear power plant accident, a transportation accident, or an occupational accident.			LOW	
			PRI Score	
			1.3	
Probability	**Impact**	**Spatial Extent**	**Warning Time**	**Duration**
Unlikely	**Minor**	**Negligible**	**< 6 hrs**	**< 6 hrs**

Terrorism Hazard Profile

1. Terrorism Description

The population, property, and environmental resources of the State of Florida are vulnerable to a threatened or actual terrorist attack. While there are multiple definitions and political connotations that accompany the term terrorism, for the purpose of this document, the following definition from the U.S. Code of Federal Regulations will be used:

> *"the unlawful use of force and violence against persons or property to intimidate or coerce a government, the civilian population, or any segment thereof, in furtherance of political or social objectives."*[232]

State and local governments have the primary responsibility for planning for and managing the consequences of a terrorist incident using available resources in the critical hours before federal assistance can arrive. If a terrorist incident occurs in a city or county, communities may receive assistance from federal agencies under the existing Integrated Emergency Management System. The Department of Homeland Security is the lead federal agency for supporting state and local response to the consequences of terrorist attacks.[233]

Terrorism is often categorized as either domestic, international, or lone wolf.

Domestic

The U.S. Patriot Act defines domestic terrorism as an attempt to "intimidate or coerce a civilian population; to influence the policy of a government by intimidation or coercion; or to affect the conduct of a government by mass destruction, assassination, or kidnapping." [234]

Domestic terrorism involves groups or individuals whose terrorist activities are directed at elements of the U.S. government or population without foreign direction. It is the unlawful use, or threatened use, of violence by a group or individual based and operating entirely within the United States, or its territories, without foreign direction. Domestic terrorism is committed against persons or property to intimidate or coerce a government, the civilian population, or any group, in furtherance of political or social objectives. This can also include single issue groups looking to further specific social ideas or practices.[235]

International

International terrorism involves groups or individuals whose terrorist activities are foreign based and/or directed by countries or groups outside the United States or whose activities transcend national boundaries. This distinction refers not to where the terrorist act takes place but rather to the origin of

[232] https://www.ecfr.gov/current/title-28/chapter-I/part-0/subpart-P/section-0.85
[233] https://www.fema.gov/pdf/plan/managingemerconseq.pdf
[234] https://www.congress.gov/107/plaws/publ56/PLAW-107publ56.pdf
[235] https://archives.fbi.gov/archives/news/testimony/the-terrorist-threat-confronting-the-united-states

the individuals or groups responsible for it.

For example, the 1995 bombing of the Murrah Federal Building in Oklahoma City was an act of domestic terrorism, but the attacks of September 11, 2001, were international in nature. For the purposes of consequence management, the origin of the perpetrator(s) is of less importance than the impacts of the attack on life and property; thus, the distinction between domestic and international terrorism is less relevant for the purposes of mitigation, preparedness, response, and recovery than for understanding the capabilities of terrorist groups and how to respond to the impacts they can generate.

Lone Wolf

Lone wolf terrorism is used to describe violent acts committed by a single perpetrator. The person acts independently and without the help of outside organizations. A lone wolf terrorist may, however, follow the ideology of a particular organization or group and may commit acts of terror to show their support of said group. Many of these individuals exclude themselves, or feel excluded, from normal social interactions and day-to-day relationships. In their social exclusion, lone individuals feel deprived of what they perceive as values to which they are entitled and form grievances against the government or people who they feel are responsible for their problems, such as unemployment, discrimination, and injustices. Their violence is a means to achieve their goals and to punish those responsible.[236]

Effects

The effects of terrorism can vary from loss of life and injuries to property damage and disruptions in services, including electricity, water supply, public transportation, and communications. One way that governments attempt to reduce vulnerability to terrorist incidents is by increasing security at airports and other public facilities that could be considered as targets.

While one can never predict the target a terrorist will choose, factors that many use when selecting a target include one that could produce many victims; cause mass panic; have symbolic or cultural value; or garner the greatest possible media attention.

Terrorists are likely to target heavily populated, enclosed areas like stadiums, government buildings, sporting events, airport terminals, subways, shopping malls, and industrial manufacturing facilities.

A terrorist attack can take several forms depending on the technological means available to the terrorist, the nature of the political issue motivating the attack, and the points of weakness of the terrorist's target. Other possibilities include an attack at transportation facilities, an attack against utilities or other public services, an incident involving chemical or biological agents, an active shooter, or a cyberattack.

In 2011, the U.S. Department of Homeland Security (DHS) replaced the color-coded alerts of the Homeland Security Advisory System (HSAS) with the National Terrorism Advisory System (NTAS), designed to more effectively communicate information about terrorist threats by providing timely, detailed information to the public.[237] The system uses bulletins and alerts:

- Bulletin: describes current developments or general trends regarding threats of terrorism

[236] https://www.ncjrs.gov/pdffiles1/nij/grants/248691.pdf
[237] https://www.dhs.gov/topics/national-terrorism-advisory-system

- Elevated Alert: warns of a credible terrorism threat against the United States with general information about timing and targets
- Imminent Alert: warns of a credible, specific, and impending terrorism threat

In an effort to include and prepare the entire community, DHS created the "If You See Something, Say Something" campaign.[238] It is a national campaign that raises public awareness of the indicators of terrorism and terrorism-related crime as well as the importance of reporting suspicious activity to state and local law enforcement. Suspicious activity could include, but is not limited to, unusual items or situations, eliciting information, and observation or surveillance.

Terrorism in Florida

Florida realizes that there is appropriate concern that a terrorist event is possible due to the state's highly visible and popular tourist destinations including large theme parks, beaches, cruise lines, and military bases. The state also has nuclear power plant locations, numerous international shipping ports, cruise ship destinations, and large-capacity arenas.

The open availability of basic shelf-type chemicals and mail-order biological research materials, coupled with access to even the crudest laboratory facilities, could enable the individual extremist or an organized terrorist faction to manufacture highly lethal substances or to fashion less-sophisticated weapons of mass destruction (WMD). The use of such weapons could result in mass casualties and long-term contamination, wreaking havoc on both the state and national economies.

Unlike natural disasters, there are relatively few methods to predict the time or place of a terrorist incident. This fact negates the "watch" and "warning" time phases. The action phases for a terrorist incident are prevention, protection, mitigation, response, and recovery.[239] Activities associated with each action are detailed below.

- *Prevention Phase*
  - The actions during this phase are those taken by local, state, and federal agencies to monitor and coordinate intelligence and other potential indicators to prevent, defend against, prepare for, and mitigate the impacts of terrorist attacks against the nation.
  - Florida uses intelligence provided by Fusion Centers, Joint Terrorism Taskforces, and Regional Domestic Security Taskforces.
- *Protection Phase*
  - The actions during this phase are those taken by local, state, and federal agencies to limit the impacts of a potential event on a specific area.
- *Mitigation Phase*
  - The actions during this phase are those that require time to carry out. They include training, planning, public awareness, and any activities that require long-term programs to accomplish their objectives.
- *Response Phase*

[238] https://www.dhs.gov/see-something-say-something
[239] https://www.fema.gov/sites/default/files/2020-04/National_Prevention_Framework2nd-june2016.pdf

  - These actions are those taken immediately after an incident to 72 hours after the incident, with the major goal of saving lives, alleviating suffering, and preventing further disaster.
  - When responding to disaster events, the National Incident Management System (NIMS) is used by qualified staff to manage the response actions.
- *Recovery Phase*
  - The actions during this phase are those taken during the first one to two months after the incident.
  - These actions, which begin immediately after the emergency response operations, have the goal of returning the state and citizens to normal conditions.
  - The emphasis will transition from saving lives to cleaning up the affected areas and returning people to normal activities.

Mitigation and preparedness planning grants are one way that Florida works to mitigate the risks of terrorist attacks. The Florida Division of Emergency Management (FDEM) is the State Administrative Agency (SAA) for the Department of Homeland Security Grant Program (HSGP). HSGP is comprised of three grant programs. The Domestic Security Unit is responsible for the administration of these programs for the State of Florida. The three programs include:

- State Homeland Security Program (SHSP): The SHSP assists state, tribal, territorial, and local preparedness activities that address high-priority preparedness gaps across all core capabilities that support terrorism preparedness.
- Urban Area Security Initiative (UASI): The UASI program assists high-threat, high-density urban areas in efforts to build, sustain, and deliver the capabilities necessary to prevent, protect against, mitigate, respond to, and recover from acts of terrorism.
- Operation Stonegarden (OPSG): The OPSG Program supports enhanced cooperation and coordination between Customs and Border Protection, United States Border Patrol, and federal, state, local, tribal, and territorial law enforcement agencies. The OPSG Program provides funding to support joint efforts to secure the United States' borders along routes of ingress from international borders to include travel corridors in states bordering Mexico and Canada as well as states and territories with international water borders.

With the vast majority of America's critical infrastructure owned and/or operated by state, local, and private sector partners, critical infrastructure and key resource (CI/KR) locations within the state that are determined to be credible targets of a terrorist event can be documented and monitored. Structures selected for inclusion in the CI/KR list are eligible for additional government grant funding to increase their security against a potential terrorist event.

One example of funding for which CI/KR sites qualify is the Buffer Zone Protection Program (BZPP). The purpose of the BZPP is to make it more difficult for terrorists to conduct planning activities or successfully launch attacks from the immediate vicinity of likely targets. The program is based on the premise that local law enforcement agencies and first responders are on the front lines preventing, defending against, preparing for, and mitigating the impacts of terrorist attacks against our nation. The funds provided by the BZPP are provided to increase the preparedness capabilities of jurisdictions responsible for the safety and security of communities surrounding high priority CI/KR assets through allowable

planning and equipment acquisition.

Florida utilizes the Domestic Security Strategic Plan for terrorist attacks. Florida's Domestic Security Strategic Plan remains a working document that is reviewed and prioritized each year. Seven Regional Domestic Security Task Forces (RDSTF's), co-chaired by a local sheriff or police chief and the local FDLE Special Agent in charge, are the foundation of Florida's Domestic Security Strategy. These multi-jurisdictional and multidisciplinary task forces work together to strengthen Florida's domestic security preparedness, prevention, protection, mitigation, and response. In addition to law enforcement, task force members include first responders such as fire rescue, emergency management, public health, and hospitals. The task force also works with schools, businesses, and private industries.[240]

The types of terrorist attacks will now be discussed.

Chemical

Chemical terrorism is the deliberate release of certain chemicals that could poison people, animals, plants, or the environment. Chemical agents can be delivered in various forms, such as vapors, aerosols, liquids and solids, and by a wide variety of methods, including sprays and explosives. Chemical warfare agents are substances specifically designed to kill, seriously injure, or disable people. In general, terrorists use chemical agents because they are relatively easy and cheap to make.

Most chemical agents, depending on their type, concentration, and length of exposure, can be deadly. These chemicals can be categorized by type or by their effect. The Center for Disease Control (CDC) have grouped chemicals into the following categories:

- Biotoxins – poison that come from plants or animals
- Blister agents (vesicants) – cause severe blisters in the eyes, skin, nose, sinuses, mouth, throat, and lungs
- Blood agents – poisons that affect the body by being absorbed into the blood
- Caustics (acids) – burn or corrode on contact
- Choking/lung agents (pulmonary) – cause severe irritation or swelling of the lining of the respiratory tract
- Incapacitating agents – alter the ability to think clearly or cause an altered state of consciousness
- Metals – consist of metallic poisons
- Nerve agents – prevent the nervous system from functioning properly
- Riot control agents/tear gas
- Toxic alcohols – poisonous alcohols that can damage the heart, kidneys, and nervous system

Chemical agents can produce effects quickly, sometimes within a few seconds, or slowly, sometimes as many as two days after exposure, with some agents being odorless and tasteless.[241]

[240] The 2021-2023 Florida Domestic Security Strategic Plan: https://www.fdle.state.fl.us/Domestic-Security/Documents/Florida-DSSP-2018-2020-public.aspx
[241] https://www.cdc.gov/chemicalemergencies/hcp/chemicals-by-category.html

Biological

Bioterrorism refers to the intentional release of toxic biological agents to harm and terrorize civilians in the name of a cause. Biological agents are living organisms, or the products of living organisms, that can be deadly. Biological agents can go undetected for hours to days. Signs and symptoms might initially look like a bad cold, flu, or other common illness. Some agents can be extremely lethal in very small quantities. Biological weapons fall into three categories: bacteria, viruses, and toxins with bacteria.[242]The CDC has classified the viruses, bacteria, and toxins that could be used in an attack. Category A biological diseases are those most likely to do the most damage. They include:

- Anthrax (*Bacillus anthracis*)
- Botulism (*Clostridium botulinum toxin*)
- Plague (*Yersinia pestis*)
- Smallpox (variola major)
- Tularemia (*Francisella tularensis*)
- Viral hemorrhagic fevers, including
    - Filoviruses (Ebola, Marburg)
    - Arenaviruses (Lassa, Machupo)

Bioweapons can also be spliced to create a super-virus that either has no cure or is resistant to already formulated antidotes. For more information on biological hazards, please see the *Biological Incident Hazard Profile*.

Nuclear

Nuclear terrorism refers to several different ways nuclear materials might be exploited as a terrorist tactic. These include attacking nuclear facilities, purchasing nuclear weapons, building nuclear weapons, or otherwise finding ways to disperse radioactive materials. There are low levels of radiation exposure present in the everyday environment, but the danger in a nuclear terrorist attack comes with the amount and type of radiation given off.

Given the number of capable groups with serious intent, the increasing accessibility of weapons or nuclear materials from which elementary weapons could be constructed, and the countless ways in which terrorists could smuggle a weapon across borders, nuclear terrorism has become a clear and present danger.

Nuclear terrorism can involve the use of weapons of mass destruction (WMDs). Weapons of mass destruction are defined as (1) any destructive device as defined in 18 U.S.C., Section 2332a, which includes any explosive, incendiary, poison gas, bomb, grenade, or rocket having a propellant charge of more than four ounces, missile having an explosive or incendiary charge of more than one quarter ounce, mine or device similar to the above; (2) poison gas; (3) any weapon involving a disease organism; or (4) any weapon that is designed to release radiation or radioactivity at a level dangerous to human

[242] https://emergency.cdc.gov/agent/agentlist-category.asp

life. [243]

The effects of a nuclear attack depend on how much radiation is received, how long someone is exposed to the radiation, and how the radiation entered the body.

Environmental

Ecoterrorism, a recently coined term, describes violence in the interests of environmentalism. In general, environmental extremists sabotage property to inflict economic damage on industries or actors they see as harming animals or the natural environment. These have included fur companies, logging companies, and animal research laboratories. This can also be known as special interest terrorism.

Special interest terrorism differs from traditional right-wing and left-wing terrorism in that extremist special interest groups seek to resolve specific issues, rather than effect widespread political change. These groups continue to conduct acts of politically motivated violence to force segments of society, including the public, to change attitudes about issues considered important to their causes. These groups occupy the extreme fringes of animal rights, pro-life, environmental, anti-nuclear, and other movements. Some special interest extremists, most notably within the animal rights and environmental movements, have turned increasingly toward vandalism and terrorist activity in attempts to further their causes. The Animal Liberation Front (ALF) and the Earth Liberation Front (ELF) have also become well known for their use of arson to destroy facilities and spread their message.

Bombing

The easiest to obtain and use of all weapons is still a conventional explosive device, or improvised bomb, which can cause massive local destruction or disperse chemical, biological, or radiological agents.

Many of the devices used by terrorists today are improvised explosive devices (IEDs).[244] An IED is a homemade bomb or destructive device used to destroy, incapacitate, harass, or distract. IEDs are categorized as being explosive or incendiary, employing high- or low-filler explosive materials to explode or cause fires. IEDs can come in many forms, ranging from small, easy to make pipe bombs to more sophisticated devices capable of mass damage and loss of life. These devices can be lightweight and easy to carry such as the backpacks of the Boston Marathon bombers in 2013; however, they can also be large enough that use of a vehicle for transport is necessary, such as the 1995 bombing of the Alfred P. Murrah Federal Building in Oklahoma City. IEDs can also be made of numerous chemicals and hazardous materials and may include the use of shrapnel such as nails or ball bearings.

The components are readily available, as are detailed instructions on constructing such a device. Large, powerful devices can be outfitted with timed or remotely triggered detonators and can be designed to be activated by light, pressure, movement, or radio transmission. The potential exists for single or multiple bombing incidents in single or multiple municipalities. Historically, less than five percent of actual or attempted bombings were preceded by a threat. Explosive materials can be employed covertly with little signature and are not readily detectable. Secondary explosive devices may also be used as

[243] https://cdp.dhs.gov/shared/se/courses/default/AWR-358%20dL%20040921/groups/191.html#:~:text=As%20defined%20in%20Title%2018,or%20mine%20or%20similar%20device

[244] https://www.dhs.gov/xlibrary/assets/prep_ied_fact_sheet.pdf

weapons against responders and the public in coincident acts.[245]

Cyberattack

Cyber terrorism is the premeditated use of disruptive activities, or the threat thereof, against computers and/or networks, with the intention to cause harm; further social, ideological, religious, political, or similar objectives; or intimidate any person in furtherance of such objectives. Cyberterrorists use information technology to attack civilians and draw attention to their cause. This form of terrorism could severely disrupt the U.S. financial sector and banking, communications, transportation systems, business operations, and all major government infrastructure that relies on computers and the Internet.

This may mean that they use information technology, such as computer systems or telecommunications, as a tool to orchestrate a traditional attack. More often, cyberterrorism refers to an attack on information technology itself in a way that would radically disrupt networked services. For example, cyberterrorists could disable networked emergency systems or hack into networks housing critical financial information.[246] For more information on cyberattacks, please see the *Cyber Incident Hazard Profile*.

Active Shooter

An active shooter is an individual actively engaged in killing or attempting to kill people in a confined and populated area. Multiple active shooters are a group that participates in a random or systematic shooting spree demonstrating their intent to continuously harm or kill others. In most cases, active shooters use numerous types of firearms and there is no pattern or method to their selection of victims. Active shooter situations are unpredictable and evolve quickly, with most active shooter situations finishing within 10 to 15 minutes.[247] Warning signs that someone may be planning an attack are:

- Increasingly erratic, unsafe, or aggressive behaviors.
- Hostile feelings of injustice or perceived wrongdoing.
- Drug and alcohol abuse.
- Marginalization or distancing from friends and colleagues.
- Changes in performance at work.
- Sudden and dramatic changes in home life or in personality.
- Financial difficulties.
- Pending civil or criminal litigation.
- Observable grievances with threats and plans of retribution.

2. Geographic Areas Affected by Terrorism

It is almost impossible to predict where and when a terrorist attack could occur. Generally, terrorists target densely populated or high-profile areas, making any of the state's major urban areas a potential target. High-profile infrastructure, such as government and state buildings, amphitheaters, amusement parks, ports, and airports, is also at risk of a potential attack. The specific motivations of terrorists dictate

[245] https://www.fema.gov/pdf/plan/managingemerconseq.pdf
[246] http://www.crime-research.org/library/Cyberterrorism.html
[247] https://www.dhs.gov/xlibrary/assets/active_shooter_booklet.pdf

target selection; therefore, any location within Pinellas County has the potential to become a target of terrorism, especially since it is one of the most populated counties in the State of Florida.

3. Historical Occurrences of Terrorism

There has never been a known terrorist incident in Pinellas County, although a young despondent individual did fly a plane from St. Pete Clearwater Airport into a large building in Tampa following the tragic events of September 11, 2001. There was also a planned domestic terrorism attack in August 2002 on the Islamic Center of Pinellas County with no injuries. Pinellas County does host large events and supports security initiatives for major events in the region such as the Super Bowl (2011) and Republican National Convention (2012).

4. Probability of Future Terrorism Incidents

There is no sure way to predict future terrorism events as most typically occur without warning. The probability of a major terrorist event in the State of Florida is perceived to be high, and planning must be done as part of the larger national DHS initiatives. The Florida Division of Law Enforcement (FDLE) plays a large part in providing the state with critical intelligence and serves as a prevention measure to the state. The Office of Statewide Intelligence, within FDLE, contributes to an ongoing assessment of the state's vulnerability to terrorism, cybersecurity, financial and organized crime, and more. Additionally, the Office coordinates efforts to prepare for, prevent, mitigate, respond to, and recover from acts of terrorism that affect the state.[248]

This hazard was determined to have a probability level of possible (1 to 10% annual probability).

5. Terrorism Impact Analysis

- Public
  - Witnesses are at risk of Post-Traumatic Stress Disorder (PTSD) and survivor's guilt following a large-scale attack
  - Fear throughout the affected community and the country
  - Civilians are a target for attacks and are at risk, especially in crowded areas
  - Exposure to hazardous materials is a possibility and could affect the nearby population and first responders
  - Lack of clean running water can cause unsanitary conditions and dehydration
- Responders
  - First responders are at risk of PTSD and other health issues following a violent attack
  - First responders are a target for second wave attacks and are at risk during rescue operations
  - Exposure to hazardous materials is a possibility and could affect the nearby population and first responders
  - Lack of communications and disruption of critical services can delay emergency response times

[248] https://www.fdle.state.fl.us/OSI

- Continuity of Operations (including continued delivery of services)
    - Tourism can decline following an attack and could cause decreased revenues for a community and the economy
    - Airports in surrounding areas may close causing delays, leaving travelers stranded
    - Streets blocked with debris or otherwise closed near the site can cause street congestion and slow down response times and evacuation routes
    - Bridges could be closed, causing issues evacuating and responding
    - Train disruptions can cause delays and stranded passengers
    - Communication grid overload can cause the system to crash following a large attack
    - Damage to phone lines can cause issues getting information and calling for emergency services
    - Loss of Internet can affect numerous industries and emergency response
- Property, Facilities, Infrastructure
    - Bridges could be destroyed or damaged, causing issues evacuating a community
    - Train tracks could be damaged or destroyed, causing further delay in passengers and cargo being transported
    - Cars in the vicinity could be damaged or destroyed
    - Roads can be damaged or destroyed, causing prolonged delays and reduced access for evacuation
    - Damage to buildings can include:
        - Collapse (full/partial)
        - Windows blown out
        - Fire
    - Damage or destruction of government buildings could delay necessary services for the community
    - Damage or destruction of critical infrastructure such as places of travel, banks, and utilities could cause stress and hardship within the community
    - Outages can be widespread
    - Damage to power grid can prolong outages
- Environment
    - Exposure to hazardous materials could negatively affect the environment and wildlife
    - Contamination of food and water sources
    - Damage to green spaces
- Economic Condition
    - Prolonged loss of revenue could cause businesses to close and worsen the economy
    - Loss of wages could affect citizens' purchasing power, worsening the economy
    - Banks closing or unable to access the Internet could hinder the economy
- Public Confidence in Jurisdiction's Governance
    - Lack of communication from leadership to the public can increase distrust

- Evacuation, response, and recovery timeframes could be criticized
- Not stopping an attack could lead to a loss of respect and confidence

6. Vulnerability Analysis and Loss Estimation by Jurisdiction

The County conducts and is involved in numerous large scale multi-jurisdictional terrorism exercises. Joint planning efforts with several response agencies are currently under way. It is expected that resultant changes in numerous procedures will ultimately minimize the potential effects of a terror incident, should one occur. According to the Regional Domestic Security Task Force, the sector most at risk is Commercial Facilities. The threat category contributing the most risk is IED.

Areas with large populations, major transportation hubs, theme parks or cruise ships, and those with a large influx of tourism are the most at risk for a terrorist attack.

7. Overall Vulnerability

Each of the five PRI categories was assigned a value from 1 to 4 and the pre-determined weighting factor was applied to calculate a PRI score. PRI scores can range from 1.0 to 4.0 and the overall vulnerability ranking or high, moderate, or low was assigned based on the PRI scores.

Based on the probability, impact, spatial extent, warning time, and duration, the overall vulnerability of this hazard was determined to be high, with a PRI score of 2.9.

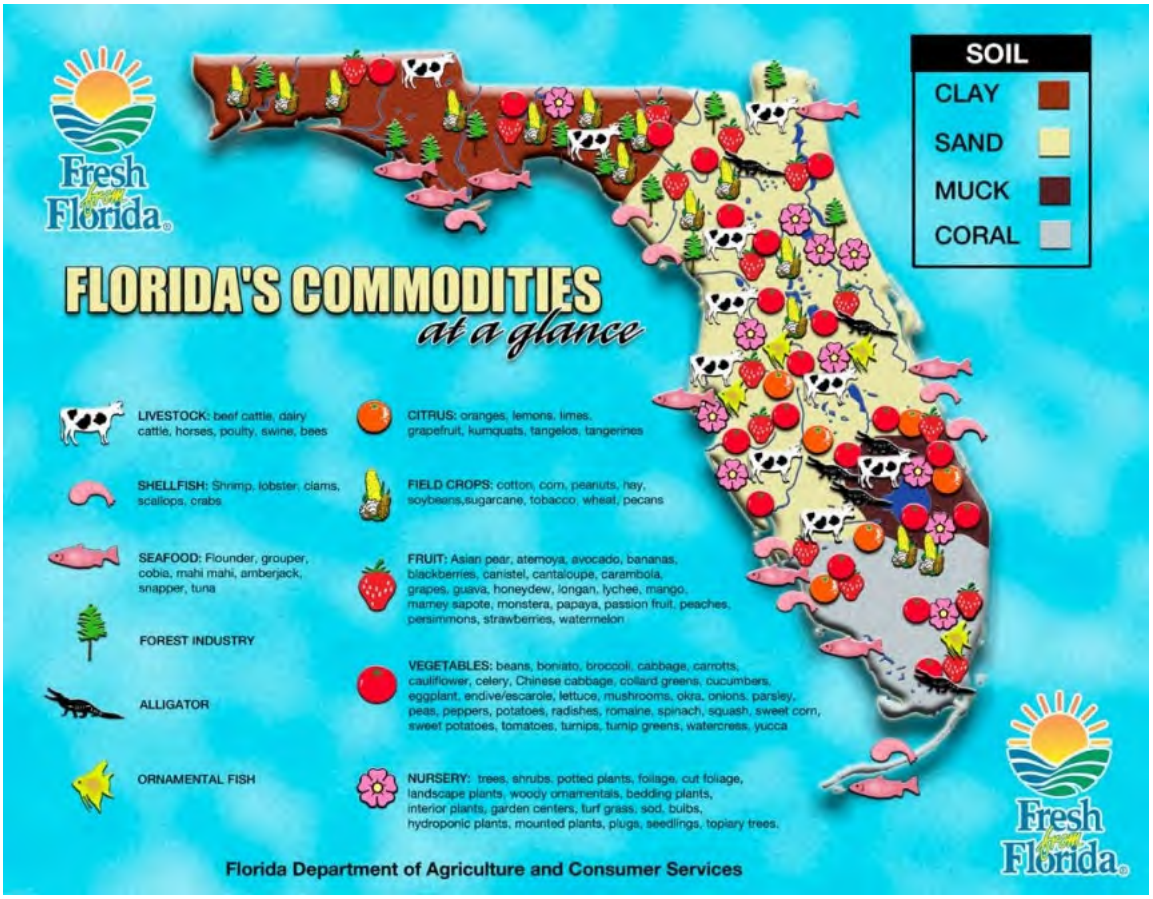
TERRORISM			Overall Vulnerability	
Overview				
In the U.S. Code of Federal Regulations, terrorism is defined as “the unlawful use of force and violence against persons or property to intimidate or coerce a government, the civilian population, or any segment thereof in furtherance of political or social objectives.” This is something that is difficult to mitigate against due to sheer unpredictability. Pinellas County faces a high risk from events involving terrorism due to the booming tourist industry, international ports, etc.			HIGH	
			PRI Score	
			2.9	
Probability	Impact	Spatial Extent	Warning Time	Duration
Possible	Critical	Moderate	< 6 hrs	> 1 week

Agricultural Disruption Hazard Profile

1. Agricultural Disruption Description

Most of Florida, including Pinellas County, has a subtropical climate that provides a conducive environment for near year- round production of a variety of plant and animal agricultural commodities. Florida farmers and ranchers produce hundreds of distinct commodities, all contributing to an agricultural industry which produced over $7.75 billion in 2021.[249] Its seaports, including deep draft ports, and its proximity to the markets of the Caribbean Basin make Florida an ideal trade center and regional hub. However, the tropical climate brings with it vulnerability to severe weather and increased disease and pest pressure. Its status as an international tourist and business destination increases the dangers that new plant and animal diseases or invasive species will be unintentionally introduced.

Figure 4.76: Florida Commodities



Florida's 47,300 farms and ranches cover 9.7 million acres across the state and produce a variety of products. The largest categories by value include, among others: citrus, vegetables, nursery and

[249] https://www.fdacs.gov/Agriculture-Industry/Florida-Agriculture-Overview-and-Statistics

greenhouse products, berries, and livestock. In 2022, Florida ranked (nationally):

- 1st in value of production of bell peppers, total value floriculture sales, value of foliage plants for indoor use, Valencia oranges, grapefruit, sugarcane, fresh market tomatoes, and watermelons.
- 2nd in value of production of all oranges, strawberries, and sweet corn.
- 3rd in cabbage.

The livestock industry produced $1.34 billion in cash receipts in 2021. As of January 1, 2023, there were 1.62 million head of cattle on farms and ranches in Florida. Florida's poultry meat and products (excluding eggs) generated $302 million in export value. The market value of agricultural products sold including food and marketing practices and value-added product in 2022 for Pinellas County was $7 million. [250]

With the risk of invasive pests, diseases, and severe weather, Florida's economy has a lot to lose when faced with hazards. As an example of how damaging an exotic pest can be, the detection of oriental fruit flies in Miami-Dade County in 2015 triggered a quarantine lasting several months, with economic losses that may have exceeded $1 billion. In addition, the fact that Florida produces most of its fruit and vegetable crops during the winter means products are grown and harvested during the coldest months of the year, rendering it vulnerable to freezes which can destroy a significant portion of a crop at the height of its production window.

The Florida Department of Agriculture and Consumer Services (FDACS), the Florida Department of Health (FDOH), and the Florida Department of Business and Professional Regulation (FDBPR) are the three primary state agencies that are tasked with preventing, preparing for, responding to, and ensuring recovery from food and feed emergencies and incidents in Florida. Currently, Florida has established the Food and Water Emergency Support Function, an annex to the Comprehensive Emergency Management Plan (CEMP), to govern the operational concepts, policies, and plans required to achieve the broad objectives for a response of one or more agencies.[251]

Citrus

Florida is the second biggest main producer of citrus within the United States. In 2022, Florida produced 36% of total U.S. citrus production. Oranges comprise the vast majority of citrus leaving the state. In 2022, Florida's orange production was 41.1 million, down 22% from the previous season. Florida's grapefruit production was 3.3 million, representing almost half (44.6%) of U.S. production.[252] Most citrus is grown in the southern two-thirds of the Florida peninsula, where probability of freezing temperatures is lowest, although Polk County in Central Florida remains the top citrus producing county in the state.[253]

Citrus also has a positive impact on Florida's environment. The modern grove design allows for large areas of undeveloped land which provides an excellent wildlife habitat and natural buffer between

[250] https://www.fdacs.gov/Agriculture-Industry/Florida-Agriculture-Overview-and-Statistics
[251] https://www.floridadisaster.org/globalassets/2024-cemp---esf-11.pdf
[252] https://data.ers.usda.gov/reports.aspx?ID=17843#Pbf20e553e21a48c2ae82cf997de93abf_2_17iT0R0x9
[253] https://www.visitflorida.com/travel-ideas/articles/eat-drink-facts-about-florida-citrus-oranges/#:~:text=The%20growing%2C%20packing%2C%20processing%2C,%2C%20highways%2C%20and%20healthcare%20services

farmlands and urban development. University of Florida researchers recently observed more than 159 native species of wildlife within grove ecosystems. Research shows that for every acre of mature trees, 16.7 tons of oxygen is produced per year.[254]

Pests and disease are a risk when dealing with citrus groves. The most common pests include mites, psyllids, scales, weevils, and leaf miners. Common diseases include citrus greening, canker, citrus black spot, and phytophthora. Severe weather such as tropical cyclone conditions, heavy rain, extreme heat or cold, and drought all pose risks to the Florida citrus industry. Because of natural disasters and disease, Florida orange production has fallen an estimated 92% since 2003. Still, USDA forecasts Florida's orange 2023-2024 season production to be 19 percent higher than the previous one. [255]Below are the harvest months for some of Florida's citrus crops.

Table 4.113: Florida Citrus Crop Harvest Months[256]

Crop	Sept	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug
Navel Orange	X	X	X	X	X							
Ambersweet Orange	X	X	X	X	X							
Hamlin Orange	X	X	X	X								
Pineapple Orange				X	X	X						
Temple					X	X						
Valencia Orange					X	X	X	X	X			
White Grapefruit				X	X	X	X	X				
Clementine Tangelo				X	X							
Minneola Tangelo				X	X	X						
Robinson Tangerine	X	X	X									
Sunburst Tangerine				X								

[254] http://www.visitflorida.com/en-us/eat-drink/facts-about-florida-citrus-oranges.html
[255] https://www.ers.usda.gov/data-products/chart-gallery/gallery/chart-detail/?chartId=109051
[256] https://www.pickyourown.org/FLcitrus.htm

Field Crops

Field crops are crops that feed animals, such as corn, small grains, soybeans, and hay. Field crops also include cover crops. On small farms, field crops can be a rotation crop with other high value crops, such as vegetables**.** For example, vegetable fields can be rotated with hay crops, such as orchard grass, to give the soil a rest from intensive cultivation.

The 2022 total value of production for corn for grain, cottonseed, hay, peanuts, and upland cotton for lint totaled $429 million, an increase of 15% from the previous year's total of $373 million. Cottonseed total value of production was up 62% and was valued at $10.3 million. Corn for grain total value of production was down 3% and was valued at $67.5 million. Upland cotton for lint total value of production increased 36% and was valued at $74.7 million. Peanut total value of production was up 9% and was valued at $147 million. Hay total value of production increased 22% and was valued at $129 million.[257]

Pests and disease are also a risk when dealing with field crops. Some common pests include the sugarcane borer, white grubs, wireworms, yellow aphid, and lesser cornstalk borer. Common signs of infestation are pinholes in leaves and holes in stalks. Water management issues throughout South Florida, as well as occasional drought and the erosion or depletion of the muck soils in which the crops grow, are ongoing problems. As with all areas, severe weather such as tropical cyclone conditions, heavy rain, extreme heat or cold, and drought all pose risks to field crops. Below are the harvest months for some of Florida's field crops.

Table 4.114: Florida Field Crop Harvest Months

Crop	Sept	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug
Corn for Grain	X											X
Corn for Silage											X	
Corn for Forage	X	X										
Cotton		X										
Peanuts	X	X										
Potatoes							X	X	X	X		
Soybeans		X	X									
Sugarcane			X	X	X	X						
Winter Wheat										X		
Hay	X	X	X							X	X	X

Vegetables, Melons, and Berries

In 2022, Florida accounted for approximately 20% of the total U.S. value for tomatoes, 37% of cucumbers, 35% of snap beans, 40% of bell peppers, 28% of squash, 24% of sweet corn, 19% of watermelons, and 15% of strawberries. Florida is also known for being the largest producer of strawberries during the winter. The 2022 value of production for the published major berries, spring potatoes, vegetable crops, and watermelons totaled $1.93 billion, up 16% from 2021.

[257] https://www.fdacs.gov/Agriculture-Industry/Florida-Agriculture-Overview-and-Statistics

The crops that increased in percentage value were bell peppers (+90%), snap beans (+35%), squash (33%), strawberries (+28%), spring potatoes (16%) and watermelons (4%). In 2023, the export values of Florida's fresh fruit and fresh vegetables were $356.3 million and $333.3 million, respectively.[258]

The main pests that affect vegetables, berries, and melons are the twospotted spider mite, thrips, and butterfly and moth larvae. Other pests include birds, slugs, and snails. Bird predation used to be viewed as a sporadic threat, but it has rapidly been growing to the point where losses are measured in millions of dollars. While irrigation can usually prevent drought damage to crops, excessive rain and flooding can increase pest and disease pressure. Freezes during any crop's harvest window can likewise damage both plants and fruit. Below are the harvest months for vegetables, berries, and melons.

Table 4.115: Florida Vegetable, Melon, and Berry Harvest Months[259]

Crop	Jul	Aug	Sept	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun
Snap Beans				X	X	X	X	X	X	X	X	X
Blueberries										X	X	
Cabbage							X	X	X	X	X	
Carrots										X	X	
Cantaloupes										X	X	X
Celery						X	X	X	X	X	X	
Sweet Corn					X	X	X	X	X	X	X	
Cucumbers				X	X	X			X	X	X	
Eggplant					X	X	X	X	X	X	X	X
Lettuce						X	X	X	X	X		
Bell Peppers					X	X	X	X	X	X	X	
Potatoes								X	X	X	X	X
Strawberries						X	X	X	X	X		
Tomatoes				X	X	X	X	X	X	X	X	X

Livestock

In 2020, the leading livestock commodities were cattle and calves (7% of all cash receipts) and dairy products (6.1%). In January 2023, Florida ranches were home to 1.62 million head of cattle. Among the states, Florida ranks in ninth in beef cows and 18th in total cattle. Calves born during 2022 totaled 780,000.

As of 2019, 4.3 million acres of Florida land are used for pasture, rangeland, seasonal grazing, and other beef and dairy cattle operations, representing 10.2% of the state's total land area. [260]

Florida has had several regional winners and one national winner of the National Cattlemen's Environmental Stewardship Award for their conservation efforts. Lands that are used for cattle production are also important green space for wildlife and native plant habitat, aquifer recharge, and carbon recovery. Grass and forages used for cattle production are renewable resources occurring in a

[258] https://www.fdacs.gov/Agriculture-Industry/Florida-Agriculture-Overview-and-Statistics
[259] https://www.fdacs.gov/Consumer-Resources/Buy-Fresh-From-Florida/Crops-in-Season
[260] https://branding.ifas.ufl.edu/downloads/uploads/Extension%20Brochures/IFAS/Florida-Agriculture-Food-System-Fast-Facts.pdf

great variety of landscapes typically found on cattle ranches, including improved pastures, wetlands, marsh, woodlands, and prairies. Florida's cattle industry was also a leader in the formulation and adoption of agricultural industry water quality best management practices and other standards.

Florida has a large poultry production operation as well. Florida's broiler production totaled 391 million pounds in 2022.[261]

Diseases are a risk within the livestock population, and non-endemic animal diseases can threaten the industry if introduced. For example, in 2016, a livestock quarantine was in effect in Monroe County due to an outbreak of New World Screwworm. Infested animals can die of infection in as little as seven days. Excessive rain and flooding can create conditions even more favorable to the spread of disease and infestations in livestock. Drought, extreme heat or cold, and severe weather can also affect the livestock industry.

Forestry and Horticulture

Florida has 17.16 million acres of forestland, representing 50% of the state's total land area. The state has extensive natural and planted pine and hardwood forests that are commercially utilized for production of a wide variety of wood building materials, consumer paper and packaging products, chemicals, and renewable biomass fuels. Nearly two-thirds of Florida's forestlands are privately owned by industry, corporations, families or individuals. Florida's forestry industry accounts for 114,590 full- and part-time jobs according to the latest estimates.[262] Florida's forest product manufacturing operation support an estimated $14.8 billion in sales revenue.

Florida had the largest sales for floriculture in the United States in 2023. [263]In 2022, Florida accounted for 18% of all U.S. floriculture, totaling $1.16 billion. Nursery and floriculture production created 19,114 jobs per the latest reports.[264]

Weather can severely impact both of these agricultural industries. Drought, flooding, extreme heat or cold, and wildfires are the highest natural threats to forestry and horticulture industries. Invasive species of plants and pests can also destroy various plants and trees.

Aquaculture and Seafood

Aquaculture is the process of farming or growing animals or plants in a controlled water environment. Florida ranks 9th overall in the United States for total sales of aquaculture products. Florida ranks 1st in the U.S. for sales of ornamental fish, 2nd for alligators, and 3rd for clams, crustaceans, hybrid striped bass, and turtles. Florida's shellfish aquaculture sector supports $29.4 million in sales revenue and 434

[261] https://downloads.usda.library.cornell.edu/usda-esmis/files/m039k491c/wm119387d/5138kw352/plva0423.pdf
[262] https://www.nass.usda.gov/Publications/Highlights/2024/2023-floriculture-highlights.pdf
[263] https://www.fdacs.gov/Agriculture-Industry/Florida-Agriculture-Overview-and-Statistics
[264] https://branding.ifas.ufl.edu/downloads/uploads/Extension%20Brochures/IFAS/Florida-Agriculture-Food-System-Fast-Facts.pdf

jobs throughout the state.[265]

Florida ranked sixth nationally in 2022 for fresh seafood production with 109.3 million pounds harvested and a dockside value of $269.7 million, an 11.5% increase over the past decade, representing 4.5% of U.S. total value. Florida's West Coast has decreased production (landing pounds) by 13.7% over the past decade, while the price per pound increased by 26.4% from 2013 to 2022, indicating an overall 9.1% increase in Florida's West Coast value. The top 10 most valuable species landed on Florida's West Coast during 2022 were stone crab ($45.8 mil), spiny lobster ($41.1 mil), Pink Shrimp ($21.5 mil), red snapper ($15.3 mil), red grouper ($14.7 mil), blue crab ($9.6 mil), bait shrimp ($8.7 mil), yellowtail snapper ($7.4 mil), gag grouper ($4.8 mil), and striped mullet ($4.6 mil). [266]Florida harvests over 85% of all the grouper landed in the United States, and over 75% of Florida grouper is landed in Pinellas County.[267]

The largest threats to aquaculture and seafood are diseases, non-native or invasive species, and severe weather.

Pests and Diseases

Agriculture is one of the state's largest industries, and the introduction of pests or a disease outbreak can severely impact the economic prosperity of the industry. Crops are grown in Florida year-round and animals are raised and slaughtered, which provides a large percentage of U.S. food resources. Due to Florida's convenient trade location, products are imported and exported rapidly which can introduce unknown diseases and pests to the area. Disease can spread and create an outbreak, killing untold numbers of plants and animals. Pests ranging from birds, rodents, and insects (beetles, caterpillars, grasshoppers, etc.) can ruin a crop harvest and severely impact the economic community.

University of Florida Entomology and Nematology Department personnel identified several arthropod pests that can severely damage agricultural crops, ornamental plants, turf, fruiting plants, and trees. The ability to rapidly identify the pests or damage can help prevent costly or aesthetic losses to crops and landscaping.

Disease is prevalent in livestock and crops within Florida and can easily spread under certain conditions. Multiple factors can influence disease development in plants and animals including age, environment, weather, and genetics of pathogen populations. Human involvement can also speed up the spread of unknown diseases. The introduction of disease may severely limit the ability to move, harvest, slaughter, and export plant or animal products. Widespread disease can cause significant losses to farmers and economic hardship on the community.

One Method to Mitigate…

Currently, the United States Department of Agriculture (USDA) administers a biological control program (biocontrol) that involves the reduction of pest populations through the use of natural enemies such as parasitoids, predators, pathogens, antagonists, or competitors to suppress pest populations.[268] The goal of this program is to safeguard America's agricultural production and natural areas from significant

[265] https://branding.ifas.ufl.edu/downloads/uploads/Extension%20Brochures/IFAS/Florida-Agriculture-Food-System-Fast-Facts.pdf
[266] https://www.fdacs.gov/Agriculture-Industry/Florida-Seafood-and-Aquaculture-Overview-and-Statistics
[267] https://www.fdacs.gov/Consumer-Resources/Buy-Fresh-From-Florida/Seafood-Products/Grouper
[268] https://www.aphis.usda.gov/plant-pests-diseases/biocontrol

economic losses and negative impacts caused by insects, other arthropods, nematodes, weeds, and diseases of regulatory significance to the federal government, state departments of agriculture, tribal governments, and cooperators within the continental United States and on American territories through the use of biological control agents.

Invasive Species

An invasive species can be any kind of living organism such as an amphibian, plant, insect, fish, fungus, or bacteria that is not native to an ecosystem and which causes harm. Invasive species can harm the environment, the economy, or even human health. Invasive species often grow and reproduce quickly, and spread aggressively, with potential to cause harm.

Invasive species are primarily spread through human activities, often unintentionally. People, and the goods we use, travel around the world very quickly, and they often carry uninvited species with them. Ships can carry aquatic organisms in their ballast water, insects can get into wood shipping crates that are sent around the world, ornamental plants can escape into the wild and become invasive, or invasive species can be intentionally or accidentally released, which is often the case with pets or smuggled exotic species.

Invasive species cause harm to wildlife and agricultural production in many ways. When a new and aggressive species is introduced into an ecosystem, it might not have any natural predators or controls. It can breed and spread quickly, taking over an area. Native wildlife may not have evolved defenses against the invader or cannot compete with a species that has no predators. [269]

Severe Weather

Florida may be considered the most vulnerable state in the nation to the impacts from hurricanes, tropical storms, and tropical depressions (collectively known as tropical cyclones). In addition to tropical cyclones, Florida is vulnerable to numerous other types of severe weather such as severe storms, tornadoes, hail, drought, various types of flooding, and extreme temperatures including freezes.

Freezes in Florida create a threat to the agricultural industry as the state's winter-season vegetable growers historically face a high risk of freeze damage from cold temperatures. Vulnerable crops include citrus and sugarcane crops and commercial foliage (tropical plants, trees, and shrubs). A freeze in Florida can cause substantial disruption in the nation's supply of vegetables as well as economic problems. Additionally, prolonged freezes can have a detrimental effect on the state's aquaculture industry, specifically fish farming.

Within the State of Florida, the Department of Environmental Protection and the regional water management districts monitor water supply and flood potential within their regions. A drought or flood can severely impact the industry causing loss of crops, the inability to replant, loss of livestock, and increased chance of disease or pest infestation. The Florida agricultural industry relies on water distribution to ensure healthy livestock and crops.

[269] https://www.nwf.org/Educational-Resources/Wildlife-Guide/Threats-to-Wildlife/Invasive-Species#:~:text=What%20Makes%20a%20Species%20%22Invasive,economy%2C%20or%20even%20human%20health

Potential Effects of Climate Change

The potential impact of climate change on Florida's agriculture, commercial forests, and natural ecosystems is hard to predict; however, scientists agree that the warmer climate means more intense weather – heavier rains, higher probability of large storms, and longer periods of drought. There could also be increased wildfire risk.

The higher temperatures will affect crops in a variety of ways due to the complexities of the species, from issues with pollen viability, fertilization, to grain or fruit formation. Temperate fruits are expected to yield poorer quantity/quality harvests. Heat stress will likely result in decreased productivity of agricultural labor.

The sea level rising will create salt-water intrusion, substantially infuses the soil with salt and causes plants to stress due to decreased freshwater availability. The aquaculture and commercial fishing industry could potentially see a decline in fish quantity as species move to move to deeper, colder waters. [270]

2. Geographic Areas Affected by Agricultural Disruption

All of Florida is vulnerable to agricultural disruption; however, Pinellas County is mostly built out and has little agricultural business and industry. Invasive species are another source of agricultural disruption; introducing a new insect, intentionally or unintentionally, could be incredibly detrimental.

3. Historical Occurrences of Agricultural Disruption

A record of historical occurrences of agricultural disruption in Pinellas County is not available at this time.

4. Probability of Future Agricultural Disruption

While the probability of a specific disease, pest, or weather threat is impossible to predict with certainty, tropical cyclones are a seasonal threat which cause damage through excessive rain, flooding, and wind. The introduction of pests and diseases previously unknown in Florida or long absent from the state will remain a threat as long as Florida remains open to international trade and tourism.

This hazard was determined to have a probability level of unlikely (less than 1% annual probability).

5. Agricultural Disruption Impact Analysis

- Public
  - Negative human health effects from consumption of diseased crops or livestock
  - Threats from invasive species that are poisonous or dangerous
- Responders
  - N/A
- Continuity of Operations (including continued delivery of services)

[270] https://www.usda.gov/oce/climate_change/effects_2012/CC%20and%20Agriculture%20Report%20(02-04-2013)b.pdf

- Reduced supply of crop or livestock product
- Invasive species and plants can cause water flow disruptions and clogged transportation
- Poor livestock and plant health due to disease or pest infestation

- Property, Facilities, Infrastructure
  - N/A
- Environment
  - Decline in natural species
  - Loss of habitats and grazing land for livestock, marine animals, and plants
  - Invasive species and plants can cause water flow disruptions and clogged transportation
- Economic Condition
  - Cost of quarantines for disease or pest infestation
  - Cost to eradicate invasive species
  - Economic losses for the state
  - Lost wages for farm workers
  - Lost revenue for farmers
- Public Confidence in Jurisdiction's Governance
  - Public frustration with the government

6. Vulnerability Analysis and Loss Estimation by Jurisdiction

Due to the nature and unpredictability of agricultural disruptions, all property and infrastructure within the agricultural industry in the State of Florida is at risk to these events. Most of the agricultural industry is in the southern part of the state; these counties would have an elevated risk for agricultural disruptions as compared to Pinellas County.

Florida recognizes that jurisdictions are vulnerable to agricultural disruptions, but there is a lack of data to quantify the economic vulnerability from these hazards compared to others.

7. Vulnerability Analysis and Loss Estimation of Critical Facilities

Due to the nature and unpredictability of agricultural disruptions, all property and infrastructure within the agricultural industry in the State of Florida is at risk to these events. Most of the agricultural industry is in the southern part of the state; these counties would have an elevated risk for agricultural disruptions as compared to Pinellas County.

Florida recognizes that jurisdictions are vulnerable to agricultural disruptions, but there is a lack of data to quantify the economic vulnerability from these hazards compared to others.

8. Overall Vulnerability

Each of the five PRI categories was assigned a value from 1 to 4 and the pre-determined weighting factor was applied to calculate a PRI score. PRI scores can range from 1.0 to 4.0 and the overall vulnerability ranking or high, moderate, or low was assigned based on the PRI scores.

Based on the probability, impact, spatial extent, warning time, and duration, the overall vulnerability of this hazard was determined to be high, with a PRI score of 2.8.

AGRICULTURAL DISRUPTION			Overall Vulnerability	
Overview				
Hazards in the agricultural industry come in the form of pests, disease, and severe weather conditions. The industry brings in about $8 billion in cash receipts to the State of Florida. Weather poses a threat to Florida due to the subtropical nature of the state and the time of year that many of the harvests take place. As a popular destination for tourism and international business, the state faces an increased threat of foreign disease and pest infestations, as well.			HIGH	
			PRI Score	
			2.8	
Probability	Impact	Spatial Extent	Warning Time	Duration
Unlikely	Critical	Large	< 6 hrs	> 1 week

Biological Incident Hazard Profile

1. Biological Incident Description

A biological incident can refer to many different types of incidents involving bacteria, viruses, or toxins, all of which can be harmful or deadly to humans and animals. These various bacteria, viruses, and toxins are referred to as biological agents.

It is important to understand the terminology of diseases. Many people use the words pandemic and epidemic interchangeably although they have very distinct definitions. An epidemic is a widespread occurrence of an infectious disease in a community at a particular time. A pandemic refers to an epidemic that has spread beyond a region to infect large numbers of people worldwide. Another often confused word is endemic, which refers to a disease or condition that is regularly found among a specific group of people or geographic area.

Below are several examples of common agents that cause illness and disease in humans. Some are commonly known and naturally occurring, others are emerging diseases or zoonotic diseases that have recently spread in humans. These diseases are waterborne, foodborne, and airborne. Additionally, outbreaks can be naturally occurring, or they can be the result of a terrorist act.[271]

Terminology

Some of the most virulent and prevalent biological agents according to OSHA include the following:

- Anthrax
- Avian flu
- Bloodborne pathogens
- Botulism
- Coronavirus disease 2019 (COVID-19)
- Ebola
- Hantavirus
- Legionnaires disease
- Mold
- Plague
- Ricin
- Severe acute respiratory syndrome (SARS)
- Smallpox
- Tularemia
- Viral hemorrhagic fevers (VHFs) [272]

Emerging Diseases

The terms emerging disease or emerging biological agent refers to infections that have increased recently or are threatening to increase in the future. Examples of each of these types are discussed below.

[271] https://www.osha.gov/SLTC/biologicalagents/index.html
[272] https://www.osha.gov/SLTC/biologicalagents/index.html

- HIV infections in humans came from a type of chimpanzee in Central Africa. The virus has existed in the United States since the mid-1970s. Pinellas County a rate of 537.8 per 100,000 people diagnosed with HIV as of 2023. [273]
- Severe acute respiratory syndrome (SARS) is a viral respiratory illness caused by a coronavirus. SARS was first reported in Asia in February 2003, but the global outbreak of 2003 was contained, some guidelines from this outbreak are still being used. There have not been any known cases of SARS reported anywhere in the world since 2004.
- COVID-19 is a disease caused by a virus named SARS-CoV-2 and was discovered in December 2019 in Wuhan, China. The first case in Florida was reported on March 1, 2020.[274] It most often causes respiratory symptoms that can feel much like a cold, flu, or pneumonia.
- Some infections have changed and become resistant to antibiotics, such as Methicillin-resistant Staphylococcus aureus (MRSA) as well as a strain of tuberculosis. These cases are very difficult to cure, more expensive to treat, and often result in patient death.

The CDC works with state and local health departments and hospitals to monitor possible disease outbreaks. The Emerging Infections Program has several programs, including the Active Bacterial Core Surveillance, FoodNet, Healthcare Associated Infections-Community Interface, and Influenza monitoring programs. [275]

Chemicals

Biotoxin chemicals could also be released, intentionally or unintentionally, causing mass illness. These agents include blister agents, biotoxins, blood agents, caustics (acids), choking/lung agents, incapacitating agents, metals, nerve agents, tear gas, and toxic alcohols.[276]

Zoonotic Diseases

Zoonotic diseases are those that are spread between animals and people. Commonly known examples are:

- Lyme disease, which is spread by ticks;
- salmonella, which is spread by poultry; and
- rabies, which is spread by mammals.

Additionally, there are several diseases that are spread by household pets, such as cat scratch disease, E. coli, and ringworm.[277]

[273] https://www.flhealthcharts.gov/ChartsDashboards/rdPage.aspx?rdReport=HIVAIDS.DataViewer&cid=9866
[274] https://pinellas.gov/covid-19-county-response-after-action-report/
[275] https://www.cdc.gov/ncezid/
[276] https://www.cdc.gov/chemicalemergencies/hcp/chemicals-by-category.html
[277] https://www.cdc.gov/one-health/about/about-zoonotic-diseases.html

Foodborne Illnesses

There are also several types of foodborne illnesses. The most common are those caused by norovirus, salmonella, *Clostridium perringens*, and campylobacter. Other common foodborne illnesses and diseases are:

- Botulism
- Cholera
- E. coli
- Listeria
- Shigella
- Traveler's diarrhea

The CDC estimates that 48 million people get sick, 128,000 are hospitalized, and 3,000 die from foodborne diseases each year in the United States. The CDC Food Safety Division describes the impacts of 31 known pathogens, grouped as bacteria, parasites, and viruses. Each disease causes different symptoms, but nausea, vomiting, abdominal cramps, and diarrhea are very common. More severe symptoms include life threatening neurologic, hepatic, and renal syndromes.[278]

Foods most associated with foodborne illness include raw meat, poultry, shellfish, eggs, and unpasteurized milk. Unwashed fruits and vegetables processed in unsanitary conditions can also cause illness.

The CDC works with state and local health departments and hospitals to monitor possible disease outbreaks. The Emerging Infections Program has several programs, including the Active Bacterial Core Surveillance, FoodNet, Healthcare Associated Infections-Community Interface, and influenza monitoring programs.[279]

Because there are hundreds of possible agents that could cause a deliberate or non-deliberate outbreak or epidemic, this profile will not go into great detail for all agents. Of particular concern to the United States and the State of Florida are COVID-19, Respiratory Syncytial Virus, Zika Fever Virus, and influenza, so these will be profiled in greater depth below.

COVID-19

Coronavirus disease 2019 (COVID-19) is a disease caused by a virus named SARS-CoV-2 and was discovered in December 2019 in Wuhan, China. The first cases in Florida were reported on March 1, 2020, and the first cases in Pinellas County were reported on March 13, 2020. From the start of the COVID-19 pandemic to March 2022, Pinellas County had over 3,000 deaths.[280] There are numerous variants throughout the United States and are being tracked through the pandemic. These variants are formed from the spike proteins sticking out of the virus and these proteins attach to cells and then replicate inside. The transmission of the virus spreads when an infected person breathes out droplets and then these droplets can be breathed in or land on surfaces. Individuals can become reinfected after

[278] https://www.cdc.gov/foodborneburden/index.html
[279] http://www.cdc.gov/ncezid/dpei/index.html
[280] https://pinellas.gov/covid-19-county-response-after-action-report/

recovering from a previous infection. These individuals may have some protection from repeated infections.

Some of the symptoms include fever or chills, cough, fatigue, sore throat, and/or congestion or runny nose. These symptoms may appear 2-14 days after exposure to the virus and anyone can have mild to severe symptoms. There are treatments available to reduce the chances of hospitalization and death to those who are likely to get sick. Vulnerable individuals to COVD-19 are older adults, unvaccinated individuals, and those with weakened immune systems or lung or heart diseases.

Respiratory Syncytial Virus

Respiratory syncytial virus (RSV) is a common respiratory virus that usually causes mild, cold-like symptoms. Most people recover in a week or two, but young children and older adults, especially those with certain underlying health conditions, are at higher risk for severe illness from RSV. [281] Florida's RSV season is longer than the rest of the nation and has distinct regional patterns. You can learn more about the regions via the Surveillance Activity Summary on the Florida Health website. [282]

People infected with RSV are usually contagious for three to eight days. RSV can spread when an infected person coughs or sneezes. These droplets then can land on various surfaces, including on the face. If an object, like a doorknob, has the virus on it and you touch your face without washing your hands or if you come into direct contact with the face of someone who has RSV, such as a child. It can survive for many hours on hard surfaces such as tables and crib rails. It lives on soft surfaces such as tissues or hands for a shorter amount of time. [283] Each year, respiratory viruses are responsible for millions of illnesses and thousands of hospitalizations and deaths in the United States. [284]

Zika Virus

Zika is a virus that is spread by the bite of an infected mosquito. There are many types of mosquitos, but only the *Aedes* genus spreads Zika. These mosquitos bite during both the day and night. Other types of transmission include sexual intercourse with an infected person and blood transfusions from an infected person. Zika can also be passed from a pregnant woman to her fetus and cause certain birth defects, such as microcephaly and Guillain-Barre syndrome. While Zika is not deadly, there is no vaccine or medicine to cure Zika. Symptoms of Zika include fever, rashes, joint pain, red eyes, muscle pain, and headaches. These symptoms last for several days to a week. A blood or urine test can confirm a Zika infection.

Zika was discovered in 1947, with the first human cases confirmed in 1952. Outbreaks of the disease have been reported in Africa, Southeast Asia, and the Pacific Islands. Outbreaks occurred in 2015 in Central and South America, Mexico, and the Caribbean. In 2016, Zika was introduced to Miami, Florida, and began to be transmitted locally in southern Florida and Brownsville, Texas, as well as three U.S.

[281] https://www.cdc.gov/rsv/causes/index.html
[282] https://www.floridahealth.gov/diseases-and-conditions/respiratory-illness/respiratory-syncytial-virus/index.html
[283] https://www.cdc.gov/rsv/causes/index.html
[284] https://www.cdc.gov/respiratory-viruses/guidance/?CDC_AAref_Val=https://www.cdc.gov/respiratory-viruses/guidance/respiratory-virus-guidance.html

territories.

There are currently no areas of ongoing, active transmission of Zika by mosquitoes in Florida. All previously identified zones have been cleared.[285]

Influenza

Influenza is a contagious respiratory illness caused by a flu virus. It can cause mild to severe illness and can lead to death. According to the Florida Department of Health, the best way to prevent the flu is to get a flu vaccine each fall, but individuals will need to be re-vaccinated each year because the flu viruses change. People aged 65 years and older; children, especially those from the ages of 6 months to 23 months; and those with chronic medical conditions are more likely to have complications with influenza. However, it is important to remember that anyone can get the flu and that serious complications can occur at any age.

From 2022-2023, influenza caused 21,000 deaths, 360,000 hospitalizations, and 31,000,000 illnesses in the United States. [286]

Pandemic influenza, or PanFlu, refers to an influenza pandemic where a novel and highly contagious strain of the influenza virus emerges, affecting populations around the world. Florida's geographic and demographic characteristics make it particularly vulnerable to the importation and spread of influenza. This is because nearly one third of Floridians reside in urban and suburban areas of just three counties, including large populations of immigrants. Additionally, Florida has a large tourism industry, 2 interstate road systems, and 13 international airports, the largest two being Orlando and Miami.

FDOH has estimated that an influenza pandemic could result in up to 10 million infected Floridians, with 5 million chronically ill and up to 18,000 deaths. The demands on the healthcare industry in Florida would overwhelm the state's capabilities. Additionally, because a pandemic influenza would likely affect the entire United States, mutual aid from other states would likely be unavailable. Because of this serious risk that pandemic influenza poses to Florida, an influenza pandemic preparedness plan has been developed, with cooperation from surrounding states and the CDC. The plan describes disease surveillance, emergency management, vaccine delivery, laboratory and communications activities, and agency coordination.[287]

Vibrio Vulnificus

Vibrio vulnificus is a natural bacterium that normally lives in warm, brackish seawater. These infections are rare but serious. The following table summarizes the cases in Florida.

[285] https://www.floridahealth.gov/newsroom/2016/12/120916-zika-update.html#:~:text=Florida%20no%20longer%20has%20any,locations%20that%20are%20being%20investigated.
[286] https://www.floridahealth.gov/diseases-and-conditions/respiratory-illness/influenza/pandemic-influenza.html
[287] https://www.cdc.gov/flu/about/burden/index.html#:~:text=While%20the%20effects%20of%20flu,annually%20between%202010%20and%202023.

Table 4.116: *Vibrio Vulnificus*, Florida Cases since 2015

Year	Cases	Deaths
2015	45	14
2016	46	10
2017	50	11
2018	42	9
2019	27	2
2020	36	7
2021	34	10
2022	74	17
2023	46	11
2023	28	6

In 2022, there was one confirmed case in Pinellas County. There were no cases in 2023. As of August 2024, there has been one confirmed case in Pinellas County. [288]

Transmission

There are several methods of disease transmission. The diseases and illnesses that could cause an outbreak or biological incident are communicable. This means the disease is spread through direct or indirect transmission.

Direct contact occurs through skin-to-skin contact, kissing, sexual intercourse, or contact with soil or vegetation harboring infectious organisms. Droplet spread refers to spray with relatively large, short-range aerosols produced by sneezing, coughing, or even talking.

Indirect transmission refers to the transfer of an infectious agent from a reservoir to a host by suspended air particles, inanimate objects (vehicles), or animate intermediaries (vectors). Airborne transmission occurs when infectious agents are carried by dust or droplet nuclei suspended in air. Vehicles that may indirectly transmit an infectious agent include food, water, biologic products (blood), and fomites (inanimate objects such as handkerchiefs, bedding, or surgical scalpels). Vectors such as mosquitoes, fleas, and ticks may carry an infectious agent through purely mechanical means or may support growth or changes in the agent.

Bioterrorism

A biological attack refers to an intentional release of viruses, bacteria, or other germs (agents) against humans, animals, or plants. An attack against people could be used to cause illness, death, fear, societal disruption, and economic damage. Terrorists could release biological agents in many different forms, including, aerosol, food, water, infected humans, infected animals, insects, physically (mail), or agriculturally. These agents are typically microorganisms found in nature, but may possibly be modified to increase their resilience to current antibiotics or vaccines, or enhance the ability to be disseminated

[288] https://www.floridahealth.gov/diseases-and-conditions/vibrio-infections/vibrio-%20vulnificus/index.html?utm_source=flhealthIndex

into the environment.

To increase its transmissibility, an agent could be manipulated into an aerosol form for easier dispersion, or an agent could be altered to shorten an incubation period to make containment nearly impossible.

Biological agents are organized into three categories based on their capabilities for damage and their availability.

- Category A agents are high priority and pose the highest risk to the public and national security. These agents are easily spread, result in a high death rate, can cause public panic and social disruption, and require special public health preparedness actions.
- Category B agents are moderately easy to spread, result in moderate illness rates and low death rates, but still require enhanced diagnostic capacity and disease surveillance.
- Category C agents are emerging pathogens that can be manipulated for mass dispersion, are easily available, easily produced, and have high morbidity and mortality rates.

The United States plans for specific agents that are possible bioweapons, mostly Category A and B. These agents include:

- Anthrax
- Botulism
- Brucellosis
- Plague
- Smallpox
- Tularemia
- Viral hemorrhagic fever[289]

Symptoms

Aside from the health impacts, there are psychological impacts after a biological attack, including anger, fear, and social isolation. There is also the risk of mass hysteria and mass psychogenic illness, which means that people display similar symptoms as others who were infected but are not actually infected. This is a real condition, noted by the DSM-IV-TR as epidemic hysteria, where people develop symptoms like those who were infected. Decontamination is required after a biological agent exposure. If there is a contamination, deliberate or not, of livestock or produce, it may be necessary to halt the movement and recall possibly contaminated products to limit exposure.

SNS Stockpile

The National Pharmaceutical Stockpile was created in 1999 to ensure the nation was prepared for a bioterrorism event. The idea was to have large quantities of medical supplies that could be delivered to a community in need within a short timeframe. This program became the Strategic National Stockpile (SNS) and has been used several times in recent years, including during the 9/11 attacks, natural disasters, H1N1 PanFlu, Ebola outbreak, and the Zika virus. The packs include antibiotics, chemical

[289] https://www.dhs.gov/publication/biological-attack-fact-sheet

antidotes, antitoxins, vaccines, antivirus drugs, personal protective equipment, and ventilators, among other things. One example of an SNS resource is a CHEMPACK, which contains nerve agent antidotes and can be used even when the agent is unknown because the medicine treats the symptoms of exposure. This is a useful tool because more than 90% of the population lives within 1 hour of a location. The SNS locations are placed strategically across the United States to be available to all areas in a short amount of time.[290]

Surveillance

Public Health agencies monitor the occurrence of certain diseases to stop an outbreak from continuing or from becoming more severe. The CDC Emerging Infections Program has several programs to monitor the health of the nation, including Active Bacterial Core Surveillance (ABCs), FoodNet, Healthcare Associated Infections – Community Interface (HAIC), as well as monitoring reports of influenza. [299] These programs translate surveillance and research into informed policy and public health practices. Additionally, there is a tool called the National Bio Surveillance Integration System to help determine the difference between a normal or common illness and a biological incident. Medical centers are often the first place that the introduction of biological agents is detected, whether it is natural or a biological attack. The CDC also has an Outbreak Response Team that coordinates multistate foodborne outbreak investigations for agents such as salmonella and E. coli. This team coordinates with the USDA to remove contaminated food from commerce. In addition to this team, the CDC has a program called Foodborne Diseases Centers for Outbreak Response Enhancement (FoodCORE) that responds to bacteria outbreaks in food.[291]

Control

To prevent a disease outbreak, mass isolation or quarantine of affected or potentially affected people may be necessary. International and interstate travel may also need to be restricted to prevent further outbreak. Decontamination of exposed individuals may be necessary. Food, animals, and agricultural products may need to be quarantined as well. Livestock and poultry may need to be either vaccinated or depopulated, and the movement of animals and equipment may be restricted. All these actions would be intended to prevent the spread of disease. It is important to note that the restriction of travel and movement of animals could severely impact the economy.

2. Geographic Areas Affected by Biological Incidents

The entire State of Florida could be affected by biological incidents, including Pinellas County. Overall, Pinellas County's vulnerability to disease outbreak is low to moderate depending on the type of disease. The most vulnerable populations are the elderly and very young. Pinellas County has one of the largest concentrations of people over the age of 55 in the state. In 2015, 39 percent of our population was 55 years of age or above and 23 percent was 65 years of age or above. This is a trend with significant implications in terms of our vulnerability and is expected to continue. By 2045 it is projected that, almost half of Pinellas County's population will be 55 years of age or above with 35 percent of the age 65 years or above. [292]The elderly population tends to live in close proximity with each other in mobile home, deed restricted, and condominium communities. Transportation hubs, like Orlando and Miami,

[290] http://www.cdc.gov/phpr/stockpile/history.htm
[291] http://www.cdc.gov/ncezid/dpei/index.html
[292] https://plan.pinellas.gov/vision/

could be more likely to experience biological incidents and would likely be the first to experience these incidents because of the large population and high numbers of travelers.

3. Historical Occurrences of Biological Incidents

Florida has experienced several biological incidents in recent history. The following incidents were declared Public Health Emergency disasters in Florida:

- July 24, 2009: Swine Influenza A (swH1N1)
- August 12, 2016: Outbreak of Zika virus
- January 31, 2020 - July 19, 2021: 2019 Novel Coronavirus
- August 4, 2022: Outbreak of Monkey Pox

4. Probability of Future Biological Incidents

The probability of any disease outbreak that affects Pinellas County's population remains low. However, each specific disease has its own set of risk factors and probabilities that influence the overall risks. These factors include world traffic patterns of people and animals, virulence, surveillance systems, and early detection systems. The COVID-19 pandemic recently affected the entire world, and it is likely that other biological incidents will affect the state at some point in the future.

This hazard was determined to have a probability level of possible (1 to 10% annual probability).

5. Biological Incident Impact Analysis

- Public
  - Sickness, injury, hospitalization, or death from exposure, especially for vulnerable populations
  - Widespread fear
- Responders
  - Injury or death from exposure
- Continuity of Operations (including continued delivery of services)
  - Services may be interrupted because of employee absenteeism
  - Loss of function and/or inventory to all businesses due to potential shutdowns
- Property, Facilities, Infrastructure
  - N/A
- Environment
  - Could affect animal species and cause drop in population
- Economic Condition
  - Loss of function and/or inventory to all businesses due to potential shutdowns
- Public Confidence in Jurisdiction's Governance
  - Public will begin to doubt in capabilities and take precautions themselves if they believe the government is not doing all it can to help those in need

6. Vulnerability Analysis and Loss Estimation by Jurisdiction

It is impossible to determine a jurisdiction's vulnerability; however, it is reasonable to claim that every county is somewhat vulnerable to a biological incident occurring. Additionally, a loss estimation is difficult to determine because of several unknown variables, but it is reasonable to claim that losses could range from minimal, to extreme, depending on the disease and the magnitude.

7. Vulnerability Analysis and Loss Estimation of Critical Facilities

A critical facility is not itself vulnerable to a biological incident. However, a critical facility may notice impacts from a biological incident, such as employee absenteeism, leading to disrupted operations and therefore lost wages and productivity.

8. Overall Vulnerability

Each of the five PRI categories was assigned a value from 1 to 4 and the pre-determined weighting factor was applied to calculate a PRI score. PRI scores can range from 1.0 to 4.0 and the overall vulnerability ranking or high, moderate, or low was assigned based on the PRI scores.

Based on the probability, impact, spatial extent, warning time, and duration, the overall vulnerability of this hazard was determined to be moderate, with a PRI score of 2.1.

BIOLOGICAL INCIDENTS			Overall Vulnerability	
Overview				
Biological incidents are incidents involving bacteria, viruses, or toxins that can all be harmful or deadly to humans and animals. These various actors are called biological agents. It is important to note that these can be naturally occurring or intentionally placed into a society. The act of intentionally placing these biological agents into a society to harm people or animals is referred to as bioterrorism. Pinellas County has encountered issues involving influenza, the Zika virus, and COVID-19 in the past.			MODERATE	
			PRI Score	
			2.1	
Probability	**Impact**	**Spatial Extent**	**Warning Time**	**Duration**
Possible	**Limited**	**Small**	**> 24 hrs**	**< 1 week**

Mass Migration Hazard Profile

1. Mass Migration Description

Florida's proximity to the Caribbean Basin makes it a vulnerable point of entry for a massive influx of immigrants and refugees entering the United States. While the majority come from the Caribbean, they can come from other locations such as Mexico and South America. Even though all of Florida's counties are subject to receiving such arrivals, the most vulnerable counties are Broward, Collier, Duval, Hillsborough, Lee, Miami-Dade, Orange, and Palm Beach. The consequences of a mass arrival of undocumented entrants include the threat of health, safety, and welfare of citizens and migrants that may be detained for an extended length of time. Florida has participated with the federal government in the development of a federal Mass Immigration Annex that bridges components of the federal Mass Immigration Plan with the National Response Framework.[293]

Mass Migration

According to United States Code Title 8, Chapter 12, the definition of mass migration is a migration of undocumented aliens that is of such magnitude and duration that it poses a threat to the national security of the United States as determined by the President.[294] This usually refers to an event, or series of events, that may take place over the course of several years or even decades. The event could be economic, social, or political in nature, but it is something that causes a mass exodus from the country of origin. While some counties and state agencies use a specific number that determines when an emergency exists for operational purposes, the State of Florida understands that a continuous and high-volume flow of migrants over a period of time could exceed the normal capabilities of the local offices of the United States Coast Guard and Customs and Border Protection.[295] From 2019 to 2022, Florida had an influx of 400,000 unauthorized immigrant population. [296]The main problem posed by undocumented individuals is the inability of the system to assimilate them without affecting already strained local economies and infrastructure such as health, medical, and social services.

Unaccompanied Minors

Children who arrive in the United States alone or who are required to appear in immigration court on their own often are referred to as unaccompanied children or unaccompanied minors. Unaccompanied alien child (UAC) is a technical term defined by law as a child who has no lawful immigration status in the United States; has not attained 18 years of age; and (a) has no parent or legal guardian in the United States or (b) no parent or legal guardian in the United States is available to provide care and physical custody.[297]

Unaccompanied children generally leave their home countries to join family already in the United States; escape abuse, persecution, or exploitation in their home country; or seek employment or

[293] https://www.floridadisaster.org/globalassets/importedpdfs/mass-migration-annex.pdf
[294] https://uscode.house.gov/view.xhtml?path=/prelim@title8/chapter12&edition=prelim
[295] https://www.floridadisaster.org/globalassets/importedpdfs/mass-migration-annex.pdf
[296] https://www.floridadisaster.org/globalassets/importedpdfs/mass-migration-annex.pdf
[297] https://www.americanimmigrationcouncil.org/sites/default/files/research/a_guide_to_children_arriving_at_the_border_and_the_laws_and_policies_governing_our_response.pdf

educational opportunities in the United States. The age of these individuals, their separation from parents and relatives, and the hazardous journey they take make unaccompanied children especially vulnerable to human trafficking, exploitation, and abuse. When a child who is not accompanied by a parent or legal guardian is apprehended by immigration authorities, the child is transferred to the care and custody of the Office of Refugee Resettlement (ORR). Federal law requires that ORR feed, shelter, and provide medical care for unaccompanied children until it is able to release them to safe settings with sponsors (usually family members) while they await immigration proceedings. [298]

The following table shows the total number of unaccompanied children released to sponsors by county in fiscal year 2024.

Table 4.117: Unaccompanied Minors Released to Sponsors, Top 19 FL Counties, FY 2024[299]

County	Total number of children
Brevard	94
Broward	693
Collier	386
Duval	396
Escambia	105
Hillsborough	580
Lee	658
Manatee	202
Martin	127
Miami-Dade	1,186
Monroe	128
Okaloosa	93
Orange	787
Osceola	103
Palm Beach	1,239
Pinellas	77
Polk	211
St. Lucie	123
Walton	88

Mass Immigration

Immigration is the movement of people to another country, of which they are not natives and where they do not possess citizenship, to settle or reside there. The definition of an arriving alien from the United States Code Title 8 means "an applicant for admission coming or attempting to come into the United States at a port-of-entry, or an alien seeking transit through the United States at a port-of- entry, or an alien interdicted in international or United States waters and brought into the United States by any

[298] https://www.acf.hhs.gov/orr/resource/unaccompanied-alien-children-released-to-sponsors-by-county
[299] https://www.acf.hhs.gov/orr/resource/unaccompanied-alien-children-released-to-sponsors-by-county

means, whether or not to a designated port-of-entry, and regardless of the means of transport."[300] The U.S. Census Bureau shows that there was a 5% resident population increase (in substantive terms, an increase of almost 1.1 million residents) in Florida from April 1, 2020, to July 1, 2023.[301] Palm Beach, Broward, Miami-Dade, Orange, and Hillsborough counties see the highest influx of immigration, and Miami-Dade alone accounted for a quarter of Florida's total foreign immigrants between 2005 and 2009. As with mass migration, an influx of immigrants to any particular county could overwhelm the local economy and infrastructure.

Repatriation

Repatriation is the procedure where United States citizens and their dependents, who have been identified by the U.S. Department of State, are returned from a foreign country to the United States because of destitution, illness, war, threat of war, or a similar crisis. This could also include third country nationals (TCN) approved by the Department of State that are neither a U.S. Department of Defense dependent nor a U.S. citizen. Emergency repatriation is the influx of 500 or more U.S. citizens or dependents from foreign countries. Through ORR agreements, states that are designated as ports of entry will be asked to activate their state emergency repatriation plan during an emergency repatriation. Florida has three designated ports of debarkation, and the bases and installations designated with primary responsibilities will be the lead agent. The American Red Cross is the lead agency on providing shelters, mass feeding, first aid, emergency communications, and access to financial assistance to those in need. Florida currently has a repatriation plan that can be activated should the need arise. [302]

2. Geographic Areas Affected by Mass Migration

Although it is possible that any Florida county could receive a migrant landing, either maritime or aviation, counties in the southern half of the state are most vulnerable due to geography. South Florida is in proximity to islands such as Cuba, Puerto Rico, Dominican Republic and Haiti. Mass migration can also occur domestically due to an impending hazard causing large groups of people to head north or inland to other counties to evacuate.

3. Historical Occurrences of Mass Migration

The 1980 Mariel Boatlift was one of the largest incidents of mass migration to affect Florida. Beginning in April 1980 and ending in October 1980, over 125,000 Cubans and between 40,000 and 80,000 Haitians made their way to South Florida. The Cuban President at the time, Fidel Castro, granted permission to all Cubans who wanted to leave access to the Port of Mariel. The United States Coast Guard was tasked with assisting the boats and rafts making their way to Florida and it would become one of the largest operations they had ever undertaken during peacetime.[303]

In the autumn of 1991, a military coup overthrowing Haitian President Aristide led to a mass exodus of roughly 38,000 people towards South Florida. Many perished at sea on failing vessels or homemade rafts and those that survived were detained and interviewed at Guantanamo Bay before being forcibly

[300] https://www.ecfr.gov/current/title-8/chapter-I/subchapter-A/part-1/section-1.2
[301] https://www.census.gov/data/tables/time-series/demo/popest/2020s-national-total.html#par_textimage
[302] https://www.floridadisaster.org/globalassets/importedpdfs/repatriation-annex-to-the-cemp-final-pdf.pdf
[303] https://fas.org/sgp/crs/row/R40566.pdf

sent back to Haiti. Of the thousands that left, roughly 200 were granted asylum in the United States with many of them settling in Florida's metropolitan areas.[304]

The Cuban Exodus in August 1994 saw over 35,000 refugees on often handmade boats and rafts, fleeing to South Florida. Many died at sea but those that survived were apprehended by the United States Coast Guard and detained at Guantanamo Bay. In May 1995, almost all those detained, roughly 30,000 people, were released and allowed entry into the United States. Many of them settled in South Florida and this exodus would lead to a change in public policy and the creation of the "Wet foot, Dry foot" policy.[305]

While not an incident of mass migration, the 2010 Haiti Earthquake resulted in several unique immigration situations and challenges. Florida supported the repatriation of U.S. citizens, as well as helping Haitian and other foreign nationals with passports or visas into the United States. About 50,000 Haitians were brought into the United States under Temporary Protected Status (TPS), with many resettling in Miami and Orlando. Some Haitians visiting or residing in Florida at the time of the earthquake were unable or unwilling to return to their newly devastated homeland and were given TPS to remain in the United States.[306]

In 2016, 800 unaccompanied minors from Honduras, Guatemala, Honduras, and other countries were transported to Homestead, Florida, and placed within a temporary tent city. They came to the United States to escape violence, poverty, or abuse. The American Red Cross and the Office for Refugee Resettlement worked together to care for these children and ultimately place them with sponsors throughout the state.[307]

Pinellas County does not have history of mass migration, but due to the already dense population of the County, a mass migration to the area would be difficult to absorb.

4. Probability of Future Mass Migration Events

There is no sure way to predict future mass migration events as most typically occur without warning. The probability of a migration influx in the State of Florida is perceived to be high, and planning must be done as part of the larger national DHS initiatives. As political unrest and large-scale natural disasters continue to increase within the Caribbean and South American regions, there will be people wanting to emigrate. South Florida is the easiest U.S. access point for most of Latin America and has an extensive network of people from these countries in place. The Mass Migration Annex of the Florida State Comprehensive Emergency Management Plan provides augmentation information that connects with the U.S. Department of Homeland Security Plan entitled "Operation Vigilant Sentry" and subsequent revisions.

This hazard was determined to have a probability level of unlikely (less than 1% annual probability).

5. Mass Migration Impact Analysis

- Public

[304] https://teachdemocracy.org/bill-of-rights-in-action/bria-10-2-b-haiti-and-the-boat-people
[305] https://www.hrw.org/legacy/reports/pdfs/c/cuba/cuba94o.pdf
[306] http://www.migrationpolicy.org/article/haitian-immigrants-united-states/
[307] https://www.local10.com/news/2016/03/31/tent-village-near-homestead-air-reserve-base-prepared-to-shelter-refugee-children/

- Loss of life
- Injury
- Fear of going to law enforcement can lead to undocumented individuals not seeking help or evacuating in the event of a hazard
- Increased strain on resources:
  - Food
  - School
  - Water
  - Work
  - Translators
  - Housing

- Responders
  - Public safety resources could be strained or depleted
  - Local law enforcement being affected by an increased population and confrontation with undocumented individuals
  - Increased strain on Customs and Border Protection, the agency responsible for ensuring all incoming immigrants have proper documentation and intervening with unauthorized entry into the state
  - Increased strain on Coast Guard, the agency responsible for protecting the shores and intervening with any unauthorized entry into the state
- Continuity of Operations (including continued delivery of services)
  - Evacuations in the event of a hazard can get congested with additional population numbers
  - Public service places may become overwhelmed due to the additional population
- Property, Facilities, Infrastructure
  - Strain on detention facilities following mass undocumented intervention could lead to economic stress and lack of space
  - Education used by undocumented families can place a strain on local schools and facilities within a community
  - Social services can be strained to accommodate incoming immigrants/migrants and unaccompanied children
- Environment
  - Additional pressure on the environment and natural resources
  - Invasive species entering with migrants
- Economic Condition
  - A financial strain on communities when the population grows quickly and local communities, or the state, cannot provide for them all in terms of services and emergency needs
  - Growth of population can cause impacts to urban planning and resources, such as local economies and social services
- Public Confidence in Jurisdiction's Governance
  - Lack of ability to integrate these people reflects poorly on government

- Reports of mistreated detained immigrants reflects poorly on government

6. Vulnerability Analysis and Loss Estimation by Jurisdiction

Due to the nature and unpredictability of human-caused hazards, all property and infrastructure in the State of Florida is at risk to these events. Even though all of Florida's counties are subject to receiving such arrivals, it is unlikely to occur in Pinellas County.

Florida recognizes that jurisdictions are vulnerable to human caused hazards, but there is a lack of data to quantify the economic vulnerability from these hazards compared to others.

7. Vulnerability Analysis and Loss Estimation of Critical Facilities

Due to the nature and unpredictability of human-caused hazards, all critical facilities could potentially be at risk. The facilities could become overwhelmed and programs could become drained.

Though the county recognizes that critical facilities are vulnerable to human caused hazards, there is a lack of data to quantify the vulnerability of facilities to these hazards compared to natural hazards.

8. Overall Vulnerability

Each of the five PRI categories was assigned a value from 1 to 4 and the pre-determined weighting factor was applied to calculate a PRI score. PRI scores can range from 1.0 to 4.0 and the overall vulnerability ranking or high, moderate, or low was assigned based on the PRI scores.

Based on the probability, impact, spatial extent, warning time, and duration, the overall vulnerability of this hazard was determined to be low, with a PRI score of 1.7.

MASS MIGRATION			Overall Vulnerability	
Overview				
Florida's proximity to the Caribbean makes it a vulnerable point of entry for a massive influx of immigrants and refugees entering the United States. Immigrants also come from other locations such as Mexico and South America. The consequences of a mass arrival of undocumented entrants include the threat of health, safety, and welfare of citizens and that of entrants who may be detained for an extended length of time.			LOW	
			PRI Score	
			1.7	
Probability	**Impact**	**Spatial Extent**	**Warning Time**	**Duration**
Unlikely	**Minor**	**Moderate**	**> 24 hrs**	**> 1 week**

Civil Disturbance Hazard Profile

1. Civil Disturbance Description

According to FEMA, civil disturbance, sometimes referred to as civil unrest, is an activity such as a demonstration, riot, or strike that disrupts a community and requires intervention to maintain public safety.[308]

Most protestors are law abiding citizens who intend their protest to be nonviolent; however, sometimes these situations become highly emotional and tense, which can turn a peaceful crowd into a violent riot.

According to the U.S. Army Civil Disturbance Operations Manual, civil disturbances and riots can arise from crowds. Crowds are gatherings of a multitude of individuals and small groups that have temporarily assembled in the same place, usually representing a group belief or cause.[309]

There are two types of gatherings, impromptu and organized. Impromptu gatherings develop informally and by word of mouth, while organized gatherings involve well-established groups that plan and organize the gathering.

There are three phases of gatherings: the assembly process, the building of the crowd, and the dispersal process. The assembly process refers to the movement of people to a common location within a given period, which largely determines who participates.

During the building of the crowd phase, it is important to note that not all participants are the same and that most crowds are comprised of several small groups and some individuals may have varying motivations. These crowds are generally not unique or distinguished by violence or unlawful conduct.

The dispersal phase is the movement of people from the assembly location to one or more alternate locations. Dispersal can be routine, emergency, or coerced. Routine dispersal is often specified in advance by organizers, while emergency dispersal occurs when people evacuate an area in response to an unexpected crisis. A coerced dispersal involves the use of force from law enforcement at some level; however, this is not necessarily the best or safest way to force crowd dispersal.

Most gathered crowds are orderly, nonviolent, and do not cause problems for authorities, but there are three types of crowds that can create a civil disturbance. A public disorder is the basic breach of civic order, meaning the crowd tends to disrupt the normal flow of things around them, such as traffic. A disorder can escalate to a public disturbance, or a demonstration that is designed to cause turmoil and disruption. These crowds chant, yell, and sing to voice individual or collective opinions. Finally, a disturbance escalates to a riot when it turns violent. The crowd suddenly becomes a mob that violently expresses itself by destroying property, assaulting others, and creating an extremely volatile environment.

Riots can be further categorized into communal, protest, commodity, and celebration riots. Communal

[308] https://training.fema.gov/programs/emischool/el361toolkit/glossary.htm#C
[309] https://irp.fas.org/doddir/army/fm3-19-15.pdf

riots are those involving a group of people with deep-seated ethnic, religious, or language differences. Protest riots are those involving people aggressively and sometimes violently opposing something.

Commodity riots involve an attack on property with vandalism, looting, or arson. Celebration riots are those involving a group of people celebrating some event, usually a sports team victory.

There are several types of crowds, including casual, sighting, agitated, and mob-like. Casual crowds are those that consist of people gathered in the same place without a shared agenda, such as a crowd at a mall. Sighting crowds are those where people have gathered in the same location for a specific event, such as a concert. Agitated crowds are similar to sighting crowds, but strong emotions are also present. These sentiments can spread, developing a sense of unity and changing the demeanor of the crowd from pleasant to yelling, screaming, crying, and name-calling. Finally, mob-like crowds are agitated crowds that are also aggressive, physical, and sometimes violent. While all types of crowds can turn violent, agitated and mob- like crowds have the highest likelihood to do so.

Crowd dynamics and how people act when they are part of a crowd are complex topics. Crowds provide a sense of anonymity and therefore a sense of invulnerability, and anyone in a crowd is susceptible to behaving contrary to their normal behavior. Emotional contagion is a serious psychological factor of crowd dynamics, which provides a temporary bond of unity and can push a simple organized crowd into a mob.

Crowds, especially angry and organized crowds, use certain tactics to provoke law enforcement and overwhelm authorities. One common tactic is verbal abuse – such as obscene language, racial remarks, taunts, and ridicules – to anger, demoralize, and provoke a physical response from law enforcement. Another common tactic is throwing rocks, bottles, smoke grenades, or Molotov cocktails to disrupt and confuse the control force. Other tactics include creating barricades to protect themselves and even feinting and flanking actions to attempt to engage, surround, or overpower the control force.

Crowds can become a riot or a violent mob very quickly. These are the types of civil disturbances that are of primary concern to the State of Florida. Violent crowds strike out physically at bystanders and others in the crowd, destroy private and government property, and often set fires and smash glass. Riots or mobs also often create barricades or physical barriers, using any available materials such as vehicles, trees, furniture, and fencing, to impede movement of authorities and to provide a source of protection against law enforcement.

Although violent riots or mobs are a serious concern, nonviolent crowds can be considered a civil disturbance too. Nonviolent actions can be disruptive if they are in direct conflict with instructions from authorities. Examples of disruptive nonviolent actions are refusing to leave when instructed, locking arms, and sitting in areas that authorities are attempting to clear.

Each local jurisdiction should have a civil disturbance response plan; however, it is important to remember that each incident is unique and obtaining information about a specific group, such as their demonstrators, capabilities, and possible courses of action, is key to developing a successful response plan. Additionally, the response plans should emphasize prevention and de-escalation, not confrontation.[310]

[310] https://irp.fas.org/doddir/army/fm3-19-15.pdf

2. Geographic Areas Affected by Civil Disturbance

Civil disturbances tend to occur in urban areas but can occur anywhere. Below is a map depicting major incidents of civil disturbance in Florida.

Figure 4.77: Florida Historical Occurrences, Civil Disturbance



3. Historical Occurrences of Civil Disturbance

Civil disturbances occur infrequently but have been quite large in the past. The City of St. Petersburg had two related civil disturbances in late 1996. Several hundred people in southern St. Petersburg took to the streets to protest a controversial police shooting that killed a young black man. Protestors damaged property and threatened first responders for seven hours on Oct 25, 1996. Tensions remained high in November 1996 when the police officer involved in the shooting was exonerated. Hundreds of people again rioted for three days setting businesses on fire and shooting at fire department personnel responding to those fires. St. Petersburg sustained more than $3.1 million in property damage and expended $1.2 million in response costs. The police arrested 78 adults and two juveniles. Twenty-three first responders received minor injuries.

4. Probability of Future Occurrences of Civil Disturbance

It is likely that occurrences of civil disturbance will continue in the future. The potential for civil disturbance is always present especially in the urbanized areas of the county. Since 1996, however, Pinellas law enforcement and community agencies have instituted several successful programs that have opened communication lines preventing conflicts to escalate between conflicting parties. Social, political, and economic factors are very dynamic and must be monitored to gauge the threat of civil unrest.

This hazard was determined to have a probability level of likely (1 to 10% annual probability).

5. Civil Disturbance Impact Analysis

- Public
  - Injury
  - Death
  - Arrests
- Responders
  - Injury
  - Death
- Continuity of Operations (including continued delivery of services)
  - Traffic congestion or temporary closure of major roadways
  - Disruption of operations of blocked facilities
- Property, Facilities, Infrastructure
  - Damage to roads, fencing, benches, etc.
  - Vandalism or damage to businesses and adjacent buildings
- Environment
  - Environmental issues and possible fires from the use of Molotov cocktails or other forms of incendiary weapons
- Economic Condition
  - Loss of function and/or inventory to local businesses from vandalism, looting, or arson caused by riots.
- Public Confidence in the Jurisdiction's Governance

- If the law enforcement cannot control civil disturbances, then the public may believe the government is not doing all it can to protect the safety of its citizens

6. Vulnerability Analysis and Loss Estimation by Jurisdiction

It is impossible to conduct a vulnerability analysis and loss estimation by jurisdiction for civil disturbances. While peaceful protests or demonstrations occur frequently, it is difficult to determine when a protest will become a civil disturbance or riot, by disrupting daily operations or by becoming violent. Based on the historical occurrences, the large, urban areas of the state are more likely to be affected by civil disturbances than the small rural areas.

7. Vulnerability Analysis and Loss Estimation of Critical Facilities

Critical facilities are not particularly vulnerable to civil disturbances. There is a chance the group would protest in a critical facility and that the protest might turn violent or destructive. There is also the chance that critical facilities in downtown areas may be damaged during civil disturbances or riots in the general downtown area. A loss estimation of critical facilities for civil disturbances is not possible to conduct.

8. Overall Vulnerability

Each of the five PRI categories was assigned a value from 1 to 4 and the pre-determined weighting factor was applied to calculate a PRI score. PRI scores can range from 1.0 to 4.0 and the overall vulnerability ranking or high, moderate, or low was assigned based on the PRI scores.

Based on the probability, impact, spatial extent, warning time, and duration, the overall vulnerability of this hazard was determined to be high, with a PRI score of 2.8.

CIVIL DISTURBANCE INCIDENTS			Overall Vulnerability	
Overview				
Civil disturbance is an activity such as a demonstration, riot, or strike that disrupts a community and requires intervention to maintain safety in the community. The different types of gatherings include impromptu and organized. Civil disturbance incidents tend to occur in urban locations but can happen anywhere.			HIGH	
			PRI Score	
			2.8	
Probability	**Impact**	**Spatial Extent**	**Warning Time**	**Duration**
Possible	**Critical**	**Moderate**	**< 6 hrs**	**< 1 week**

POTENTIAL FUNDING SOURCES SECTION

Local Hazard Mitigation Funding Sources Requirement
**S8 corresponds to FL Crosswalk tool. Item in parentheses correspond to FEMA Review.*
S8 (C5-b) The action plan must identify who is responsible for administering each action, along with the action's potential funding sources and expected time frames for completion.

Introduction

One LMS requirement is the identification of potential funding for mitigation projects. Federal, state and local governments have programs that provide funding for various types of mitigation. Some funding is available prior to a disaster, while other programs are initiated in a post-disaster scenario. Typically, more resources for mitigation activities are available following a federal disaster declaration.

Local and state agencies have dedicated financial resources toward the funding of mitigation projects. Most state funds that indirectly support mitigation related activities are provided for land acquisition and water quality and quantity-related issues; this is in addition to meeting non-federal match requirements for various federally funded mitigation assistance programs. Similarly, local governments fund various projects including: implementation of growth management initiatives; planning, permitting and code enforcement; acquisition and maintenance of parks and conservation areas; stormwater projects; housing mitigation assistance programs for low- and moderate-income citizens; and construction and structural hardening of critical facilities, such as public safety and emergency operations centers, fire and police stations, city halls, etc.

Both the State of Florida and local governments leverage funds available from federal and state sources to provide financial assistance to implement the hazard mitigation projects that have been identified, prioritized and documented by the Local Mitigation Strategy (LMS) Working Group as well as the projects submitted under the Flood Mitigation Assistance Program (FMAP), Repetitive Flood Claims and Severe Repetitive Loss Programs.

Funding Source Identification and Usage

The county uses a variety of programs and funds to achieve its mitigation goals. Various programs and sources of project funding are described throughout this section.

Below, in Table 5.1, is a snapshot of potential mitigation funding sources.

Table 5.1: Mitigation Funding Sources

Fund Source Type	Funding Program/ Source
Federal	HMGP
	HGMP Post-Fire
	FMA
	Swift Current
	BRIC
	PDM
	EMPG
	CDBG-MIT
	Watershed Protection and Flood Prevention
	Rehabilitation of High Hazard Potential Dam Grant
	FMAG
	Safeguarding Tomorrow RLF
	PA (406 Mitigation)
	Community Wildfire Defense Program
	Assistance to Firefighters Grant
	Economic Development Administration Funding
	Emergency Watershed Protection
	National Wildlife Wetland Refuge
	U.S. Small Business Administration Loans
	USACE Funding and Assistance
State	HLMP
	Florida Communities Trust
	Coastal Partnership Initiative Grant Program
	Florida Small Cities Community Development Block Grant Program
	Community Development Block Grant Disaster Recovery Initiative
	Weatherization Assistance Program
	BMFA
	Hurricane Restoration Reimbursement Grant Program
	Resilient Florida Grant Program
	Florida Hurricane Catastrophe Fund
	Rebuild Florida
	FloridaDisaster.biz
	My Safe Florida Home
Local	Ad Valorem Tax
	Stormwater Tax Assessment
	In-Kind Services
	Impact Fees/ Development Exaction
	Tourist Tax Local Option
	Revenue Bonds
	Permit Fees
	State Revenue Sharing

Federal Funding

Mitigation opportunities are pursued on a year-round basis in Florida. While many opportunities exist to fund projects at the local level, both the state and local applicants rely heavily on the use of federal funds to implement mitigation projects. The funding sources in this section are some of the most popular programs used to help achieve the county's mitigation goals. More information regarding federal funding sources can be found on FEMA's website.

All mitigation measures submitted to the state for funding under FEMA's Hazard Mitigation Assistance (HMA) programs which include the Hazard Mitigation Grant Program (HMGP), Building Resilient Infrastructure and Communities (BRIC), the Flood Mitigation Assistance (FMA) program, the Severe Repetitive Loss (SRL), and the Hazard Loss Mitigation Program (HLMP) program must:

- Be consistent with the SHMP.
- Solve or at the very least address a problem.
- Be technically feasible.
- Be cost effective.
- Comply with environmental regulations.
- Identify a non-federal match (when required).

The Disaster Mitigation Act of 2000 (DMA2K) requires, as a condition for receipt of federal mitigation assistance funds, local governments develop a FEMA approved local mitigation plan. The plan must contain locally prioritized projects that are technically feasible, cost effective, and environmentally sound. In addition to the standard federal requirements, the State of Florida has developed additional eligibility criteria for all proposed multi-hazard mitigation measures submitted to the Florida Division of Emergency Management (FDEM). These criteria are reflected in Florida Administrative Code 27P-22.005, in which Florida requires the prioritized project list outlines the estimated costs and associated funding source for each project listed.

In the instances where a cost effective, eligible, and technically feasible project submitted under a specific grant program fails to receive a grant due to lack of funds, FDEM will provide information on the next available qualifying funding source. For example, if an acquisition is submitted under HMGP and meets all program eligibility requirements but is not funded due to limited HMGP funds, this project will be provided to the FMA staff for consideration under the next open cycle.

Hazard Mitigation Grant Program (HMGP)

The Hazard Mitigation Grant Program (HMGP) is authorized by Section 404 of the Robert T. Stafford Disaster Relief and Emergency Assistance Act (PL 93-288 as amended). This program, administered by FDEM's HMGP Unit, is designed to help state, local, tribal, and territorial governments implement long-term hazard mitigation measures following a major disaster declaration. Funds may be used to protect public or private property. They may also be used to purchase property that has been subjected to, or is in danger of, repetitive damage. Projects include acquisition and relocation, multi-hazard retrofits, minor flood control projects, and safe room construction.

The standard federal mitigation funding allocation for this program is 15 percent of the first $2 billion allocated to disaster relief (the sum of public assistance, individual assistance and Small Business

Administration (SBA). States with an approved Enhanced SHMP are eligible to receive an additional five percent of the disaster relief funds (not to exceed $35.333 billion). Up to seven percent of HMGP money can be used for mitigation planning activities.

In Florida, the state determines how those planning funds will be allocated. Often, the seven percent planning funds are used for state level planning initiatives. Under this program, the state requests the additional seven percent be set aside, which requires approval from FEMA. Other set-asides the 5 Percent Initiative for special state initiatives and potentially another five percent for activities that address promoting disaster-resistant codes for all hazards.

The state's 5 Percent Initiative funds are used to implement special mitigation priorities set by the Governor and the Governor's Authorized Representative (GAR). These statewide projects include those mitigation activities that are proposed by state and regional agencies. This includes activities proposed by FDEM that are regional or statewide in scope. If there are no priorities set for these initiative funds, the five percent can be rolled back into the regular funding, which will go toward those applications submitted by the counties and in accordance with the Florida Administrative Code.

Key objectives of the HMGP are to:

- Prevent future losses of lives and damage to property due to disasters.
- Implement state or local hazard mitigation plans.
- Enable mitigation measures to be implemented during immediate recovery from a disaster.
- Provide funding for mitigation measures that benefit the disaster area.

Eligibility requirements for HMGP grants

To be eligible for mitigation funding, a project must be listed in the community's Local Mitigation Strategy (LMS) and satisfy the requirements listed below.

These criteria are also listed in the HMGP Administrative Plan, which is used for all federal hazard mitigation programs:

- Be in conformance with the SHMP.
- Be in conformance with the funding priorities for the disaster as established in the LMS governing the project.
- Have a beneficial impact upon the declared disaster area. A project located outside the declared disaster area cannot be eligible unless it has a direct and beneficial impact to the disaster area or until all projects within the declared disaster area have been funded.
- Conform to 44 CFR, Part 9, Floodplain Management and Protection of Wetlands, and 44 CFR, Part 10, Environmental Considerations.
- Solve a problem independently or constitute a functional portion of a solution where there is assurance that the project will be completed as a whole. Projects that merely identify or analyze hazards or problems are not eligible.
- Be cost-effective and substantially reduce the risk of future damage, hardship, loss, or suffering resulting from a major disaster. The grantee must demonstrate this by documenting that the project:
    - Addresses a problem that has been repetitive, or a problem that poses a significant risk to public health and safety if left unsolved.

- Will not cost more than the anticipated value of the reduction in direct damages and subsequent negative impacts to the area if future disasters were to occur.
- After consideration of a range of options, the project is determined to be the most practical, effective, and environmentally sound alternative.
- Contributes to a long-term solution to what it is intended to address.
- Considers long-term changes to the areas and entities it protects and has manageable future maintenance and modification requirements.

FEMA defines hazard mitigation as an action intended to reduce repetitive losses from future natural disasters. In this context, "repetitive" refers to similar types of losses caused by a recurring natural hazard. The term "losses" refers to expenditures for the repair or replacement of public and private property and for the relief of personal loss or other hardship. Post-disaster projects that simply repair and reconstruct damaged property to pre-disaster conditions are not eligible. Rather than mitigating loss, these types of projects serve to perpetuate the cycle of damage, reconstruction, and repeated damage.

Any HMGP construction project located within a SFHA must comply with local floodplain management regulations for such projects.

As noted earlier, Florida requires the prioritized project list to include the estimated costs and associated funding source for each project listed. Florida is the only known state to have a legislatively approved process for distributing HMGP funds. The law serves to strengthen local planning processes while providing autonomy in how funds are distributed.

Prioritization for HMGP Funds

Upon notice from FEMA of the availability of HMGP funds, the FDEM mitigation staff determines the estimated total federal assistance allocated to the county under the Individual Assistance (IA) Program, the Public Assistance (PA) Program, and the SBA Disaster Loan Program. Each county receives a proportional HMGP allocation based on these figures. This proportion of federal assistance per declared county is taken at 120-days post-declaration, providing a snapshot to enable counties to plan for their project selection and submittal. The state will adjust the allocation amounts as FEMA provides updates to the overall HMGP ceiling amount up to 12 months post-declaration. However, no adjustment is made to the 120-day county proportion once it is set.

FDEM will use the 120-day snapshot to determine the percentage of funds allocated to each county. When county allocations have been determined, a Notice of Funding Availability (NOFA) is published in Florida Administrative Weekly and distributed to mitigation partners throughout the state.

Local mitigation projects are prioritized by each LMS Working Group. Prioritized lists are submitted to the state each year as a part of the FAC 27P-22 rule update process and again with five-year plan updates. FDEM has delegated its authority to set priorities and select projects to the LMS Working Groups to validate the local mitigation planning process embodied in the LMS. Under the rule, only prioritized projects from the LMS are eligible for HMGP project funding. LMS Working Groups are encouraged to gather estimates of costs and conduct a simple benefit-cost review as part of the priority setting process, not only to help meet federal planning requirements but also because it is critical to early implementation of projects in a disaster's aftermath.

A letter from the LMS Chairperson must accompany each application submitted endorsing the project and assigning a funding priority. To meet the requirements of DMA2K, the letter must indicate the LMS goal (and objective where appropriate) addressed by the project. The state mitigation staff verifies that the community is listed as an approved participant in the LMS.

To ensure all HMGP project funds are used, FDEM uses a three-tiered distribution system as described below.

Table 5.2: Hazard Mitigation Grant Program Distribution System

Tier 1	Initial HMGP allocation goes to counties included in the relevant disaster declaration. Their proportion of the available HMGP funds is equal to their county's proportion of the total federal assistance (PA, IA, and SBA Disaster Loan Program) for the relevant disaster declaration. Eligible projects are funded in order of LMS priority until allocated funds are exhausted, or all eligible projects are funded, whichever occurs first.
Tier 2	This is a re-allocation of any remaining HMGP funds to those counties included in the relevant disaster declaration with partially, or unfunded, projects remaining. Their proportion of the remaining HMGP funds is equal to their county's proportion of the total unfunded amount across all counties included in the relevant disaster declaration with partially, or unfunded, projects remaining.
Tier 3	If funds remain after tiers one and two, the un-obligated funds will be provided to any applicant that submitted applications to the state for the relevant disaster on a first-come-first-served basis until all available funds are obligated.

Prioritization for HMGP Set-Asides

Prioritization for special set-asides under the HMGP are handled a different way. If the state chooses to use the 5 Percent Initiative funding under HMGP, the Governor and the GAR in consultation with the state legislature set priorities for the funding based upon the hazard, type of damages, and identified need resulting from a hazard event. If the Governor and legislature do not set statewide priorities for funds, projects will be deferred to the SMHO in consultation with the GAR. In all cases, the projects recommended for funding must be in compliance with all other applicable federal requirements.

Prioritization for HMGP Planning (Seven Percent) Funds

When these funds are available, the HMGP Unit and the Planning Unit will review the submitted planning projects. A standardized process has been developed to rank planning grants for when the amount of available funding is not enough to cover all projects submitted, or when similar projects are received from different jurisdictions or agencies.

The scoring system below, as established by FDEM, determines how HMGP planning projects will be prioritized for funding. If a specialized planning effort is undertaken, such as a watershed master planning initiative, FDEM will establish a scoring method with the approval of the SHMO. After the scoring is complete, if there is a tie the project received first will be considered first.

Table 5.3: Hazard Mitigation Grant Program Prioritization Scoring System

The clarity of the defined mitigation need and the degree to which the projected outcome of the planning project addresses the need.	20 points
The suitability of the proposed planning process to address the need, including proposed actions to involve the public and, participants from neighboring communities, appropriate state and local agency personnel, and NGO representatives, where appropriate.	20 points
The consistency of the planning project with risk analysis and the goals and objectives of the relevant LMS, other local plans, and the SHMP.	15 points
Ability to meet the local match.	10 points
The capability of the applicant to complete the project based on experience, resources and demonstrated ability.	10 points
Proposed project benefits two or more counties (wider impact of planning efforts).	10 points
Proposed project outlines inclusion of or benefit to underserved and/or vulnerable populations.	5 points
Proposed project addresses planning for future conditions and/or the effects of climate change.	5 points
Proposed project integrates with other local planning mechanisms (i.e., used as an annex, incorporated into other plans, used as the basis for other planning efforts, etc.).	5 points
TOTAL Scoring	**100 points**

Watershed Planning Initiative

The Watershed Planning Initiative is funded through a $26.6 million grant under HMGP, as approved by FDEM and FEMA, with the purpose of creating standardized, cost-effective, and easily replicable Watershed Master Plans (WMP) throughout the state of Florida.

Hazard Mitigation Grant Program (HMGP) Post-Fire

The HMGP Post-Fire program provides funding to help communities implement hazard mitigation measures focused on reducing the risk of harm from wildfire. HMGP Post-Fire funding is authorized under Sections 404 and 420 of the Stafford Act and provides hazard mitigation grant funding to the state, local, and tribal governments in areas receiving a Fire Management Assistance Grant (FMAG) declaration. States and territories that have received an FMAG declaration and certain federally recognized tribes are eligible to apply for assistance under HMGP Post-Fire. The application period opens with the state or territory's first FMAG declaration of the fiscal year and closes six months after the end of that fiscal year.

Most activity development, application, submission, and grants management processes that apply to HMGP will also apply to HMGP Post-Fire. In addition, all eligible activities under HMGP are also eligible under HMGP Post-Fire. Eligible project types that address wildfire mitigation include defensible space measures, ignition-resistant building materials, hazardous fuels reduction activities, erosion control measures, slope stabilization, and post-wildfire flood reduction measures.

Flood Mitigation Assistance (FMA) Program

The Flood Mitigation Assistance (FMA) program is authorized by Section 1366 of The National Flood Insurance Act of 1968, as amended (Pub. L. No. 90-448) (42 U.S.C. § 4104c) and appropriated annually by the Consolidated Appropriations Act. Consistent with the legislative changes made in the Biggert-Waters

Flood Insurance Reform Act of 2012, the FMA Grant Program was designed to provide resources to help states, local, and tribal governments reduce or eliminate long-term risks of flood damage to repetitively flooded structures insured under National Flood Insurance Program (NFIP). The goals of the FMA are to:

- Fund cost-effective and technically feasible measures that reduce or eliminate long-term risk of flood damage to structures insured through NFIP.
- Encourage long-term, comprehensive mitigation planning against repetitive flooding.
- Reduce repetitively or substantially damaged structures and associated claims on the National Flood Insurance Fund (NFIF) by giving priority to Severe Repetitive Loss (SRL) structures.
- Complement other federal and state mitigation programs with similar goals.

As of FY 2017, the eligible funding opportunities within the FMA program have been divided into the following categories: Localized Flood Risk Reduction (previously known as Community Flood Mitigation), Capability and Capacity Building Activities, and Individual Flood Mitigation Projects. Projects include the following eligible activities:

- Development of Mitigation Strategies and/or Data to Prioritize, Select, and Develop Viable Community Flood Mitigation Projects (Project Scoping)
- Projects that Integrate Cost Effective Natural Floodplain Restoration Solutions and Improvements to NFIP-Insured Properties
- Development of State or Local Flood Plans and Flood Plan Updates
- Acquisition and demolition
- Acquisition and relocation
- Structure elevation
- Mitigation reconstruction
- Dry floodproofing
- Flood control projects
- Structural Non-structural retrofitting of Existing Buildings
- Infrastructure Retrofit
- Soil stabilization

Eligibility for FMA Grants

State mitigation staff evaluate all applications to ensure that the applicant and proposed projects are eligible according to 44 CFR Part 79 and the HMA Guidance. Projects must conform to regulations found in 44 CFR Part 79 and the HMA Guidance. Projects must be:

- Eligible, cost-effective, and technically feasible.
- In conformance with applicable environmental laws and regulations.
- Included in, and in conformance with, the Floodplain Management Plan.
- Physically located in a participating NFIP community that is not on probation and the project must benefit such a community directly by reducing future flood damage.
- NFIP insured at the time of the opening of an application period and maintained through at least the completion of the project. For projects where a structure remains in the special flood hazard area (SFHA), properties must maintain a flood insurance policy for the life of the structure.

State agencies, federally recognized tribes, and local governments/communities are eligible to apply.

Prioritization of FMA

The State of Florida supports and encourages multi-hazard planning and each LMS must include a flood component. Specialized flood planning is an eligible activity through FMA to augment multi-hazard plans. FEMA outlines priorities for the program in each Notice of Funding Opportunity (NOFO). As the FMA applicant, FDEM will limit its submittals to eligible cost-effective subapplications, utilizing benefit cost ratio and technical feasibility reviews. As such, FDEM has the authority to decide whether to submit subapplications to FEMA for FMA related activities.

FDEM utilizes FEMA's priorities to assist communities with determining if they may benefit from FMA project and/or planning opportunities. In conjunction with communities, staff considers various circumstances to make this determination. These include the impact of flooding on the community and the desire to initiate new and improved flood hazard initiatives or implement strategies to improve their usage of FMA project funds.

There has never been a case in which the number of projects exceeded the FMA allocation, but in the event there was, the following method would have been used to review and rank local government applications:

- Priority #1: Local governments that have experienced a significant flood event and did not receive a presidential disaster declaration.
- Priority #2: Local governments that have severe repetitive loss structures but have never submitted or infrequently submitted applications to FMA for flood mitigation projects.
- Priority #3: Local governments that have a high number of FEMA repetitive loss structures.
- Priority #4: Local governments that have targeted repetitive loss structures.
- Priority #5: Those who participate in the Community Rating System (CRS) with ten or more FEMA repetitive loss properties.

Should multiple applicants rank equally, the highest number of severe repetitive loss structures will have priority. FDEM elects not to provide FEMA with sub-applications that exceed its annual allocation of FMA funds.

Swift Current Program

The Swift Current Flood Mitigation Assistance Program is a residential mitigation grant program funded by FEMA and administered through a partnership with FDEM. The purpose of FMA Swift Current is to reduce or eliminate the flood risk of repetitive flood damage to structures and buildings insured by the NFIP following a flood-related disaster event, and to enhance community flood resilience within NFIP-participating communities.

FMA Swift Current funds Individual Flood Mitigation Projects (Residential Mitigation) for the following:

- Repetitive Loss (RL)
- Severe Repetitive Loss (SRL)
- Properties deemed Substantially Damaged (after the applicant's disaster declaration date – August 31, 2023)

Note: all property owners must contact their local government to apply and have an active NFIP flood insurance policy in effect on or before December 15, 2023, to be eligible for this funding opportunity.

Building Resilient Infrastructure and Communities (BRIC)

The Building Resilient Infrastructure and Communities (BRIC) Program is authorized by Section 203 of the Stafford Act, as amended by Section 1234, National Public Infrastructure Pre-Disaster Hazard Mitigation, of the Disaster Recovery Reform Act (DRRA) of 2018. FEMA funds BRIC with a six percent set-aside from federal post-disaster grant funds, such as public assistance and individual assistance grants. It was created to categorically shift the federal focus away from reactive disaster spending and toward research-supported, proactive investment in community resilience. FEMA encourages BRIC funding projects that demonstrate innovative approaches to partnerships. For complete information about eligible applicants see FDEM's *State Agency Capability Assessment*.

Eligible project activities include:

- Acquisition/demolition
- Acquisition/Relocation
- Structure Elevation
- Mitigation Reconstruction
- Dry floodproofing
- Generators
- Localized and non-localized flood reduction projects
- Protective measures for utilities
- Retrofitting
- Safe rooms
- Soil Stabilization
- Wildfire Mitigation
- Hazard mitigation planning
- Project scoping
- Building code activities
- Earthquake early warning activities

Through BRIC (as previously with Pre-Disaster Mitigation), Florida plans to provide protection to local government structures and critical facilities, as well as reduce flooding in neighborhoods. Although the BRIC program is federally funded, the program is administered through a partnership arrangement with FDEM. In this capacity, the key responsibilities of the state are to:

- Solicit and review BRIC subapplications from subapplicants
- Prepare and submit eligible subapplications to FEMA
- Manage the BRIC Program
- Fully utilize the funds available under the program

Eligibility for BRIC Program Grants

State mitigation staff evaluates the projects to be sure that the subapplicant and project are eligible according to FEMA's most recent HMA Guidance. The project must conform to regulations found in this Guidance, including:

- Be in conformance with the LMS, local ordinances, planning requirements, and floodplain management plans as applicable
- Be cost-effective
- Provide long-term effects and be technically feasible
- Reduce or eliminate risk and damage from future natural hazards
- Meet latest international building codes
- Conform to all applicable environmental and historic preservation requirements
- Benefits must not duplicate those available through another primary source or program

Prioritization for BRIC Program Grants

Florida will only consider BRIC applications from communities that have a FEMA-approved LMS. Typically, BRIC funds are available to all eligible applicants statewide for projects that are designed to reduce future risk to individuals and property from natural hazards. While not required to be prioritized by the local LMS working groups, projects submitted for funding under the BRIC must be consistent with the LMS and documented as such.

Since funding for BRIC is competitive nationwide and the federal guidance material may or may not limit the total number of subapplications a state may submit, FDEM provides technical assistance to all eligible subapplicants with a FEMA approved LMS. When these funds are available, the review of subapplications submitted for funding will consist of a Project Review Team composed of subject matter experts.

FDEM will limit its submittals to eligible cost-effective subapplications, utilizing benefit cost ratio and technical feasibility reviews, as required in the federal guidance. FEMA outlines priorities for the program in each Notice of Funding Opportunity (NOFO). There is no limit on the number of subapplications that the state can submit, however, each project has a funding cap of $50 million.

Allocations of BRIC Program Grants

The BRIC program is highly competitive on a national level and the State of Florida has continued to aggressively implement and administer the BRIC program. As outlined in the NOFO each year, a portion of the total BRIC allocation is for states, territories, and tribes as a set-aside, and the remaining funds are for the national competition. That means that Florida is guaranteed a small allocation each year, but most of the funds remain in the national competition allocation.

Pre-Disaster Mitigation (PDM) Grant Program

The Pre-Disaster Mitigation Grant Program (PDM) is authorized by Section 203 of the Robert T. Stafford Disaster Relief and Emergency Act, as amended (Public Law 93-288) (42 U.S.C. 5133) and appropriated annually by the Consolidated Appropriations Act. It exists to assist communities in reducing overall risk to the population and structures from natural disasters.

Each state, territory or federally recognized tribal nation with a project identified in the Pre-Disaster Mitigation funding opportunity shall designate one agency to serve as the applicant for funding. Each applicant's designated agency may submit only one Pre-Disaster Mitigation grant application to FEMA. Local governments, including cities, townships, counties, special district governments, and tribal governments (including federally recognized tribes who choose to apply as subapplicants) that are

identified in the funding opportunity are considered subapplicants and must submit subapplications to their state applicant agency.

Potential project types include:

- Acquisition/Demolition; Acquisition/Relocation
- Elevation
- Mitigation Reconstruction
- Dry Flood proofing
- Generators
- Engineering studies
- Hydrologic/hydraulic studies/analyses
- Localized and Non-localized flood reduction projects
- Protective measures for utilities
- Retrofitting
- Safe rooms
- Storm water management projects
- Soil Stabilization
- Wildfire Mitigation

Through PDM, Florida has provided protection to local government structures and critical facilities, as well as reduced flooding in neighborhoods.

Eligibility for PDM Program Grants

State mitigation staff evaluates the projects to be sure that the applicant and project are eligible according to FEMA's most recent HMA Guidance. The project must conform to regulations found in this Guidance, including:

- Be in conformance with the LMS, local ordinances, planning requirements, and floodplain management plans as applicable.
- Be complete and cost-effective.
- Be long-term and technically feasible.
- Conform to all applicable environmental, historic, or cultural preservation reviews.
- Benefits must not duplicate those available through another primary source or program.

Prioritization for PDM Program

Florida will only consider PDM applications from communities that have a FEMA-approved LMS. Typically, PDM funds are available to all eligible applicants statewide for projects that are designed to reduce future risk to individuals and property from natural hazards. While not required to be prioritized by the local LMS working groups, projects submitted for funding under the PDM must be consistent with the LMS and documented as such.

Since funding for PDM is competitive nationwide and the federal guidance material may or may not limit the total number of sub-applications a state may submit, FDEM provides technical assistance to all eligible applicants with a FEMA approved LMS. When these funds are available, the review of projects submitted for funding will consist of a Project Review Team composed of subject matter experts.

In those instances where federal guidance limits the number of sub-applications a state may submit, FDEM will limit its submittals to eligible cost-effective sub-applications as provided in the guidance. In any case, FDEM will prioritize and rank eligible cost-effective project applications by FEMA's priorities, benefit cost ratio and technical feasibility.

Emergency Management Performance Grant (EMPG)

The Emergency Management Performance Grant (EMPG) provides state, local, tribal and territorial emergency management agencies with the resources required for implementation of the National Preparedness System and works toward the National Preparedness Goal of a secure and resilient nation. The EMPG's allowable costs support efforts to build and sustain core capabilities across the prevention, protection, mitigation, response and recovery mission areas.

DHS/FEMA make grants available for the purpose of providing a system of emergency preparedness for the protection of life and property in the United States from hazards and to vest responsibility for emergency preparedness jointly in the Federal Government, states, and their political subdivisions. The Federal Government, through the EMPG Program, provides necessary direction, coordination, and guidance as well as assistance to support a comprehensive all hazards emergency preparedness system.

FDEM uses EMPG funding for programs in all four phases of emergency management: preparedness, response, recovery and mitigation. Examples of EMPG funded mitigation activities include initiating or achieving whole community approach to security and emergency management; updating emergency plans; completing the State Preparedness Reports (SPR), including the Threat and Hazard Identification and Risk Assessment (THIRA) process; designing and conducting exercises that engage a whole community of stakeholders and validate core capabilities; and conducting training.

Community Development Block Grant Mitigation Program (CBDG-MIT)

The Community Development Block Grant Mitigation (CDBG-MIT) Program funds pose a unique opportunity for eligible grantees to use this assistance in areas impacted by recent disasters to carry out strategic and high-impact activities to mitigate disaster risks and reduce future losses. Goals of CDBG-MIT funds:

- Support data-informed investments, focusing on repetitive loss of property and critical infrastructure;
- Build capacity to comprehensively analyze disaster risks and update hazard mitigation plans;

  Support the adoption of policies that reflect local and regional priorities that will have long-lasting effects on community risk reduction, including risk reduction to community lifelines and decreasing future disaster costs; and
- Maximize the impact of funds by encouraging leverage, private/public partnerships, and coordination with other Federal dollars.

Watershed Protection and Flood Prevention

The U.S. Department of Agriculture's Watersheds and Wetlands Division provides resources to support technical and financial assistance in carrying out works of improvement to protect, develop, and utilize the land and water resources in small watersheds.

Community Assistance Program State Support Services Element (CAP-SSSE)

The CAP-SSSE Program exists to ensure that communities participating in the National Flood Insurance Program (NFIP) are achieving flood loss reduction measures consistent with program direction. The CAP-SSEE is intended to identify, prevent and resolve floodplain management issues in participating communities before they develop into problems requiring enforcement action. Fundable activities include: strategic planning, entering floodplain management data into the Community Information System (CIS), ordinance assistance, CAP gap analysis, Community Assistance Visits (CAV), outreach, workshops, training, mapping coordination, technical assistance, and coordination with other state programs and agencies. State agencies designated by statute or the Governor's declaration as a NFIP state coordinating agency are eligible for funding support.

Rehabilitation of High Hazard Potential Dam Grant Program (HPPD)

The Rehabilitation of High Hazard Potential Dams (HPPD) Grant awards provide technical, planning, design and construction assistance in the form of grants for rehabilitation of eligible high hazard potential dams. A state or territory with an enacted dam safety program, the State Administrative Agency (SAA), or an equivalent state agency, is eligible for the grant. Projects are approved by the dam safety agency in the state or territory where the dam is located.

Previously, Florida has not been active in the HHPD program due to a lack of capacity to administer the grant and a lack of contributing resources by Florida's dam owners. In 2022, FDEM began coordinating with FDEP and the State Dam Safety Officer to develop and make the program available to Florida's dam owners. To be able to implement the program, FDEM must receive budget authority and approval from the Florida Legislature via the annual budget. This program is being added into the FDEM multi-year strategy to be submitted as a Legislative Budget Request in coming years.

Fire Management Assistance Grant (FMAG) Program

The Fire Management Assistance Grant (FMAG) Program is available to states, local and tribal governments, for the mitigation, management, and control of fires on publicly or privately owned forests or grasslands, which threaten such destruction as would constitute a major disaster under CFR 44.1(d)(204). The Fire Management (FM) declaration process is initiated when a state submits a request for assistance to the FEMA Regional Director at the time of a "threat of major disaster" exists. The entire process is accomplished on an expedited basis and a FEMA decision is rendered in a matter of hours. Before a grant can be awarded, a state must demonstrate that total eligible costs for the declared fire meet or exceed the individual fire cost threshold. This threshold applies to single fires, or the cumulative fire cost threshold, which recognizes numerous smaller fires burning throughout a state.

Safeguarding Tomorrow Revolving Loan Fund (RLF) Program

The Safeguarding Tomorrow through Ongoing Risk Mitigation (STORM) Act became law on January 1, 2021, and authorizes FEMA to provide capitalization grants to states, eligible federally recognized tribes,

territories and the District of Columbia to establish revolving loan funds that provide hazard mitigation assistance for local governments to reduce risks from natural hazards and disasters. These low interest loans will allow jurisdictions to reduce vulnerability to natural disasters, foster greater community resilience and reduce disaster suffering.

FEMA will not limit or restrict project types beyond the limitations in statute. These loans may be used as a non-federal cost match for another HMA grant application. These loans are awarded directly to the applicants. The priorities of the Safeguarding Tomorrow RLF program are:

- FEMA collaborating with eligible entities to help them increase their capacity and capability, through focused engagement activities
- Allowing applicants to leverage loans for non-federal cost share with other FEMA HMA programs
- Delivering 40 percent of the overall benefits generated by the entity loan funds flowing to underserved communities
- Reduce program complexity by breaking down barriers and increasing access to mitigation funding
- Identify administrative burdens and reduce them to the greatest extent possible

FEMA will provide capitalization grants for entities to establish revolving loan funds for mitigation projects and activities to increase resilience and mitigate the impacts of events such as drought, extreme heat, severe storms, wildfires, floods, and earthquakes. More detailed allowable uses include:

- **Mitigation Activities:** Eligible project types under this program will include activities that mitigate the impact of natural hazards, zoning and land use planning changes, and building code enforcement.
- **Non-Federal Cost-Share:** Loans may be used by local governments to satisfy a local government's non-federal cost-share requirement for other FEMA Hazard Mitigation Assistance (HMA) grant programs, such as the Hazard Mitigation Grant Program, Hazard Mitigation Grant Program Post Fire, Building Resilient Infrastructure and Communities and Flood Mitigation Assistance grant programs.
- **Local Government Technical Assistance:** Entities may provide technical assistance to local governments applying for and receiving loans. Technical assistance provided by entities to local governments shall not exceed five percent of the capitalization grant the entity received.
- **Entity Administrative Costs:** Entities may use a portion of the capitalization grant for costs associated with administering their revolving loan fund. The statute requires entity loan fund administrative costs shall not exceed the following limits, whichever is greatest: $100,000 per year; two percent of the capitalization grants made in that fiscal year; or one percent of the value of the entity loan fund.

Public Assistance (PA) Mitigation (406 Mitigation)

Public Assistance (PA) 406 Mitigation program funds mitigation measures for permanent work. The mitigation measures must directly reduce the potential of future damage to the damaged portion(s) of the facility. Generally, eligible PA mitigation measures are those the Applicant performs on the damaged portion(s) of the facility. The four basic components of PA eligibility are applicant, facility, work, and cost. The applicant must be a state, tribe, or local government. A facility must be a building, public works system, equipment, or improved and maintained natural feature. Work is categorized as either "emergency" or "permanent." It must be required as a result of the declared incident, located within the designated disaster

area, and is the legal responsibility of the eligible Applicant. Costs are expenses tied directly to eligible work, and must be adequately documented, authorized, necessary, and reasonable. Eligible costs include labor, equipment, materials, contract work, and management costs. Emergency work must be completed within six months and includes debris removal and emergency protective measures. Permanent work must be completed within 18 months and includes roads, bridges, water control facilities, public buildings and equipment, public utilities, and parks, recreational and other facilities.

Community Wildfire Defense Program

The 2021 Infrastructure Investment and Jobs Act ("Bipartisan Infrastructure Law") authorizes the $1 billion, five-year Community Wildfire Defense Program (CWDG), which prioritizes at-risk communities that are in an area identified as having high or very high wildfire hazard potential, are low income, or have been impacted by a severe disaster that affects the risk of wildfire.

The program provides funding to communities to (a) develop and revise Community Wildfire Protection Plans and (b) Implement projects described in a Community Wildfire Protection Plan that are less than ten years old.

Assistance to Firefighters Grant (AFG)

The Assistance to Firefighters Grant (AFG) Program provides financial assistance directly to eligible fire departments, non-affiliated emergency medical service (EMS) organizations, and state fire training academies (SFTAs) for critical training and equipment.

Economic Development Administration Funding

The Economic Development Administration (EDA)'s funding page outlines various funding opportunities, some of which may be used for disaster recovery. EDA's role in disaster recovery is to facilitate the timely and effective delivery of federal economic development assistance to support long-term community economic recovery planning and project implementation, redevelopment and resilience.

Emergency Watershed Protection

USDA's Natural Resources Conservation Service (NRCS)'s Emergency Watershed Protection (EWP) Program offers technical and financial assistance to help local communities relieve imminent threats to life and property caused by floods, fires, windstorms and other natural disasters that impair a watershed. EWP does not require a disaster declaration by federal or state government officials for program assistance to begin. The NRCS State Conservationist can declare a local watershed emergency and initiate EWP program assistance in cooperation with an eligible sponsor. NRCS will not provide funding for activities undertaken by a sponsor prior to the signing of a cooperative agreement between NRCS and the sponsor.

NRCS offers financial and technical assistance for various activities under the EWP Program, including:

- Removing debris from stream channels, road culverts and bridges;
- Reshaping and protecting eroded streambanks;
- Correcting damaged or destroyed drainage facilities;
- Establishing vegetative cover on critically eroding lands;
- Repairing levees and structures;
- Repairing certain conservation practices, and

- Purchasing of EWP Buyouts.

National Wildlife Wetland Refuge

The realty division of the National Wildlife Refuge System supports the acquisition and management of U.S. Fish and Wildlife Service lands. The realty team works to achieve the greatest conservation return on investment and acquires only the minimum interest necessary to meet fish and wildlife conservation objectives.

U.S. Small Business Administration

The U.S. Small Business Administration provides low-interest loans to help businesses and homeowners recover from declared disasters. These loans are available to businesses of all sizes, homeowners, renters, and private nonprofit organizations in a declared disaster area; applicants must also meet other eligibility criteria depending on the type of loan.

U.S. Army Corps of Engineers (USACE) Funding and Assistance Sources

Beach Erosion Control Projects

The U.S. Army Corps of Engineers (USACE) provides a funding program to control beach and shore erosion occurring on public shores through programs not specifically authorized by Congress.

Flood Control Projects

USACE provides a funding program to reduce flood damages through projects not specifically authorized by Congress. Section 205 of the 1948 Flood Control Act authorizes USACE to study, design, and construct small flood control projects in partnership with non-Federal government agencies, such as cities, counties, special authorities, or units of state government. Projects are planned and designed under this authority to provide the same complete flood control project that would be provided under specific congressional authorizations. The maximum Federal cost for planning, design, and construction of any one project is $10 million. Each project must be economically justified, environmentally sound, and technically feasible. Flood control projects are not limited to any particular type of improvement. Levee and channel modifications are examples of flood control projects constructed utilizing the Section 205 authority.

Floodplain Management Services

Under the authority provided by Section 206 of the 1960 Flood Control Act, USACE can provide the full range of technical services and planning guidance to communities to support effective, local floodplain management. Services may include site-specific data on obstructions to flood flows, flood formation, and timing; flood depths, stages or floodwater velocities; the extent, duration, and frequency of flooding; information on natural and cultural floodplain resources; and flood loss potentials before and after the use of floodplain management measures. Studies can also be conducted for floodplain delineation/hazard, dam failure analyses, hurricane evacuation, flood warning, floodway, flood damage reduction, stormwater management, flood proofing, and inventories of flood prone structures.

Protection, Clearing and Straightening Channels

USACE can remove obstructions which impede or stop navigation, or pose an immediate and significant threat to life, property, or a structure that facilitates navigation under the emergency authority of section 20 of the Rivers and Harbors Act of 1988, as amended.

Protection of Essential Highways, Highway Bridge Approaches, and Public Works

USACE, under Section 14 of the 1946 Flood Control Act, is authorized to construct bank protection works to protect endangered highways, highway bridge approaches, and other essential, important public works, such as municipal water supply systems and sewage disposal plants, churches, hospitals, schools, and non-profit public services and known cultural sites that are endangered by flood-caused bank or shoreline erosion. Privately owned property and facilities are not eligible for protection under this authority. Erosion protection is not eligible under Section 14, if the problem is caused by the design or operation of the facility itself or by inadequate drainage or lack of reasonable maintenance. Repair of the facility itself is also excluded under Section 14 authority.

Advance Measures Program

This source of funding is from the USACE to perform activities prior to flooding or flood fight that would assist in protecting against loss of life and damages to property due to flooding. There must be an imminent threat of unusual flooding from adverse conditions. Direct Assistance requires a written request from the governor of the state.

State Funding

The following is an overview of available state funding sources that have been used as the non-federal share for federal grant programs as well as to fund non-federally funded local projects.

Hurricane Loss Mitigation Program (HLMP)

The Florida Division of Emergency Management created the Hurricane Loss Mitigation Program (HLMP) with a purpose aimed towards minimizing damages caused by hurricanes. The program began as an active response to the devastation brought by Hurricane Andrew, specifically to the insurance market in the State of Florida. With an annual budget of 7 million, provided by the Florida Hurricane Catastrophe Trust Fund, the program is funding activities that promote property resiliency through retrofits made to residential, commercial, and mobile home properties, the promotion of public education and public information, and through hurricane research activities.

The specific areas funded by the $10 million appropriation include retrofits for existing public facilities, the Mobile Home Tie Down program administered by Tallahassee Community College, a hurricane research program conducted by Florida International University, wind mitigation retrofit projects, and public outreach programs.

Up to $3.4 million is to be used on improving community resiliency through the Hurricane Loss Mitigation Program Grant. Under this Grant, eligible applicants are non-profit organizations and governmental entities. Homeowners are not eligible but may be sponsored by an eligible applicant. By partnering with local housing authorities and non-profit organizations, the Division has been able to promote wind and flood mitigation and provide hazard mitigation retrofitting to residential and commercial properties. Funded activities include retrofits, inspections, and construction or modification of building components designed to increase a structure's ability to withstand hurricane-force winds and flooding. The Retrofit Program utilizes the Florida Building Code as its standard for all retrofitting.

The Mobile Home Tie-Down Program is designed to demonstrate, test, and raise awareness of new techniques to enhance manufactured home wind resistance. The goal is to reduce property damage from high-wind events.

Florida Communities Trust Fund (FCT)

Florida Communities Trust Fund (FCT) is a state land acquisition grant program housed within the Department of Environmental Protection. Funding for FCT grants comes from the Florida Forever program. When Florida Forever funding is available, FCT's Parks and Open Space program receives 21 percent of the funds and FCT's Stan Mayfield Working Waterfronts program receives 2.5 percent of the funds.

The FCT was created to help implement the goals, objectives, and policies outlined in the conservation, recreation and open space, and coastal management elements of local comprehensive plans. It also helps local governments bring their comprehensive plans into compliance as well as conserve natural resources and resolve land use conflicts. As of 2023, the FCT has acquired over 96,931 acres of private lands to be placed in public trust free from future development. Many of these lands are in floodplains along the state's vast rivers and coastal lands.

The FCT makes grants available to local governments and non-profit environmental organizations through a competitive application cycle to help purchase parks, greenways, and open spaces identified in local comprehensive plans. Under this program, all local governments are required to provide a minimum 25 percent match, except small local governments (counties with a population fewer than 75,000 and cities with a population fewer than 10,000) who would qualify for a 100 percent grant.

Coastal Partnership Initiative (CPI) Grant Program

The Coastal Partnership Initiative (CPI) grant program promotes the protection and effective management of Florida's coastal resources at the local level. The Florida Coastal Management Program (FCMP) makes National Oceanic and Atmospheric Administration (NOAA) funds available, on a competitive basis, to eligible local governments. Project must be feasible and completed within one year. The project is governed by Rule 62S-4 of the Florida Administrative Code.

Eligibility for Coastal Partnership Initiative Grant Program

Eligible local governments are defined as Florida's 35 coastal counties and all municipalities within their boundaries that are required to include a coastal element in their local comprehensive plan. Florida's public colleges and universities, regional planning councils, national estuary programs, and non-profit groups may also apply if an eligible local government agrees to participate as a partner. Each year in the late summer/fall FCMP publishes a notice of availability of funds in the Florida Administrative Register to solicit CPI applications from eligible entities. CPI grants provide support for innovative local coastal management projects in four program areas: resilient communities, coastal resource stewardship, access to coastal resources, and working waterfronts.

Prioritization for Coastal Partnership Initiative Grant Program

CPI applications are reviewed by a technical evaluation committee with knowledge of coastal resource management. The highest rated projects will be considered for funding, subject to the availability of funds from NOAA. All applications are evaluated using the following criteria:

- Project Location
- Project Description
- Demonstrated need and benefit to coastal resource management
- Objectives, tasks, deliverables, and timelines that clearly relate to project
- Cost-effectiveness
- Technical feasibility

Florida Small Cities Community Development Block Grant Program

The Florida Small Cities Community Development Block Grant Program provides federal funding for low-income housing rehabilitation and community development. The program, regulated by the U. S. Department of Housing and Urban Development (HUD), assists smaller local governments to provide water and sewer infrastructure, housing rehabilitation opportunities for low-income homeowners, commercial revitalization, and economic development projects.

Eligibility for Florida Small Cities Community Development Block Grant Program

The following communities are eligible to apply for funds:

- Non-entitlement cities with fewer than 50,000 residents
- Counties with fewer than 200,000 residents
- Cities that opt out of the urban entitlement program

Prioritization for Florida Small Cities Community Development Block Grant Program

To be eligible for funding, an activity must meet at least one of the following national objectives:

- Low-Moderate National Objective: at least 51 percent of the beneficiaries must be low- and moderate-income persons (total family income is at or below 80 percent of the area's median income).
- Slum and Blight National Objective: the area must be a slum or blighted area as defined by state or local law.
- Urgent Needs National Objective: the activity must alleviate existing conditions which pose a serious and immediate threat to those living in the area and are 18 months or less in origin. The local government must demonstrate that it is unable to finance the activity on its own and that other funding is not available.

Community Development Block Grant (CDBG) Disaster Recovery Initiative

Congress began allocating Community Development Block Grant (CDBG) Disaster Recovery funds to Florida following the 2004 Hurricane Season in response to unusual hurricane activity. Subsequent allocations for 2005 and 2008 storms assist with disaster relief, long-term recovery, restoration of infrastructure, and mitigation efforts in the most impacted and distressed areas.

Eligibility for Community Development Block Grant Disaster Recovery Initiative

CDBG Disaster Recovery funds are made available to states, units of local governments, and insular areas designated by the President of the United States as disaster areas. Communities must have significant unmet recovery needs and the capacity to carry out a disaster recovery. Disaster Recovery funds are most

appropriate for long-term recovery needs. Grantees may use funds for recovery efforts that involve housing, economic development, infrastructure and prevention of further damage to affected areas.

Examples of eligible activities include restoration of affordable housing, rehabilitation, demolition, replacement, acquisition, new construction, transitional housing, emergency shelter facilities, and complementary housing activities.

Prioritization for Community Development Block Grant Disaster Recovery Initiative

Activities must meet at least one of three program national objectives:

- Benefit persons of low and moderate income.
- Aid in the prevention or elimination of slums or blight.
- Meet other urgent community development needs.

The Weatherization Assistance Program (WAP)

The Weatherization Assistance Program (WAP) provides grants to community action agencies, local governments, Indian tribes, and non-profit agencies to fund energy-saving repairs to low-income homes throughout the state. The grants may be used for insulation, weather stripping, water heater wraps, and the reduction of air infiltration. The program may also fund the repair or replacement of inefficient heaters and air conditioners.

Eligibility for the Weatherization Assistance Program

The total household income may not be more than 200 percent above the national poverty level. Preference is given to elderly (60 years-plus) or physically disabled residents, families with children under 12, and households with a high energy burden (repeated high utility bills).

Prioritization for Weatherization Assistance Program

The revised WAP allocation formula is based on three factors for each state:

- Low-income population: This number represents how many low-income households live in each state and is expressed as a percentage of the total for the country.
- Climatic conditions: These data are obtained from the heating and cooling degree-days for each state and deal proportionally with the energy needed for heating and cooling.
- Residential energy expenditures by low-income households: This number approximates the financial burden that energy use places on low-income households in each state.

Beach Management Funding Assistance (BMFA) Program

This program is intended to provide and manage grants for local governments 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, and preserve cultural resources. This program is managed by the Florida Department of Environmental Protection's Office of Resilience and Coastal Protection.

Eligibility for Beach Management Funding Assistance Program

Financial assistance in an amount up to 50 percent of project costs is available to local governments, including county and municipal governments, community development districts and special taxing districts.

Potential activities can include beach restoration and nourishment activities; project design and engineering studies; environmental studies and monitoring; inlet management planning; inlet sand transfer; dune restoration; beach and inlet protection activities; and other beach erosion prevention related activities consistent with the adopted Strategic Beach Management Plan.

Projects must be accessible to the public, located on the Gulf of Mexico, Atlantic Ocean or Straits of Florida as well as within an area listed as critically eroded.

Hurricane Restoration Reimbursement Grant Program

The Hurricane Restoration Reimbursement Grant Program will distribute up to $100 million to qualifying homeowners to help remedy the damages from coastal erosion sustained from Hurricane Ian or Hurricane Nicole. To be eligible to apply for reimbursement through the reimbursement grant program, the homeowner must be a coastal property owner with coastal beach erosion from either Hurricanes Ian or Nicole or both within the listed impacted counties: Brevard, Broward, Charlotte, Collier, Duval, Flagler, Indian River, Lee, Manatee, Martin, Nassau, Palm Beach, Saint Johns, Saint Lucie, Sarasota, and Volusia.

The activity must be permitted before implementation, be related to sand placement, temporary or permanent armoring and have occurred after Sept. 23, 2022. Applications are processed on a first-come, first-serve basis, with priority given to low/moderate-level income homeowners. To receive grant reimbursement, a homeowner must submit invoices and payable receipts for eligible projects.

Resilient Florida Grant Program

The Resilient Florida Program includes a selection of grants that are available to counties, municipalities, water management districts, flood control districts and regional resilience entities. To effectively address the impacts of flooding and sea level rise that the state faces, eligible applicants may receive funding assistance to analyze and plan for vulnerabilities, as well as implement projects for adaptation and mitigation.

Applications submitted for funding consideration require a comprehensive evaluation to ensure that funds are allocated timely and appropriately and pursuant to Florida Statute. Additional funding awards will be provided when it becomes available.

Florida Hurricane Catastrophe Fund (FHCF)

The Florida Hurricane Catastrophe Fund (FHCF) is a tax-exempt trust fund created by the Florida Legislature in November 1993 following Hurricane Andrew in August of 1992.Section 215.555, Florida Statutes, created the FHCF with the purpose of providing a stable and ongoing source of reimbursement to insurers for a portion of their catastrophic hurricane losses to provide additional insurance capacity for the state. The FHCF operates as a public-private partnership, supporting the private sector's role as the primary risk bearer.

Participation in the FHCF is mandatory for all residential property insurance companies doing business in Florida, and each company is required to enter into a reimbursement contract with the FHCF.

Rebuild Florida

Rebuild Florida is a program of the Florida Department of Commerce created to Florida's long-term disaster recovery effort from recent hurricanes. Rebuild Florida programs include housing programs, grant programs for local communities, and workforce programs.

FloridaDisaster.biz

FloridaDisaster.biz is a partnership between the Florida Department of Economic Opportunity (DEO) and the Florida Division of Emergency Management (DEM). DEO is the lead agency for the State Emergency Response Team Emergency Support Function (ESF) 18. ESF-18 is tasked with coordinating local, state and federal agency actions that provide immediate and short-term assistance to business and industry as well as economic stabilization. Additionally, ESF-18 works with business and industry to identify available resources to meet the needs of the state and its citizens before, during and after a disaster.

The website contains several helpful links. One of them is the Business Damage Assessment Survey, which can be filled out my business that are damaged after a state-designated emergency to receive information about the damage and connect with available resources. Another is the Florida Small Business Emergency Loan (EBL) Program, which provides short-term, zero-interest working capital loans that are intended to "bridge the gap" between the time a disaster impacts a business and when a business has secured longer term recovery funding such as federally or commercially available loans, insurance claims or other resources.

My Safe Florida Home

Florida homeowners can mitigate their properties through the My Safe Florida Home Program. The three key steps to the program are: inspect the home, strengthen the home through mitigation measures, and save money through discounts on insurance premiums. Note: eligibility is subject to change.

Local Funding

Local Mitigation Strategy (LMS) projects funded by grants usually require a local match for implementation. LMS projects span a wide range of mitigation issues including coordination and integration of public and private sector mitigation projects, post-disaster planning, long-term redevelopment, and public education.

The following provides a synopsis of data obtained from reviewing LMS's to identify local funding sources that have been used in the past to fund local mitigation related projects. This list contains funding sources that have been used as a match for federal grant programs as well as to fund non-federally funded local projects.

Ad Valorem Tax

The ad valorem tax is levied based on the value of real and tangible personal property as of January 1 of each year and is intended to increase total revenue of local governments.

Stormwater Tax Assessment

The fee is based on the total amount of a property's impervious surface and has been used to prepare a stormwater program and fund a wide range of drainage improvements.

In-Kind Services

Services or equipment for projects provided by those in the community.

Impact Fees/ Development Exaction

Impact fees on new development, such as a Water and Sewer Connection Fee, Fire Impact Fee, Law Enforcement Impact Fee, Transportation Impact Fee, and School Impact Fee, are used for the purchase and construction of capital assets. (School impact fees may be remitted periodically to the County School Board.)

Tourist Tax Local Option

A local tax is levied on most rents, leases or lets, and living accommodations in hotels, motels, apartments, houses, and mobile homes (contracted for periods of less than six months or less) in promotion of tourism and tourist-type activities.

Revenue Bonds

This is revenue derived from the issuance of long-term debt, such as bonds or commercial paper. Proceeds are deposited into capital projects funds and/or debt service funds.

Permit Fees

This is revenue derived from the issuance of local licenses and permits. Exceptions include occupational licenses and building permits.

State Revenue Sharing

Two tax sources are earmarked for sharing with counties: 2.9 percent of net cigarette tax collections; 41.3 percent of net intangible tax collections. Intangible tax collections provide 95 percent of total revenue shared with counties in this category.

Appendices

Appendix A: Planning Process Documentation..... A-1

Appendix B: Floodplain Management..... B-1

Appendix C: CRS 610 .....C-1

Appendix D: Mitigation Initiatives D-1

Appendix E: FL Review Tool E-1

Appendix F: Plan Adoption..... F-1

Appendix G: Plan Maintenance G-1

Appendix H: Program for Public Information H-1

Appendix I: Repetitive Loss Area Analysis I-1

Appendix J: LMS Procedures J-1

Appendix K: Vulnerability Analysis K-1

Note: The information and documentation contained within these appendices is large and not all files lend themselves to a printed document. Original files are available to interested parties through Pinellas County as indicated in Section 3 – Planning Process and Plan Maintenance. Critical files for the plan have been converted to PDF, when possible, to provide the reader with as much information as possible. Some electronic files/tools such as those created in MS Excel and geospatial information are only functional in their native file types and would need to be requested from the County.

APPENDIX A – PLANNING PROCESS DOCUMENTATION

This appendix includes the following:

1. **LMSWG Roster and Attendance Sheets**
2. **Countywide Outreach Matrix**
3. **Municipal Outreach Matrix**
4. **Materials related for the LMS Working Group Meetings**
   - **LMS SharePoint Site**
   - Working Group meeting announcements on the Pinellas County LMS webpage
5. **Materials related to Public Outreach for the 2020 LMS 5-Year Update**
   - Press Release for Public Workshops
   - Newspaper Ads for Public Workshops
   - LMS News Release for Public Workshop
   - Workshop Announcements for Public Workshops on the Pinellas County Calendar
   - Municipal Jurisdiction's Public Workshop Notifications
   - Workshop Announcement on the LMS Webpage
   - LMS Public Workshop Flyers
   - Social Media Posts
   - Surveys
   - Comment Card
   - Workshop Recordings and Resources

All LMS Working Group meetings are announced via the Pinellas County website at the following location: http://pinellaslms.org/meetings.htm

The information from the meetings are available by contacting:

Pinellas County Housing and Community Development Department - Planning Division
310 Court St., Clearwater, FL.
https://pinellas.gov/department/planning/
727.464.8200

Furthermore, the County has a countywide public information group that focuses on the integration of the Community Rating System and the Local Mitigation Strategy. This group is known as the Flood Risk and Mitigation Public Information Working Group (FRMPIWG) consisting of public and private stakeholders. This group met three times over the 2019 period that the LMS update was being performed. That group received updates from the LMS Working Group and provided input into the plan which was incorporated into the update. The information regarding the FRMPIWG and the countywide Program for Public Information can be found at the following website:

http://www.pinellascounty.org/flooding/ppi.htm

Pinellas County
Local Mitigation Strategy
2024 - 2025 Working Group Roster

Agency/Organization	Name	Primary/Alternate Member	E-Mail Address	Phone	Position Title
Advent Health North Pinellas	Moreira, Tim	Stakeholder	tim.moreira@adventhealth.com	727-942-5060	Director of Facilities
American Red Cross	Hendrickson, Mark	Stakeholder	mark.hendrickson@redcross.org	727-744-0382	Business Consultant for COOP & Community Development Education
American Red Cross	Bueno, Jose C	Stakeholder	Jose.Bueno@redcross.org	813-868-7673	Regional Preparedness Manager
Area Agency on Aging of Pin./Pasco	Martino, Jason	Stakeholder	jason.martino@aaapp.org	727-570-9696	Emergency Coordinating Officer
Bay Area DKI	Ennest, Chris	Stakeholder	CEnnest@bayareadki.com	813-224-2464	Account Manager
Bayfront Health St. Petersburg	Beckert, Bruce	Stakeholder	bruce.beckert@hma.com	727-893-6967	Construction Coordinator
Bayfront Health St. Petersburg	Fournier, Roger	Stakeholder	roger.fournier@BayfrontHealth.com	727-893-6171	Director of Public Safety
Bayfront Health St. Petersburg	Baker, Glenn	Stakeholder	Glenn.Baker@bayfronthealth.com	727-893-6074	Emergency Management Coordinator
Belleair	Klinstiver, Adam	Primary Member	aklinstiver@consoreng.com	813-465-4446 ext. 55224	Area Principal/Sr. Project Engineer, Florida Construction Services
Belleair	Bernal, Ashley	Alternate Member	abernal@townofbelleair.net	727-588-3769 ext. 244	Assistant to the Town Manager
Belleair Beach	Riefler, Kyle	Primary Member	Kyle.riefler@cityofbelleairbeach.com	727-595-4646 ext. 121	City Manager
Belleair Beach	Glanz, Aaron	Primary Member	Aaron.Glanz@cityofbelleairbeach.com	727-595-4646 ext. 123	Community Services Administrator
Belleair Bluffs	Sullivan, Debra	Primary Member	dsullivan@belleairbluffs-fl.gov	727-584-2151 Cell: 727-638-6497	City Administrator
Belleair Bluffs	Schmader, Russ	Primary Member	rschmader@belleairbluffs-fl.gov	727-307-5773	Public Works Director
Belleair Shore	Palmer, Mary	Primary Member	clerkbelleairshore@gmail.com	727-593-9296	Town Clerk
Clearwater	Kessler, Sarah	Primary Member	Sarah.Kessler@myclearwater.com	727.562.4897	Lead Environmental Specialist CRS Coordinator
Clearwater	Graham, Jevon	Primary Member	jevon.graham@myclearwater.com	727-562-4334 ext. 3205	Emergency Manager
Clearwater	Henry, Eugene	Alternate Member	gene.henry@myclearwater.com	(727) 444-8872	Floodplain Administrator
Clearwater	Lopko, Jayme	Alternate Member	Jayme.Lopko@myclearwater.com	727.562.4561	Long Range Planning Manager
Clearwater	Smith, Derek	Alternate Member	derek.smith@myclearwater.com	727.562.4334 ext.4171	Emergency Management Specialist
Clearwater	DeLorenzo, Sara	Alternate Member	Sara.DeLorenzo@MyClearwater.com	727-562-4065	Grants Coordinator, City Clerk Department, City of Clearwater
Clearwater	Lutz, David	Alternate Member	David.Lutz@myclearwater.com	727-444-8237	Traffic Engineering Manager, City of Clearwater
Dunedin	DiPasqua, Joseph	Primary Member	jdipasqua@dunedinfl.net	727-298-3193	Assistant Director of Community Development
Dunedin	Watkins, Clayton	Primary Member	cwatkins@dunedinfl.net	727-298-3180	Assistant Director of Utilities & Engineering/City Engineer
Dunedin	Monteclaro, Michelle	Alternate Member	mmonteclaro@dunedinfl.net	727-298-3232	Environmental Program Manager
Dunedin	Parks, Jeff	Alternate Member	jparks@dunedinfl.net	727-298-3094	Fire Chief
East Lake Tarpon Fire Control District	Gennaro, Jason	Stakeholder	jgennaro@elfr.org	727.784.8668 ext 203	Fire Chief (Primary Contact)

Pinellas County
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East Lake Tarpon Fire Control District	Godwin, Greg	Stakeholder	ggodwin@elfr.org	727.784.8668 ext 205	Deputy Chief (Alternate Contact)
Eckerd College	Colby, Adam	Stakeholder	colbyac@eckerd.edu	727-864-7732	Assistant Vice President/Operations & Emergency Management
FDOT	Aborizk, Angela	Stakeholder	angela.aborizk@dot.state.fl.us	813-615-8630	FPEM Emergency Operations Coordinator
FEMA - Region IV	Vigo, Gabriela	Stakeholder	gabriela.vigo@fema.dhs.gov	229-225-4546	HMA Program Specialist, FL
FL Restaurant & Lodging Assoc.	Lynch, Dannette	Stakeholder	dannette@frla.org	727-642-3404	Regional Director Florida Restaurant & Lodging Association
Florida Emergency Management	Price, Jamie	Stakeholder	Jamie.price@em.myflorida.com	Office: 850-413-9925 Cell: 850-694-6620	Lead Mitigation Planner
Florida Emergency Management	Wallick, Michael	Stakeholder	Michael.Wallick@em.myflorida.com	850-922-0325	Mitigation Planner
Gulfport	Taylor, Michael	Primary Member	mtaylor@mygulfport.us	727-893-1087	Planning Administrator
Gulfport	Streicher, Clark	Primary Member	cstreicher@mygulfport.us	727-893-1020	Community Development Director
Gulfport	Griffin, Mark	Alternate Member	mgriffin@mygulfport.us	(727) 893-1023	Planner II
HCA Health Care	Ryan, Tracie	Stakeholder	Tracie.Ryan@hcahealthcare.com	813-599-5376	EMS Relations Director-Pinellas County
HCA Health Care	Squires, Patti	Stakeholder	PattiSue.Squires@hcahealthcare.com		
Hillsborough County Hazard Mitigation	Hummel, Christina, AICP	Stakeholder	HummelC@hillsboroughcounty.org	813-307-1800	Senior Planner Hazard Mitigation / Public Works Department
Hillsborough County Hazard Mitigation	Twaite, William	Stakeholder	TwaiteW@hillsboroughcounty.org	813-276-8245	Hazard Mitigation Manager/Hillsborough Co.
Indian Rocks Beach	Scharmen, Dean	Primary Member	dscharmen@irbcity.com	727-595-6889	Public Works Director
Indian Rocks Beach	Olson, Colleen	Primary Member	colson@irbcity.com	727-595-6889	Administrative Assistant
Indian Shores	Jones, William	Primary Member	wjones@myindianshores.com	727-474-7786	Building Clerk
Indian Shores	Rusu, Brian, CBO, CFM	Primary Member	brusu@myindianshores.com	727-474-7785	Building Official
Indian Shores	Wagner, Ashley	Alternate Member	awagner@myindianshores.com	727-474-7786	Building Clerk
Kenneth City	Vieno, Mike	Primary Member	MVieno@kennethcitypolice.org	727-498-8942	Police Chief
Kenneth City	Cook, Kristin	Alternate Member	cookk@kennethcityfl.org	727-498-8948	Deputy Town Clerk
Largo	Johnson, Cody	Primary Member	cjohnson@largo.com	727-587-6740 ext. 2111	Division Chief of Emergency Management / EM Coordinator
Largo	Rocke, Ann	Primary Member	arocke@largo.com	727-587-6713 ext. 4425	Program Engineer
Largo	Hague, Taylor	Primary Member	thague@largo.com	727-587-6749 ext. 7208	Principal Planner
Largo	Mahr, Summer	Alternate Member	smahr@largo.com	727-587-6740 ext. 2014	Public Educator
Largo	Murphy, Philip	Alternate Member	phmurphy@largo.com	727-586-7488 ext. 7303	Plans Examiner
Largo	Ingram, Billy, CPWP-M	Alternate Member	bingram@largo.com	(727) 587-6743	Assistant Public Works Director
Madeira Beach	Rowan, Jenny	Primary Member	jrowan@madeirabeachfl.gov	727-391-9951 ext. 255	Community Development Director

Pinellas County
Local Mitigation Strategy
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Agency/Organization	Name	Primary/Alternate Member	E-Mail Address	Phone	Position Title
Madeira Beach	Forbes, Marci	Alternate Member	mforbes@madeirabeachfl.gov	727-391-9951 ext. 283	Community Development Engineer
Madeira Beach	Scheuermann, Lisa	Alternate Member	lscheuermann@madeirabeachfl.gov	727-391-9951 ext. 244	Program Coordinator
North Redington Beach	Cooper, Bruce	Primary Member	bcooper@safebuilt.com	727-202-6825	Building Official/Safe Built
North Redington Beach	Campbell, Mari	Primary Member	townclerk@townofnorthredingtonbeach.com	727-391-4848	Town Clerk
North Redington Beach	Bodeker, Keith	Alternate Member	publicworks@townofnrb.com	727-502-7019	Public Works Supervisor
North Redington Beach	Schmader, Renee	Alternate Member	deputyclerk@townofnorthredingtonbeach.com	727-391-4848	Deputy Town Clerk
Oldsmar	Mandi Clark	Primary Member	mclark@myoldsmar.com	813-749-1200	Floodplain & Building Coordinator
Oldsmar	Childress, Tatiana	Primary Member	TChildress@myoldsmar.com	813-749-1147	Planning & Redevelopment Director
Oldsmar	Schwabe, Jason	Alternate Member	jschwabe@myoldsmar.com	813-749-1123	Fire Chief
Oldsmar	Simpson, Daniel	Alternate Member	dsimpson@myoldsmar.com	813-749-1262	Public Works Director
PARC	Detweiler, Michelle	Stakeholder	MDetweiler@PARC-FL.org	727-345-9111 ext. 6903	President and CEO
PARC	White, Marion E.	Stakeholder	MEWhite@parc-fl.org	727-341-6920	Chief Operations Officer
Pinellas County	Perkins, Cathie	Primary Member	cperkins@co.pinellas.fl.us	727-464-3800	Emergency Management Director
Pinellas County	Borries, Joe	Alternate Member	jborries@pinellascounty.org	727-464-3803	EM Operations Manager
Pinellas County	Ambadi, Smita	Primary Member	sambadi@co.pinellas.fl.us	727-464-8200	Principal Planner (2024 LMS Chair)
Pinellas County	Foster, Lisa	Alternate Member	lfoster@pinellascounty.org	727-464-8962	Floodplain Coordinator
Pinellas County	Moore, Maxine	Alternate Member	mmoore@pinellascounty.org	727-464-8206	Floodplain Technician
Pinellas County	Oliver, Auria	Alternate Member	auoliver@pinellas.gov	727-464-3901	Grants Administrator, Pinellas County
Pinellas County	Schoel, Daniel	Alternate Member	dschoel@pinellas.gov	727-453-3457	Disaster Recovery Coordinator, Pinellas County
Pinellas County	Lazaris, Nick, Captain	Alternate Member	nlazaris@pcsonet.com	727-582-6301	Captain/Pinellas County Sheriff's Office Special Operations Division
Pinellas County	Hendrix, Stephanie	Alternate Member	shendrix@co.pinellas.fl.us	727-464-3811	Planning and Preparedness Program Lead/Emergency Management
Pinellas County	Margiotta, Cindy	Alternate Member	cmargiotta@co.pinellas.fl.us	727-464-7398	Economic Development/Department Administrative Manager
Pinellas County	Miselis, Paul, P.E.	Alternate Member	pmiselis@pinellas.gov	727-453-3406	Engineering Section Manager, Public Works Capital Improvements, Public Works, Pinellas County Government
Pinellas County	Hauser, Amber L	Alternate Member	ahauser@pinellas.gov	727-464-5659	Project Coordinator, Public Works Capital Improvements, Public Works, Pinellas County Government
Pinellas County	Dickrell, Natasha	Alternate Member	ndickrell@pinellas.gov	727-464-4019	Pinellas County Environmental Management Division

Pinellas County
Local Mitigation Strategy
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Agency/Organization	Name	Primary/Alternate Member	E-Mail Address	Phone	Position Title
Pinellas County	Rice, Joan PE, RSP1	Alternate Member	Jrice@pinellas.gov	727-464-8610	Engineer Multimodal Safety, Public Works Transportation Planning
Pinellas County	Bryant, Darby Elizabeth	Alternate Member	Debryant@pinellas.gov	727-464-8076	Transportation Coordinator, Public Works Transportation Planning
Pinellas County	Boswell, Alex FPEM	Alternate Member	aboswell@pinellas.gov	727-464-4219	Emergency Management Coordinator, Pinellas County Utilities
Pinellas County	Doherty, Heather	Alternate Member	hdoherty@co.pinellas.fl.us	727-464-3471	Engineering Service Tech II/CFM
Pinellas County	Swearengen, Scott	Alternate Member	sswearengen@co.pinellas.fl.us	727-464-8199	Long Range Planning Manager
Pinellas County	Scofied, Thomas	Alternate Member	tscofield@co.pinellas.fl.us	727-464-8200	Principal Planner/Historic Preservation Specialist
Pinellas County	Drexler, Ivy	Alternate Member	idrexler@co.pinellas.fl.us	727-582-2275	Waste Water Treatment Plant Manager
Pinellas County	Beim, Donna	Alternate Member	dbeim@pinellascounty.org	727-582-2510	Radio Systems Administrator
Pinellas County	Hancock, Noralvys	Alternate Member	nhancock@co.pinellas.fl.us	727-582-7491	Technical Project Coordinator
Pinellas County Juvenile Welfare Board	Biddleman, Marcie	Stakeholder	mbiddleman@jwbpinellas.org	727-453-5611	Executive Director
Pinellas County Juvenile Welfare Board	Waldron, Shelba	Stakeholder	swaldron@jwbpinellas.org	727-453-5696	Program Consultant
Pinellas County Schools	Dluzneski, Dan	Stakeholder	dluzneskid@pcsb.org	727-547-7205	EM Coordinator
Pinellas Park	Boisvert, Suzanne	Primary Member	SBoisvert@pinellas-park.com	727-369-5808	Emergency Management Manager
Pinellas Park	Elizabeth St. Pierre	Primary Member	estpierre@pinellas-park.com	727-369-5848	Sr Planner/Planning & Development Services
Pinellas Park	Lindquist, Erica	Alternate Member	elindquist@pinellas-park.com	727-369-5650	Planning & Development Services Director
Pinellas Park	Matt Pruitt	Alternate Member	mpruitt@pinellas-park.com	727-369-0634	Risk & Emergency Management Director
Pinellas Suncoast Fire Rescue District	Burton, Mike	Stakeholder	mburton@psfrd.org	727-595-1117 ext. 101	Fire Chief
Pinellas Suncoast Transit Authority (PSTA)	Gavin, B.J.	Primary Member	bjgavin@psta.net	727-709-1034	Civil Engineer
Pinellas Suncoast Transit Authority (PSTA)	Dufva, Nicole	Primary Member	ndufva@psta.net	727-418-6376	Project Planner
Pinellas Suncoast Transit Authority (PSTA)	Sobush, Heather, AICP	Alternate Member	hsobush@psta.net	727-540-1868	Director of Planning
Redington Beach	Nieves, Adriana	Primary Member	townclerk@townofredingtonbeach.com	727-391-3875	Town Clerk
Redington Beach	DuBois, Kacie	Alternate Member	admin@townofredingtonbeach.com	727-391-3875	Administrative Assistant
Redington Shores	Hudson, Bill	Primary Member	buildingofficial@redshoresfl.com	727-397-5538	Building Official
Redington Shores	McGlothlin, Mike	Alternate Member	townadmin@redshoresfl.com	(727) 397-5538	Town Administrator
Redington Shores	Patterson, Jolie	Alternate Member	depclerk@redshoresfl.com	727-397-5538	Deputy Clerk/Assistant to the Town Administrator
Safety Harbor	Chen, Cecilia	Primary Member	cchen@cityofsafetyharbor.com	727-724-1555 ext. 1703	Community Planner/GIS Analyst

Pinellas County
Local Mitigation Strategy
2024 - 2025 Working Group Roster

Agency/Organization	Name	Primary/Alternate Member	E-Mail Address	Phone	Position Title
Safety Harbor	Wilcox, A. Troy, CPII, CFM	Alternate Member	twilcox@cityofsafetyharbor.com	727-724-1555 ext. 1704	Civil Designer III/Floodplain Manager/Engineering Department
Seminole	Wright, Wesley	Primary Member	wwesley@myseminole.com	727-398-3108 ext. 129	Community Development Director
Seminole	Due, Rodney	Alternate Member	rdue@myseminole.com	727-397-6383	Director of Public Works
Seminole	Mugenski, Aleksandra	Alternate Member	amugenski@myseminole.com	727-393-8711 ext. 212	Fire Marshal
Seminole	Schobel, William	Alternate Member	wschobel@myseminole.com	727-393-8711 ext. 217	Fire Chief, City of Seminole Fire Rescue
South Pasadena	Sullivan, Terri	Primary Member	TSullivan@mysouthpasadena.com	727-343-4192	Community Improvement Director/Building Official
South Pasadena	Mixson, David	Primary Member	firechief@mysouthpasadena.com	727-344-1666	Fire Chief/Emergency Manager
South Pasadena	Reid, Renee	Alternate Member	rreid@mysouthopasadena.com	727-343-4192	Building Services Coordinator
St. Anthony's Hospital	Nicely, John	Stakeholder	john.nicely@baycare.org	727-825-1128	Director Faciilities Management Systems
St. Pete Beach	Rosetti, Lynn	Primary Member	lrosetti@stpetebeach.org	727-744-3783	Contract Planner
St. Pete Beach	Luke Curtis	Primary Member	lcurtis@stpetebeach.org	727-363-9276	Building Official
St. Pete Beach	Camden Mills	Alternate Member	cmills@stpetebeach.org	727-363-9254	City Engineer
St. Pete Beach	Berry, Brandon	Alternate Member	bberry@stpetebeach.org	727-363-9229	Senior Planner
St. Pete Beach	Kilpatrick, Jim	Alternate Member	firechief@stpetebeach.org	724-363-9206	Fire Chief
St. Pete Beach	Intzes, Kelly	Alternate Member	firemarshal@stpetebeach.org	727-363-9205	Fire Marshal
St. Pete Beach	Dalton, Sheila	Alternate Member	sdalton@stpetebeach.org	727-363-9252	Chief Financial Officer
St. Petersburg	Boulding, Amber	Primary Member	amber.boulding@stpete.org	727-893-7683	Emergency Management
St. Petersburg	Orlando, Megan	Primary Member	megan.orlando@stpete.org	727-892-5200	Emergency Management (2024 LMS Vice Chair)
St. Petersburg	Rebholz, Hannah	Primary Member	hannah.rebholz@stpete.org	727-551-3321	Floodplain Manager
St. Petersburg	Phillips, Angela	Alternate Member	phillips.angela@stpete.org	727-892-5254	Acting Floodplain Administrator/Deputy Building Official
St. Petersburg	Barrera, Kira	Alternate Member	Kira.Barrera@stpete.org	727-892-5604	Special Projects Coordinator, Water Resources Department
St. Petersburg	Perry, Michael	Alternate Member	michael.perry@stpete.org	727-893-7759	Engineering Manager
St. Petersburg	Malowany, Frank	Stakeholder	malow1@aol.com	727-342-3800	Broker Associate, Smith & Associates Real Estate
St. Petersburg	Gabbard, Brandi	Stakeholder	brandi.gabbard@stpete.org;	727-798-6216	City Council
St. Petersburg	Dailey, Chris	Stakeholder	chris.dailey@rsandh.com	813-636-2722	Senior Environmental Scientist, RS&H
St. Petersburg	Simoniello, Chris	Stakeholder	Chris.Simoniello@gcoos.org	727-322-1318	Research Scientist, Texas A&M University/USF College of Marine Science
St. Petersburg	Richardson, Glen	Stakeholder	glen@getgulfhomes.com	727-224-6331	Realtor, Real Estate

Pinellas County
Local Mitigation Strategy
2024 - 2025 Working Group Roster

Agency/Organization	Name	Primary/Alternate Member	E-Mail Address	Phone	Position Title
St. Petersburg	Holehouse, Jake	Stakeholder	jwh@hhinsgroup.com	727-470-5177	Executive VP, Insurance,
St. Petersburg	Scolaro, Sheila	Stakeholder	sscolaro@tbep.org	727-893-2765	Public Outreach Specialist, Tampa Bay Estuary Program
St. Petersburg	Grillone, Melanie	Stakeholder	mgrillone@tampabaywatch.org	727-867-8166	GIS Environmental Specialist, Tampa Bay Watch
St. Petersburg	Carnahan, Libby	Stakeholder	lcarnahan@pinellascounty.org	727-453-6522	Sea Grant Agent, USF Extension
St. Petersburg	Nordin, Jason R.	Stakeholder	jnordin@americanmomentum.bank	813-549-4785	VP Mortgage Area Sales Manager, American Momentum Bank
St. Petersburg	Hirigoyen, Grace	Stakeholder	Grace@ffplegal.com	813-898-2828	Florida Registered Paralegal, Fletcher Fischer Pollack P.L.
Sunstar	Eells, Brian	Stakeholder	beells@sunstarems.com	727-582-2216	Director of Communications and Emergency Management
SWFWMD	Roberts, Lloyd	Stakeholder	Lloyd.Roberts@swfwmd.state.fl.us	352-796-7211 ext. 4545	Senior P.E., Emergency Coordinating Officer
Tampa Bay Regional Planning Council	Serra, Cara Woods, AICP, CFM	Stakeholder	cara@tbrpc.org	727-570-5151	Comprehnsive Resiliency Planner
Tarpon Springs	Vincent, Renea	Primary Member	rvincent@ctsfl.us	727-942-5611	Planning Director
Tarpon Springs	Araya, Megan	Primary Member	maraya@tsfr.us	727-938-3737	EM Coord/Floodplain Administrator
Tarpon Springs	Godwin, Lisa, CFM	Alternate Member	lgodwin@ctsfl.us	727-942-5608	Plans Examiner
Tarpon Springs	Harbert, Paulette	Alternate Member	pharbert@ctsfl.us	727-494-2156	Grants Project Specialist
Tarpon Springs	Misener, Craig	Alternate Member	cmisener@tsfr.us	727-938-3737	Deputy Fire Chief
Tarpon Springs	Young, Scott	Alternate Member	syoung@tsfr.us	727-938-3737	Fire Chief
Tarpon Springs	McNeese, Pat	Alternate Member	pmcneese@ctsfl.us	727-938-3711 ext. 2255	Principal Planner
Tarpon Springs Housing Authority	Hale, Kelly, CAM, NALP	Stakeholder	Kelly.hale@tarponhousing.com	727-937-4411	Asset Manager
The Arc Tampa Bay Inc.	Reginelli, Carolyn	Stakeholder	creginelli@thearctb.org	727-799-3330 ext. 7433	Grant Writer
Treasure Island	Miller, Jesse, CFM	Primary Member	jmiller@mytreasureisland.org	727-547-4575 ext. 239	Principal Planner
Treasure Island	Edwards, Maryellen	Alternate Member	medwards@mytreasureisland.org	727-547-4575 ext. 233	Assistant Community Development Director
Treasure Island	Younkin, Kathryn, AICP	Alternate Member	kyounkin@mytreasureisland.org	727-547-4575 ext. 231	Community Development Director
University of South Florida	Sullivan, Kevin, MS, CEM, FPEM	Stakeholder	kevinsullivan@usf.edu	727-873-4925	Emergency and Safety Manager
Wright National Flood Insurance Company	Tharp, Ashley	Stakeholder	Ashley.Tharp@weareflood.com	800-820-3242 ext. 5510	Corporate Agent Training Manager

LOCAL MITIGATION STRATEGY WORKING GROUP MEETING

Pinellas County

Meeting Date: **18-Dec-24**

Virtual Meeting via Zoom

Meeting Attendance

	Name (original name)	Email
1	Smita Ambadi (Cynthia Watkins)	cwatkins@pinellascounty.org
2	Michelle Monteclaro # City of Dunedin (Michelle Monteclaro, Stormwater - Public Services)	
3	(727) 369-5614	
4	Tammy Hillier	
5	Dean Scharmen, City of Indian Rocks Beach	
6	read.ai meeting notes	
7	John Rieman	
8	Joseph A. DiPasqua - Dunedin	
9	Megan Orlando- St. Pete Fire Rescue	
10	Mike Taylor - Gulfport	
11	David Hamstra	
12	Sarah Kessler, Clearwater	
13	Meghan Blancher, TBRPC	
14	CJ's iPad - Redington Shores	
15	Cody Johnson - Largo	
16	Lauren Wolf | Pinellas County	
17	Jenny Rowan	
18	Megan Araya, Tarpon Springs Fire Rescue	
19	Jenny Rowan - Madeira Beach (Jenny Rowan)	
20	Chris Zambito	
21	Gina Harvey	
22	Troy A Wilcox - Safety Harbor	
23	Jesse Miller- City of Treasure Island	
24	Suzanne Boisvert-Pinellas Park EM	
25	Ashley Wright Flood	
26	Natasha Dickrell, Pinellas County, FL	
27	Ann Rocke - Largo	
28	Leylah Saavedra	
29	Carol Clark	
30	Virtual Conference virtualmeeting@mysouthpasadena.com	
31	Billy Ingram	
32	David Mixson (Virtual Conference virtualmeeting@mysouthpasadena.com)	
33	Angela Miller - St Petersburg	
34	Amber Boulding - St Petersburg	
35	Cecilia Chen, Safety Harbor	
36	Keith Bodeker - North Redington Beaach	
37	(727) 593-9296 - Mary Palmer - Town of Belleair Shore	
38	Joe Borries - Pinellas County	
39	Christina Hummel iPhone iOS 13.5.1 KXKN	
40	Tatiana Childress	
41	19412240769	
42	Terri Sullivan	
43	Ashley Wagner	
44	Stephanie Hendrix	
45	Angela	
46	Matthew Pleasant, Applied Sciences	

LOCAL MITIGATION STRATEGY WORKING GROUP MEETING

Pinellas County

Meeting Date: **30-Oct-24**

Virtual Meeting via Zoom

Meeting Attendance

	Name (original name)	Email
1	Smita Ambadi (Cynthia Watkins)	cwatkins@pinellascounty.org
2	Paulette Harbert	
3	Dean Scharmen, City of Indian Rocks Beach	
4	Kyle Riefler, City of Belleair Beach	
5	Megan Orlando- SPFR	
6	Mike Taylor	
7	Kristin Cook - Kenneth City	
8	Megan Araya, Tarpon Springs Fire Rescue	
9	Leylah Saavedra	
10	Rodney Due - City of Seminole	
11	Billy Ingram	
12	Ashley Wright Flood	
13	Suzanne Boisvert-Pinellas Park EM	
14	Hannah Rebholz	
15	David Hamstra	
16	Sarah Kessler, Clearwater	
17	Meghan Blancher, TBRPC	
18	Greg Lauda	
19	(727) 593-9296 - Mary Palmer - Town of Belleair Shore	
20	Mary Ellen Edwards	
21	Mark Griffin Gulfport Planner II	
22	Joe Borries - Pinellas County EM	
23	Melanie - St. Pete	
24	Isaac Voltoline	
25	Kelly's AI Notetaker (Otter.ai)	
26	Chris Zambito, AtkinsRealis	
27	Gina Harvey	
28	Paul Miselis	
29	Terri Sullivan, South Pasadena	
30	Amber Boulding	
31	Lauren Wolf | Pinellas County	
32	Tom Scofield	
33	Kelly Intzes	
34	Tiffany Menard	
35	Troy A Wilcox - Safety Harbor	
36	William (Bill) Twaite	
37	Larry Green	
38	Cara Serra	
39	Mandi Clark, City of Oldsmar	
40	Gene Henry, Clearwater	
41	Wesley Wright	
42	Alex Boswell - PCU	
43	Dr. Shanti Smith - Copeland	
44	Ann Rocke	
45	Amber Hauser	
46	Matthew Pleasant, Applied Sciences	
47	RobBldg	
48	Cindy	
49	Khan Boupha	
50	Ashley Wagner	
51	Derek Reeves	
52	Cecilia Chen, Safety Harbor	
53	Maxine Moore, CFM - Pinellas Floodplain	
54	Mary Palmer, Town Clerk	
55	Darby E Bryant	
56	Aubrey Phillips, St. Petersburg	
57	John L Carkeet IV	
58	Glenn Bailey	
59	Angela Miller	

LOCAL MITIGATION STRATEGY - ANNUAL UPDATE TRAINING

Pinellas County

Meeting Date: **28-Aug-24**

Virtual Meeting via Zoom

Meeting Attendance

	Name (Original Name)	User Email
1	Smita Ambadi (Cynthia Watkins)	cwatkins@pinellascounty.org
2	Paulette Harbert - Tarpon Springs	
3	Colleen Olson - Indian Rocks Beach	
4	Megan Araya, Tarpon Springs Fire Rescue	
5	Mike Taylor	
6	Aaron Glanz	
7	Megan Orlando - St. Pete Fire Rescue	
8	Russ Schmader	
9	Terri Sullivan	
10	Suzanne Boisvert - Pinellas Park EM	
11	Jason Schwabe - City of Oldsmar	
12	Alex Burke	
13	Cody Johnson	
14	Terri Sullivan, South Pasadena	
15	Karen Paulson, Madeira Beach - 17273919951	
16	Tatiana Childress	
17	Joseph A. DiPasqua	
18	isaac	
19	Derek Smith	
20	Karen Paulson	
21	Mary Ellen Edwards	
22	Isaac Voltoline	
23	Melanie	
24	Lauren Wolf | Pinellas County	
25	William (Bill) Twaite	
26	Chris Zambito, AtkinsRealis	
27	Aubrey Phillips, St. Petersburg	
28	Maxine Moore, CFM - Pinellas Floodplain	
29	Ashley Wagner	
30	Gene Henry, Clearwater	
31	David Mixson (Virtual Conference virtualmeeting@mysouthpasadena.com)	
32	Woodson Smith	
33	Mary	
34	Mary Palmer # Town Clerk - Town of Belleair Shore	
35	Larry Green	
36	Meghan Blancher, TBRPC	
37	Troy A Wilcox - Safety Harbor	
38	Amber Hauser	
39	Angela Miller	
40	Jessie Boyer	
41	Sarah Kessler, Clearwater	
42	Cindy Margiotta	
43	Sarah Kessler	
44	Carolyn Reginelli	
45	Marci Forbes	
46	Hannah J. Rebholz	
47	Taylor Hague	
48	Alex Boswell - Pinellas County Utilities	
49	Paul Miselis	
50	Keith Bodeker - North Redington Beaach	
51	Christina Hummel	

LOCAL MITIGATION STRATEGY WORKING GROUP MEETING

Pinellas County

Meeting Date: **21-Aug-24**

Virtual Meeting via Zoom

Meeting Attendance

	Name (Original Name)	User Email
1	Smita Ambadi (Cynthia Watkins)	cwatkins@pinellascounty.org
2	Seminole Fire	
3	Jenny Rowan	
4	Kelly Intzes - St. Pete Beach Fire	
5	Seminole Fire Sanja Mugenski (Seminole Fire)	
6	Marci Forbes	
7	Dean Scharmen, City of Indian Rocks Beach	
8	Carol Clark, Advent Health North Pinellas	
9	Larry Green	
10	Gene Henry, Clearwater	
11	Terri Sullivan, South Pasadena	
12	Sarah Kessler, Clearwater	
13	Megan Orlando- SPFR	
14	Joseph A. DiPasqua	
15	Suzanne Boisvert-Pinellas Park EM	
16	Ginni Stevens	
17	ShantiSmith-Copeland	
18	Cara Serra, TBRPC	
19	Kenneth City	
20	Joan Rice, Pinellas County	
21	Paulette Harbert	
22	Carolyn Reginelli	
23	Dean Scharmen, IRB	
24	Keith Bodeker - North Redington Beach	
25	Mary Palmer Belleair Shore - 1 (727) 593-9296	
26	Jessie Boyer	
27	Melanie	
28	Isaac	
29	17278040178	
30	Christina Hummel	
31	Derek Smith	
32	Cecilia Chen, Safety Harbor	
33	Aaron	
34	Amber Hauser	
35	Lauren Wolf | Pinellas County	
36	Chris Zambito, AtkinsRealis	
37	17272407241	
38	Megan Araya, Tarpon Springs Fire Rescue	
39	William Schobel	
40	Isaac Voltoline	
41	City of Belleair Beach Official	
42	Camden Mills - SPB	
43	Jesse Miller- City of Treasure Island	
44	Mandi Clark, City of Oldsmar	
45	Alex Boswell - Pinellas County Utilities	
46	Virtual Conference virtualmeeting@mysouthpasadena.com	
47	Meghan Blancher, TBRPC	
48	Maxine Moore, CFM - Pinellas Floodplain	
49	Jim	
50	Natasha Dickrell, Pinellas County, FL	
51	Daniel Schoel - Pinellas County	
52	TS-FY4PF9PK27	
53	Derek Reeves	
54	Lynn Rosetti	
55	Cody Johnson	
56	Ashley Wagner	
57	Mark Griffin	
58	Aubrey Phillips, St. Petersburg	
59	Russ Schmader	
60	Ann Rocke	
61	Angela Miller	
62	Mike Taylor	
63	Taylor Hague (Taylor)	
64	Aaron Glanz	
65	Joe Borries - Pinellas County EM	

LOCAL MITIGATION STRATEGY WORKING GROUP MEETING

Pinellas County

Meeting Date: **17-Jul-24**

Virtual Meeting via Zoom

Meeting Attendance

	Name (Original Name)	User Email
1	Smita Ambadi (Cynthia Watkins)	cwatkins@pinellascounty.org
2	Christina Hummel iPhone	
3	Kelly Intzes - St. Pete Beach Fire	
4	Paulette Harbert	
5	Megan Araya, Tarpon Springs Fire Rescue	
6	Terri Sullivan, South Pasadena	
7	Dean Scharmen, City of Indian Rocks Beach	
8	Mandi Clark, City of Oldsmar	
9	Jolie Patterson -Town of Redington Shores	
10	Mike Taylor	
11	Ginni Stevens	
12	Amber Boulding	
13	Suzanne Boisvert - Pinellas Park EM	
14	Keith Bodeker - North Redington Beaach	
15	Cecilia Chen, Safety Harbor	
16	Carol Clark, Advent Health North Pinellas	
17	Gina Vought (GinaVought)	
18	Derek Smith Clearwater Emergency Management	
19	Tiffany Menard	
20	Amber Hauser	
21	Isaac	
22	Melanie	
23	Tom Scofield	
24	Jesse Miller- City of Treasure Island	
25	Kyle Riefler, City of Belleair Beach	
26	Gene Henry, Clearwater	
27	Bill Jones	
28	Joseph A. DiPasqua	
29	Ashley Wright Flood	
30	Sarah Kessler, Clearwater	
31	Isaac Voltoline	
32	Carolyn Reginelli	
33	Claude Tankersley, St Petersburg Public Works Administrator	
34	JB	
35	Troy A Wilcox	
36	Aubrey Phillips	
37	Hannah Rebholz	
38	Monica Martin	
39	Natasha Dickrell, Pinellas County, FL	
40	USDG588737	
41	Meghan Blancher, TBRPC	
42	Taylor Hague	
43	Melanie Phommarack	
44	Maxine Moore, CFM - Pinellas Floodplain	
45	Tatiana Childress	
46	Khan Boupha	
47	Aubrey Phillips # St. Petersburg	
48	Russ Schmader	
49	Derek Reeves	
50	Brandon Berry	
51	Lynn Rosetti	
52	CPorter	
53	Marci Forbes (2)	

LOCAL MITIGATION STRATEGY WORKING GROUP MEETING

Pinellas County

Meeting Date: **26-Jun-24**

Virtual Meeting via Zoom

Meeting Attendance

	Name (Original Name)	User Email
1	Cynthia Watkins	cwatkins@pinellascounty.org
2	Smita Ambadi - Pinellas County	
3	Terri Sullivan, South Pasadena	
4	Dean Scharmen, City of Indian Rocks Beach	
5	TroyA Wilcox# City of Safety Harbor (Troy A Wilcox)	
6	Kelly Intzes	
7	Jolie Patterson- Redington Shores	
8	Paulette Harbert	
9	Megan Orlando- SPFR	
10	Aaron Glanz	
11	Ginni Stevens# AtkinsRealis (STEV1964)	
12	Ashley Wagner	
13	Jason Schwabe-City of Oldsmar	
14	Keith Bodeker - North Redington Beaach (Keith)	
15	Russ Schmader	
16	Derek Smith Clearwater Emergency Management	
17	Isaac Voltoline	
18	read.ai meeting notes	
19	Joseph A. DiPasqua	
20	Chris Zambito, AtkinsRealis	
21	Kevin Sullivan USF St. Pete Emergency Manager	
22	Gene Henry, Clearwater	
23	Melanie Phommarack	
24	Meghan Blancher, TBRPC	
25	Mike Taylor	
26	Lauren Wolf | Pinellas County	
27	Ann Rocke	
28	Mandi Clark, City of Oldsmar	
29	Suzanne Boisvert-Pinellas Park EM	
30	Dr. Shrimatee Ojah -Maharaj- St Petersburg, Fl	
31	Jesse Miller- City of Treasure Island	
32	Daniel Schoel - Pinellas County	
33	William Twaite	
34	Mike Clarke	
35	Taylor Hague	
36	David Mixson (Virtual Conference virtualmeeting@mysouthpasadena.com)	
37	Tatiana Childress	
38	Maxine Moore, CFM - Pinellas Floodplain	
39	Jenny Rowan, Madeira Beach	
40	Angela Miller	
41	Carolyn Reginelli	
42	Lynn Rosetti	
43	Cody Johnson	
44	Natasha Dickrell, Pinellas County, FL	
45	Shanti Smith-Copeland	
46	Megan Araya, Tarpon Springs Fire Rescue	
47	18136952427	
48	Cecilia Chen, Safety Harbor	
49	Michelle Monteclaro - City of Dunedin	
50	Tiffany Menard	
51	Melanie	
52	David Mixson	
53	William (Bill) Twaite	

LOCAL MITIGATION STRATEGY WORKING GROUP MEETING

Pinellas County

Meeting Date: **22-May-24**

Virtual Meeting via Zoom

Meeting Attendance

	Name (Original Name)	User Email
1	Smita Ambadi (Cynthia Watkins)	cwatkins@pinellascounty.org
2	Paulette Harbert	
3	Terri Sullivan# South Pasadena (Terri Sullivan)	
4	Aaron Glanz	
5	Ashley Tharp Flood Ins	
6	Dr. Shrimatee Ojah -Maharaj- St Petersburg, Fl	
7	Angela Miller-City of St. Petersburg (Angela Miller)	
8	Amber Boulding	
9	Joseph A. DiPasqua	
10	Kelly Intzes-St. Pete Beach Fire	
11	Shanti Smith-Copeland	
12	Derek Smith Clearwater Emergency Management	
13	Bill Jones	
14	Kyle Riefler, City of Belleair Beach	
15	Jolie Patterson -Town of Redington Shores	
16	Brandon Berry	
17	Carolyn Reginelli	
18	Keith Bodeker	
19	Lauren Wolf | Pinellas County	
20	Lynn Rosetti	
21	Aubrey Phillips	
22	Rebecca Young	
23	Jesse Miller- City of Treasure Island	
24	Jenny Rowan	
25	Natasha Dickrell, Pinellas County, FL	
26	Sarah Kessler, Clearwater	
27	Mandi Clark	
28	hjrebhol	
29	Mandi Clark# City of Oldsmar (Mandi Clark)	
30	Claude Tankersley, St Petersburg Public Works Administrator	
31	Michael Perry	
32	Ann Rocke	
33	Michael Perry, City of St. Petersburg	
34	Tom Scofield	
35	Melanie	
36	Dean Scharmen - City of IRB	
37	Maxine Moore - Pinellas County	
38	Mark Vasquez	
39	Melanie's iPhone	
40	Melanie' Brown - adventhealth (Melanie's iPhone)	
41	18503450065	
42	Jessie Boyer	
43	Mike Taylor - Gulfport	

LOCAL MITIGATION STRATEGY WORKING GROUP MEETING

Pinellas County

Meeting Date: **8-May-24**

Virtual Meeting via Zoom

Meeting Attendance

	Name (Original Name)	User Email
1	Smita Ambadi (Cynthia Watkins)	cwatkins@pinellascounty.org
2	Paulette Harbert	
3	Terri Sullivan (Terri)	
4	Mandi Clark	
5	Melanie	
6	Russ Schmader	
7	Town of Redington Shores	
8	Jolie Patterson -Town of Redington Shores (Town of Redington Shores)	
9	Carol Clark	
10	Mike Taylor	
11	Dr. Shrimatee Ojah -Maharaj- St Petersburg, Fl	
12	Larry Green	
13	Angela Miller	
14	Lauren Wolf | Pinellas County	
15	Marci Forbes Madeira Beach	
16	Derek Smith	
17	Chris Zambito, AtkinsRealis	
18	Dean A. Scharmen	
19	Suzanne Boisvert - Pinellas Park EM	
20	Dean A. Scharmen - IRB (Dean A. Scharmen)	
21	Bill Jones	
22	Hannah Rebholz	
23	Megan Orlando - SPFR	
24	Carolyn Reginelli	
25	ShantiSmith - Copeland	
26	Taylor Hague	
27	William Twaite	
28	Megan Araya, Tarpon Springs Fire Rescue	
29	Claude Tankersley # St Petersburg Public Works Administrator (Claude Tankersley)	
30	Daniel Schoel - Pinellas County	
31	Amber Boulding	
32	Tiffany Menard	
33	Sarah Kessler, Clearwater	
34	Maxine Moore, CFM	
35	Kelly Intzes - St. Pete Beach Fire	
36	Jenny Rowan	
37	Ashley Tharp Flood Ins (Ashley)	
38	Cecilia Chen, Safety Harbor	
39	Joseph A. DiPasqua	
40	Virtual Conference virtualmeeting@mysouthpasadena.com	
41	Tom Scofield	
42	Keith Bodeker	
43	Kyle Riefler, City of Belleair Beach	
44	Jessie Boyer	
45	Greg White	
46	Rebecca Young	
47	Kelly Intzes	
48	Jesse Miller - City of Treasure Island	

LOCAL MITIGATION STRATEGY WORKING GROUP MEETING

Pinellas County

Meeting Date: **10-Apr-24**

Virtual Meeting via Zoom

Meeting Attendance

	Name (Original Name)	User Email
1	Smita Ambadi (Cynthia Watkins)	cwatkins@pinellascounty.org
2	Paulette Harbert	
3	Pierre Odum	
4	Megan Araya, Tarpon Springs	
5	Russ Schmader	
6	Keith Bodeker	
7	Mark Griffin	
8	Kimberly Amos	
9	Jessie Boyer	
10	Melanie Phommarack	
11	Angela Miller	
12	Sarah Kessler, Clearwater	
13	Megan Orlando, St. Petersburg, SPFR	
14	Cecilia Chen, Safety Harbor	
15	Colleen Olson	
16	plndf29	
17	Mike Taylor	
18	17272958395	
19	Natasha Dickrell, Pinellas County, FL	
20	Tiffany Menard	
21	Hannah Rebholz	
22	Daniel Schoel - Pinellas County	
23	Ashley Tharpe	
24	Roger Johnson	
25	Joe Borries - Pinellas County EM	
26	Scott Swearengen (plndf52)	
27	Dr. Shrimatee Ojah -Maharaj- St Petersburg, Fl	
28	Derek Smith	
29	Meghan Blancher, TBRPC	
30	Terri Sullivan	
31	Mandi Clark	
32	Shanti Smith - Copeland	
33	Rebecca Young	
34	Ann Rocke	
35	Taylor Hague	
36	Cassidy Ezzi	
37	Kelly Intzes - St. Pete Beach Fire	
38	Suzanne Boisvert-Pinellas Park Fire	
39	Carol Clark	
40	Jesse Miller- City of Treasure Island	
41	Cody Johnson	
42	Erika Owen-McCann	
43	Mike Clarke	
44	Maxine Moore - Pinellas County	
45	Rodney Due - City of Seminole	
46	Abraithwaite	
47	Glenn Bailey	
48	Lauren Wolf | Pinellas County	
49	Jolie Patterson- Redington Shores	
50	Paul Miselis	
51	Chris Zambito	
52	Monica Martin	
53	Bob Robertson	
54	Larry Green	

LOCAL MITIGATION STRATEGY WORKING GROUP MEETING

Pinellas County

Meeting Date: **20-Mar-24**

Virtual Meeting via Zoom

Meeting Attendance

	Name (Original Name)	User Email
1	Smita Ambadi (Cynthia Watkins)	cwatkins@pinellascounty.org
2	Paulette Harbert	
3	Megan Araya, Tarpon Springs	
4	Al Furney	
5	Joseph A. DiPasqua	
6	Russ Schmader	
7	Dr. Shrimatee Ojah -Maharaj- St Petersburg, Fl	
8	Suzanne Boisvert-Pinellas Park Fire	
9	Cecilia Chen, Safety Harbor	
10	Kelly Intzes-St. Pete Beach Fire	
11	Mandi Clark	
12	Carol Clark	
13	Alex Burke	
14	Derek Smith	
15	Jessie Boyer	
16	Christina Hummel	
17	Jenny Rowan	
18	Mitch Osburn	
19	Rebecca Young	
20	Chris Zambito	
21	Keith Bodeker	
22	Kerry Marsalek (PSA 5)	
23	Hannah Rebholz	
24	Megan Orlando- SPFR	
25	Amber Boulding	
26	Bill Jones	
27	William Twaite	
28	Rodney Due - City of Seminole	
29	Meghan Blancher, TBRPC	
30	Carolyn Reginelli	
31	Virtual Conference virtualmeeting@mysouthpasadena.com	
32	Derek Reeves	
33	Tatiana Childress	
34	KPaulson	
35	Larry Green	
36	Lisa Foster - Pinellas County	
37	Tiffany Menard	
38	Jesse Miller- City of Treasure Island	
39	Jolie Patterson- Redington Shores	
40	17273919951	
41	Greg White	
42	Sarah Kessler, Clearwater	
43	Mike Taylor	
44	Vickie	
45	Wesley Wright	
46	Angela	
47	Kelsey Grentzer	
48	Vickie	
49	Kira Barrera - City of St. Pete.	
50	Terri Sullivan	
51	Melanie Phommarack	
52	17272958395	
53	Natasha Dickrell, Pinellas County, FL	
54	Ann Rocke	
55	Maxine Moore - Pinellas County	
56	Khan Boupha	
57	Kyle Riefler, City of Belleair Beach	
58	John Carkeet-Pinellas County Communications	
59	Paul Miselis	

LOCAL MITIGATION STRATEGY WORKING GROUP MEETING

Pinellas County

Meeting Date: **21-Feb-24**

Virtual Meeting via Zoom

Meeting Attendance

	Name (Original Name)	User Email
1	Smita Ambadi (Cynthia Watkins)	cwatkins@pinellascounty.org
2	Paulette Harbert	
3	Mandi Clark	
4	Megan Araya - Tarpon Springs Fire Rescue	
5	18135417430	
6	Mark Griffin	
7	William Twaite	
8	Carol Clark	
9	edivino	
10	David Mixson	
11	Lynn Rosetti	
12	Bryan's iPhone	
13	Kelly Intzes - St. Pete Beach Fire	
14	Russ Schmader	
15	Sarah Kessler, Clearwater	
16	Bill Jones	
17	Colleen Olson	
18	Shanti	
19	Mitch Osburn with Atkins	
20	Cecilia Chen - Safety Harbor	
21	Brett Warner - City Engineer	
22	Greg	
23	Carolyn Reginelli (Carolyn Bulldog)	
24	Derek Smith	
25	Terri Sullivan	
26	Chris Zambito	
27	Anita Wang	
28	Keith Bodeker	
29	Vinod Sharvegar	
30	Kelsey Grentzer	
31	Tom Scofield	
32	Jenny Rowan	
33	Judy Barker	
34	Amber Boulding	
35	Christina Hummel iPhone iOS 13.5.1 KXKN	
36	Al Furney	
37	Taylor Hague (Taylor Hague, AICP, CFM)	
38	Natasha Dickrell - Pinellas County, FL	
39	Mike Clarke	
40	Danielle Lang	
41	Jesse Miller - City of Treasure Island	
42	Dirk Palmer - BayCare	
43	Maxine Moore, CFM	
44	Suzanne Boisvert - Pinellas Park Fire	
45	Tiffany Menard	
46	Ann Rocke	
47	Lisa Foster - Pinellas County	
48	Mark Vasquez	
49	Hannah Rebholz	
50	Mona Gabriel	
51	Glenn Bailey	
52	Bruce Cooper - Town of Belleair; N. Redington Beach; and Redington Beach	
53	Meghan Blancher - TBRPC	
54	Elizabeth Makofske	
55	Dr. Shrimatee Ojah-Maharaj - St Petersburg, Fl	
56	Maryellen Edwards	
57	Katherine Bleakly	
58	Aaron’s iPad - Aaron Glanz	
59	Joe Borries - Pinellas County EM	
60	Bob Barry - Pinellas County Utilities	
61	Shanti Smith - Copeland	
62	Angela Miller	
63	Angie Aborizk	
64	Greg White	
65	Kyle Riefler - City of Belleair Beach	

LOCAL MITIGATION STRATEGY WORKING GROUP MEETING

Pinellas County

Meeting Date: **17-Jan-24**

Virtual Meeting via Zoom

Meeting Attendance

	Name (Original Name)	User Email
1	Smita Ambadi (Cynthia Watkins), Pinellas County, FL	cwatkins@pinellascounty.org
2	Paulette Harbert	
3	Adriana Nieves	
4	Cecilia Chen, City of Safety Harbor	
5	Megan Araya, Tarpon Springs Fire Rescue	
6	Mandi Clark	
7	Terri Sullivan	
8	Dean Scharmen, City of Indian Rocks Beach	
9	Dr. Shrimatee Ojah -Maharaj, St Petersburg, Fl	
10	Larry Green	
11	Hannah Rebholz	
12	Megan Orlando, SPFR	
13	Sarah Kessler, Clearwater	
14	Cara Serra	
15	Danielle Lang, Pasco County	
16	Derek Smith	
17	Aaron Glanz, CO Belleair Beach	
18	Russ Schmader (Debra Sullivan)	
19	David Mixson	
20	Tiffany Menard	
21	Chris Zambito	
22	Cathie Perkins, Pinellas EM	
23	Keith Bodeker, North Redington Beach	
24	Cindy Margiotta, Pinellas County, FL	
25	Taylor Hague, AICP, CFM (Taylor Hague)	
26	Gina Vought	
27	Jessie Boyer	
28	Anita Wang, Pinellas County, FL	
29	Mike Taylor	
30	Monica Martin	
31	Ann Rocke	
32	Ashley Tharpe	
33	Matthew Goolsby	
34	Jesse Miller, City of Treasure Island	
35	Marci Forbes, Madeira Beach	
36	Suzanne Boisvert, Pinellas Park Fire	
37	Carolyn Reginelli	
38	Rodney Due, City of Seminole	
39	m edwards	
40	17275842151	
41	Sara DeLorenzo, City of Clearwater	
42	Carol Clark	
43	David Lutz	
44	Adam Klinstiver	
45	Kira Barrera, City of St. Pete	
46	Daniel Schoel, Pinellas County, FL	
47	Jenny Rowan	
48	Maxine Moore, CFM, Pinellas County, FL	
49	lddenzer	
50	bcc102731	
51	William Twaite	
52	Wesley Wright	
53	Jacob Johnson, City of Clearwater (jacob.johnson)	
54	John Palenchar, St. Petersburg, FL	
55	Annabella Hullen	
56	Raymond Dresch	
57	Kyle Riefler, City of Belleair Beach	
58	Modesto Gonzalez	
59	Ivy Drexler	
60	Kelly Intzes	
61	Derek Reeves	
62	Angie Aborizk	
63	Lauren Wolf, Pinellas County	
64	Khan Boupha	

LOCAL MITIGATION STRATEGY WORKING GROUP MEETING

Pinellas County

Meeting Date: **8-Jan-25**

Virtual Meeting via Zoom

Meeting Attendance

	Name (original name)	Email
1	Smita Ambadi (Cynthia Watkins) - Pinellas County	cwatkins@pinellascounty.org
2	Troy A Wilcox - Safety Harbor	
3	Larry Green	
4	William Twaite	
5	Leylah Saavedra	
6	Megan Araya, Tarpon Springs Fire Rescue	
7	Ann Rocke	
8	Ginni Stevens	
9	Adriana Nieves	
10	Suzanne Boisvert-Pinellas Park EM	
11	Chris Zambito - AtkinsRealis	
12	1 (727) - 593-9296 - Mary Palmer - Town of Belleair Shore	
13	Sarah Kessler, Clearwater	
14	Dean Scharmen, City of Indian Rocks Beach	
15	Melissa Wolf	
16	Cindy	
17	Tammy Hillier	
18	Michelle Monteclaro - City of Dunedin	
19	Whitney Blair	
20	Alex Boswell - PCU	
21	Meghan Blancher, TBRPC	
22	Joe Borries	
23	Russ Schmader	
24	Shanti Smith - Copeland, EdD, CEM	
25	Lizzy StPierre	
26	m edwards	
27	Gene Henry, Clearwater	
28	Amber Hauser	
29	Matthew Pleasant, Applied Sciences	
30	Khan Boupha	
31	Mike Taylor	
32	Megan Orlando- SPFR	
33	Darby E Bryant, Pinellas County, FL	
34	Natasha Dickrell, Pinellas County, FL	
35	Hannah Rebholz	
36	Ashley Wright Flood	
37	TS-FY4PF9PK27	
38	Keith Bodeker - North Redington Beaach	
39	CJ's iPad	
40	Carol Clark -Advent Health	
41	Attendee 1	
42	Cecilia Chen, Safety Harbor	
43	Cody Johnson	
44	17273695614	
45	Christina Hummel	
46	read.ai meeting notes	
47	Jenny Rowan - Madeira Beach	
48	Kyle Riefler, City of Belleair Beach	
49	Kevin Sullivan USF St. Pete Emergency Manager	
50	Erica Lindquist	
51	Lauren Wolf | Pinellas County	
52	Tom Scofield - Pinellas County	
53	Lisa Foster - Pinellas County	
54	Paulette Harbert	
55	Joseph A. DiPasqua	

LOCAL MITIGATION STRATEGY WORKING GROUP MEETING

Pinellas County

Meeting Date: **22-Jan-25**

Virtual Meeting via Zoom

Meeting Attendance

	Name (original name)	Email
1	Smita Ambadi (Cynthia Watkins)	cwatkins@pinellascounty.org
2	Paulette Harbert	
3	Dean Scharmen, City of Indian Rocks Beach	
4	Jenny Rowan - Madeira Beach	
5	Sarah Kessler, Clearwater	
6	Ashley Wright Flood	
7	Adriana Nieves	
8	David Mixson (Virtual Conference virtualmeeting@mysouthpasadena.com)	
9	Kyle Riefler, City of Belleair Beach	
10	Mike Taylor, Gulfport	
11	Ginni Stevens	
12	Mandi Clark, City of Oldsmar	
13	Suzanne Boisvert-Pinellas Park EM	
14	Cecilia Chen, Safety Harbor	
15	MELISSA WOLF	
16	Hannah Rebholz	
17	Russ Schmader	
18	Chris Zambito - AtkinsRealis	
19	Larry Green	
20	Troy A Wilcox - Safety Harbor	
21	Kevin Sullivan USF St. Pete Emergency Manager	
22	read.ai meeting notes	
23	Lizzy StPierre	
24	Trip Barrs	
25	Lauren Wolf | Pinellas County	
26	FR-MMOrland	
27	Darby E Bryant	
28	Leah Aidif	
29	Erica Lindquist	
30	Attendee 1	
31	Meghan Blancher, TBRPC	
32	Shanti Smith-Copeland	
33	Melanie	
34	Joe Borries - PInellas EM	
35	Terri Sullivan, South Pasadena	
36	Christina Hummel	
37	William Twaite	
38	David Hamstra	
39	Taylor Hague	
40	Keith Bodeker - North Redington Beaach	
41	Nicole Silverman, City of Dunedin	
42	Daniel Schoel - Pinellas County	
43	Carol Clark (carol's iPad)	
44	Amber Hauser	
45	Maxine Moore, CFM - Pinellas Floodplain	
46	Randolph Ayers	
47	Matthew Pleasant, Applied Sciences	
48	Ann Rocke	
49	Gina Harvey	
50	Aubrey Phillips, St. Petersburg	
51	Amber Boulding	
52	Bryan Anderson - WSP	
53	Tatiana Childress	
54	Cody Johnson	
55	Cindy	
56	Jesse Miller- City of Treasure Island	
57	Megan Araya, Tarpon Springs	
58	Angela Miller	
59	Natasha Dickrell, Pinellas County, FL	
60	Ashley Wagner, Indian Shores	
61	Khan Boupha	
62	Michelle Monteclaro - City of Dunedin	
63	Alex Boswell - PCU	
64	Gene Henry, Clearwater	
65	Megan Araya, Tarpon Springs Fire Rescue	

Pinellas County,
Local Mitigation Strategy 2024-2025
Appendix A, Table A-1, Pinellas County (County-wide) Outreach Matrix

Name of Event/Outreach	Description of Event / Outreach	Outreach Method	Target Audience	Target Message	Estimated Population Reached	Date Entered on this Table	Date Last Reviewed	Date Last Updated	Update Comments	Name of Last Reviewer
Hurricane Expo	Redington Shores Expo	Community Event	Municipality	Public Safety Information (ex. Turn Around Don't Drown)	25	8/25/2014	1/22/2025	10/25/2017	No updates (PPI, Annual event, County staff present)	Lisa Foster
Hurricane Expo	Gulfport	Community Event	Hurricane Vulnerable Seniors	Public Safety Information (ex. Turn Around Don't Drown)	60	8/25/2014	1/22/2025	10/30/2017		Mary Burrell
Hurricane Expo	Seminole Expo	Community Event	Municipality	Public Safety Information (ex. Turn Around Don't Drown)	150	8/25/2014	1/22/2025	10/30/2017		Mary Burrell
PCC-TV	Aging on the Suncoast for July-August	Interview	Hurricane Vulnerable Seniors	Make your Family/ Business Disaster Plan		8/25/2014	1/22/2025	10/30/2017		Mary Burrell
Other-Speaking Engagement	Largo Hurricane Event	Roundtable/ Forum	Municipality	Make your Family/ Business Disaster Plan	30	8/25/2014	1/22/2025	10/30/2017		Mary Burrell
Other-Speaking Engagement	Talk to residents of The Hampton at Clearwater	Presentation	Hurricane Vulnerable Seniors	Make your Family/ Business Disaster Plan	30	8/25/2014	1/22/2025	10/30/2017		Mary Burrell
Cable Television Programming	PCC-TV	Pinellas County Cable TV Interviews	County-wide	Topics vary from Insurance issues, preparedness, securing property, mitigation opportunities, sea level rise	200,000	9/5/2014	1/22/2025	9/12/2022	No updates (PPI, ongoing)	Libby Boiling
County Speakers Bureau	Pinellas County Speakers Bureau (Bank Speakers: Volunteers and County/Municipal Employees)	Area-Specific Meeting (see list)	County-wide	All messages addressed during the year	400	9/5/2014	1/22/2025	9/12/2022	No updates (PPI, ongoing, program currently being implemented)	Mary Burrell
Community Connect	Electronic Emergency Information Newsletter	Newsletter	County-wide	All messages addressed during the year through regular communications	5,677	9/5/2014	1/22/2025	9/12/2022	Includes focused messaging to faith/community based organizations. (name updated since development of this document)	Mary Burrell
Alert Pinellas	Opt-In Alert System (Email, Phone, Text). Automatically sent to Ready Pinellas app as an additional notification	Social Media/ Email	County-wide	Know your risk/ Emergency Communications/ Warning	52,162	9/5/2014	1/22/2025	9/12/2022	No updates (ongoing program, name updated since development of this document)	Mary Burrell
Pinellas County Flood Information Website	Web Pages include: Build Smart, Flood Elevation Certificate, Flood Information- FAQ, Floodplain Protection, Flood Mitigation, Flood Insurance, Flood Maps & Zones, Flood Warning System/Notifications/Safety, Flood Resources/ Contacts/Publications; Flood map service hub (includes multiple flood hazard map apps)	Website	County-wide	All key messages are addressed throughout the year.		10/31/2016	1/22/2025	12/21/2022	Content updated as needed and reviewed annually; links checked monthly	Lisa Foster
Pinellas County Flood Map Service	Flood Map Service Center searchable by address includes flood related information including: FEMA FIRM data, Storm surge, evacuation zones, National Wetland Inventory, Current Water Levels, Sea Level Rise, CCCL, County Floodplains	Website	County-wide	All key messages are addressed throughout the year.		10/31/2016	1/22/2025	12/30/2021	Content updated as needed and reviewed annually	Lisa Foster

Pinellas County,
Local Mitigation Strategy 2024-2025
Appendix A, Table A-1, Pinellas County (County-wide) Outreach Matrix

Name of Event/Outreach	Description of Event / Outreach	Outreach Method	Target Audience	Target Message	Estimated Population Reached	Date Entered on this Table	Date Last Reviewed	Date Last Updated	Update Comments	Name of Last Reviewer
Pinellas County Program for Public Information (PPI)	Propram for Public Information: Flood related messages, target audiences, projects, and initiatives	Program	Unincorporated residents, includes some County-wide projects and initiatives	All key messages are addressed throughout the year, before, during and after flood or hurricane events		10/31/2016	1/22/2025	1/15/2025	Three Committee meetings per year, Content updated as needed and reviewed annually.	Lisa Foster
Hurricane Expo	County-sponsored in different county locations	Community Events	County-wide	Public Safety Information (ex. Turn Around Don't Drown; Know Your Flood Zone and Evacuation Zone; Make a plan; Build a kit	1000	8/25/2014	1/22/2025	9/12/2022	Participate and support municipal expos and events held annually	Mary Burrell
Pinellas County EM Website	Other Hazard Resources	Website	County-wide	All messages addressed during the year		9/5/2014	1/22/2025	9/12/2022	All-hazards topics, including flooding and storm surge	Mary Burrell
Pinellas County EM Website	Hurricane Preparedness: Información en Español	Website	Spanish Speaking Residents	Prepare Ahead; Make your Family/ Business Disaster Plan		9/5/2014	1/22/2025	1/15/2025	https://pinellas.gov/preparacion-para-un-huracan	Mary Burrell
Pinellas County EM Website	Emergency information	Website	County-wide	All messages addressed during the year		9/5/2014	1/22/2025	9/12/2022	EM department has multiple pages, which are identified as separate items on this table	Mary Burrell
Pinellas County EM Website	Hurricane Preparedness: Know Your Zone - look up evacuation levels, shelters, current evacuation information, by location	Website	County-wide	Know your risk; Make a plan; Stay informed; Get involved		9/5/2014	1/22/2025	9/12/2022	Evacuation zone updates annually. Lookup zones by address. https://kyz.pinellas.gov/	Mary Burrell
Pinellas County EM Website	Healthcare Facilities Disaster Planning: Criteria, Statutes and Rules	Website	Health Care Facilities/ Business	Make your Family/ Business Disaster Plan		9/5/2014	1/22/2025	1/7/2022	Updated guidance documents made ADA accessible. https://pinellas.gov/healthcare-facility-planning	Mary Burrell
Pinellas County EM Website	Hurricane Preparedness: Prepare Ahead	Website		Prepare Ahead; Make your Family/ Business Disaster Plan		9/5/2014	1/22/2025	1/7/2022	Updated: https://pinellas.gov/make-a-plan	Mary Burrell
Pinellas County EM Website	Shelter Options	Website	County-wide	Public shelters, special needs, pet-friendly, options to shelters		9/5/2014	1/22/2025	1/15/2025	Revised description: https://pinellas.gov/emergency-information/public-shelters/	Mary Burrell
Pinellas County EM Website	FEMA - Federal Emergency Management Agency	Website	County-wide	Insure your property for your hazard(s)		9/5/2014	1/22/2025	9/12/2022	Information on insurance with link to resources.	Mary Burrell
Pinellas County EM Website	Ready Pinellas Mobile Application	Website	County-wide	Make your Family/ Business Disaster Plan		9/5/2014	1/22/2025	9/12/2022	Information and resources to guide families and businesses to make a plan	Mary Burrell
Pinellas County EM Website	Información en Español	Website/ Publications	Spanish Speaking Residents	Know your risk, make a plan, stay informed, get involved		9/5/2014	1/22/2025	1/7/2022	https://pinellas.gov/preparacion-para-un-huracan/	Mary Burrell

Pinellas County,
Local Mitigation Strategy 2024-2025
Appendix A, Table A-1, Pinellas County (County-wide) Outreach Matrix

Name of Event/Outreach	Description of Event / Outreach	Outreach Method	Target Audience	Target Message	Estimated Population Reached	Date Entered on this Table	Date Last Reviewed	Date Last Updated	Update Comments	Name of Last Reviewer
Pinellas County EM Website	Hurricane Guide	Website	County-wide	Ready, set, protect: English, Spanish, Vietnamese versions		9/5/2014	1/22/2025	1/15/2025	Updated: English, Spanish, Vietnamese versions available at https://pinellas.gov/department/emergency-management//	Mary Burrell
Pinellas County EM Website	Hurricane Video Library	Website	County-wide	Library includes short videos on how to look up zones, prepare your house, familiy and pets		9/5/2014	1/22/2025	1/15/2025	Updated: https://pinellas.gov/hurricane-videos	Mary Burrell
Pinellas County EM Website	Hurricane Publications	Website/ Publications	County-wide	All messages are addressed		9/5/2014	1/22/2025	1/16/2025	Updated: https://pinellas.gov/emergency-information/	Mary Burrell
Pinellas County EM Website	Public Shelter Options - Host Homes	Website	County-wide	Prepare Ahead; Make your Family/ Business Disaster Plan		9/5/2014	1/22/2025	1/16/2025	Updated: https://pinellas.gov/emergency-information/public-shelters/ Adiitional Link: https://pinellas.gov/re-entry-housing-shelters-resources/	Mary Burrell
Pinellas County EM Website	Special Needs Information	Website	Hurricane Vulnerable Seniors/ Disabilities	Prepare Ahead; Make your Family/ Business Disaster Plan		9/5/2014	1/22/2025	1/7/2022	Updated online forms: https://pinellas.gov/special-needs/	Mary Burrell
Pinellas County EM Website	Pet Preparedness	Website	County-wide	Prepare Ahead; Make your Family/ Business Disaster Plan		9/5/2014	1/22/2025	1/15/2025	Updated annually: https://pinellas.gov/make-a-plan/	Mary Burrell
Pinellas County EM Website	Recovery	Website	County-wide	Safety guideliness, disaster assistance, contractor information		9/5/2014	1/22/2025	1/15/2025	Updated:: https://pinellas.gov/after-the-storm/	Mary Burrell
Pinellas County EM Website	Sandbags	Website	County-wide	Availability of sandbags prior to storms/flooding		9/5/2014	1/22/2025	1/15/2025	Updated: https://pinellas.gov/sandbags	Mary Burrell
Pinellas County EM Website	Transportation - traffic info	Website	County-wide	PSTA free service, resources on traffic reports, roadway conditions		9/5/2014	1/22/2025	1/15/2025	Updated: https://pinellas.gov/after-the-storm/	Mary Burrell
Pinellas County EM Website	Emergency alerts sent text, email, phone during emergencies; information on Twitter	Website/ Social Media	County-wide	Emergency Communications/ Warning		9/5/2014	1/22/2025	9/12/2022	Posted to instruct the public about communications and how/where to get information.	Mary Burrell
Pinellas County EM Website	Subscribe to e-news, emergency notification tools	Website/ Social Media/ Email	County-wide	Emergency Communications/ Warning		9/5/2014	1/22/2025	9/12/2022	News, announcements and updates sent electionally to subscribers	Mary Burrell
Pinellas County Social Media	Social media: Twitter, Facebook, NextDoor	Social Media	County-wide	Emergency Communications/ Warning		9/5/2014	1/22/2025	9/12/2022	https://pinellas.gov/stay-informed/	Mary Burrell

Pinellas County,
Local Mitigation Strategy 2024-2025
Appendix A, Table A-1, Pinellas County (County-wide) Outreach Matrix

Name of Event/Outreach	Description of Event / Outreach	Outreach Method	Target Audience	Target Message	Estimated Population Reached	Date Entered on this Table	Date Last Reviewed	Date Last Updated	Update Comments	Name of Last Reviewer
Pinellas County EM Website	Amateur Radio Operator	Website	County-wide	Emergency Communications		9/5/2014	1/22/2025	9/12/2022	https://pinellas.gov/get-involved-2/	Mary Burrell
Pinellas County EM Website	Weather Links	Website	County-wide	Know your risk		9/5/2014	1/22/2025	9/12/2022	https://pinellas.gov/stay-informed/	Mary Burrell
Media Partnerships	Sharing of data and Interviews including newspaper, television and radio	Interview	County-wide	All key messages are addressed throughout the year.		9/5/2014	1/22/2025	9/12/2022	No updates (ongoing)	Mary Burrell

Pinellas County
Local Mitigation Strategy 2024 - 2025
Appendix A, Table A-2 Municipal Outreach Matrix

Municipality / Entity	Name of Event/Outreach	Description of Event/Outreach	Outreach Method	Target Audience	Target Message	Estimated Population Reached	Date Entered on this Table	Date Last Reviewed	Date Last Updated	Review Comments	Name of Last Reviewer
Belleair	Annual letter	Belleair sends out a letter annually for Town residents Know Your risk to all the property owners every year in our Utility bill which reaches 100% of our residents.	Letter in utility bill	Residents	Know Your risk to all the property owners every year	100% of the residents	12/10/2019	1/22/2025	12/10/2019		**Ashley Bernal**
Belleair	Know your flood risks, understand sea level rise impacts, etc	Handouts which are always available in Town Hall, municipal buildings,Rec Center,Police Department and librarySome of the items include Know your flood risk, purchase flood insurance,register to receive warnings, Only Rain Down the Drain, get building permits, illegal dumping, make an emergency plan, how sea level rise affects your property.	Handouts - Available in Town Hall, municipal buildings,Rec Center,Police Department and library.	Residents	Focuses on - Know your flood risk, purchase flood insurance,register to receive warnings, Only Rain Down the Drain, get building permits, illegal dumping, make an emergency plan, how sea level rise affects your property.	75% of residences	12/10/2019	1/22/2025	12/10/2019		**Ashley Bernal**
Belleair	Hurricane Newsletter	Town welcome packet for new residents that come into town hall to set up accounts that include brochures for Hurricane preparedness.	Town Welcome Packet	New Residents	Hurricane tips and pet safety during a storm.	77 % of New Residents	12/10/2019	1/22/2025	12/10/2019		**Ashley Bernal**
Belleair	Storm and hurricane preparedness	Participated in hurricane awareness week through Social Media/ facebook/Twitter. With tips for surviving the storm and hurricane preparedness tips. target audience was town wide residents.	Social Media/ facebook/Twitter	Residents	Tips for surviving the storm and hurricane preparedness tips	1600	12/10/2019	1/22/2025	12/10/2019		**Ashley Bernal**
Belleair	Code red	Code red for town residents that signed up through email.	Email	Residents	Emergency Alerts	1600	12/10/2019	1/22/2025	12/10/2019		**Ashley Bernal**
Belleair	City staff site visits	City staff will meet with property owners upon request to assist with property hazard mitigation . Area-Specific Meeting Municipality Protect your property from the hazard(s)/floods.	Site Visits	Residents	Meet with property owners upon request to assist with property hazard mitigation	100% of residents	12/10/2019	1/22/2025	12/10/2019		**Ashley Bernal**
Belleair	Hurricane Preparedness Information	Signs coming into town each year notifying residents of the start of hurricane season. and notifying residents of the Hurricane newsletter that can be picked up at all municipal buildings in the Town.	Road Signs	Residents	Indicate the start of hurricane season; notify the availability of hurricane newsletters.	Community wide, including Pinellas County resdients	12/10/2019	1/22/2025	12/10/2019		**Ashley Bernal**
Belleair	Know your zone Information	On the website, know your zone, target audience all residents	Website	Residents	Information	100%	12/10/2019	1/22/2025	12/10/2019		**Ashley Bernal**
Belleair Beach	Hurricane Newsletter	Emailed to all property owners in June 1 of each year	Electronic Mailing	All property owners signed up for emails	Protect your property from the hazard(s)	361	10/2/2014	1/22/2025	11/19/2023		**Kyle Riefler**
Belleair Beach	Flood and Hurricane Awareness	Brochures are kept in magazine rack located in lobby	For residents coming in to the community center	All property owners	Protect your property from the hazard(s)	several hundred	10/2/2014	1/22/2025	11/19/2023		**Kyle Riefler**
Belleair Beach	Flood Facts Brochure	Mailed to all property owners, Realtors, Mortgage Companies, Financial Institutions and Insurance Companies	Mailing	All property owners, Realtors, Mortgage Companies, Financial Institutions and Insurance Companies.	Flood Information	1,650	8/16/2016	1/22/2025	11/19/2023		**Kyle Riefler**
Belleair Beach	Guide	Pinellas County All Hazards Preparedness Guide	Publication	For residents coming in to the community center and in welcome packets for new residents	Steps to preparedness, storm surge, special needs, evacuation zones, during & after the storm	Several hundred	8/17/2017	1/22/2025	11/19/2023		**Kyle Riefler**
Belleair Beach	Storm Drain Markers	Installed on all Storm drains	Public Signs, Brochures for residents	All residents	Only Rain Down the Drain	1650	8/16/2016	1/22/2025	11/19/2023		**Kyle Riefler**

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Belleair Bluffs	Know your flood risks, understand sea level rise impacts, etc	Include Know your flood risk, purchase flood insurance,register to receive warnings, Only Rain Down the Drain, get building permits, illegal dumping, make an emergency plan.	Handouts - Available in City Hall, web site	Residents	Focuses on - Know your flood risk, purchase flood insurance,register to receive warnings, Only Rain Down the Drain, get building permits, illegal dumping, make an emergency plan.	2,200	10/2/2014	1/22/2025	12.15.2022		**Russell Schmader**
Belleair Bluffs	Hurricane Preparedness Information	Notification Boards notifying residents of the start of hurricane season. and notifying residents of the Hurricane newsletter that can be picked up at City Hall and is available on the web site	Notification Boards, web site, Next Door, Face Book	Residents and Businesses	Indicate the start of hurricane season; notify the availability of hurricane newsletters.	2,200	10/2/2014	1/22/2025	12.15.2022		**Russell Schmader**
Belleair Bluffs	Storm and hurricane preparedness	Participated in hurricane awareness week through Social Media such as Belleair Bluffs web site, FaceBook, Next Door. With tips for surviving the storm and hurricane preparedness tips. target audience was all businesses and residents	Notification Boards, web site, Next Door, Face Book	Residents and Businesses	Tips for surviving the storm and hurricane preparedness tips	2,200	10/2/2014	1/22/2025	12.15.2022		**Russell Schmader**
Belleair Bluffs	Annual LMS Report to City Commission	City staff presents the annual LMS, floodplain management planning update to City Commission	Presentation to Governing Body	Municipality	Comprehensive hazard risk identification and mitigation	2,200	10/2/2014	1/22/2025	12.15.2022		**Russell Schmader**
Belleair Bluffs	Flood Awareness	Website and city hall lobby	Notification Boards, web site, Next Door, Face Book	General information regarding all aspects of Flood Protection and	Protect natural functions (floodplain; habitat; etc.)	2,200	10/2/2014	1/22/2025	12.15.2022		**Russell Schmader**
Belleair Bluffs	Know your flood risks, understand sea level rise impacts, etc	Web site/Publications	Quarterly Newsletter/web site	Residents, Business Owners, Realtors	Protect natural functions (floodplain; habitat; etc.)	2,200	10/2/2014	1/22/2025	12.15.2022		**Russell Schmader**
Belleair Bluffs	Storm Drain markers	Storm drain markers are on every storm drain in the City. They are replaced as needed.	Brochures are given to each resident	All residents	Only Rain Down the Drain	2,200	10/2/2014	1/22/2025	12.15.2022		**Russell Schmader**
Belleair Bluffs	City Staff Meetings	City Staff meets to coordinate information for distribution, methods of distribution and when to distribute	Social media, print, web site, notification boards	Municipality	Tips for surviving the storm and hurricane preparedness tips	2,200	10/2/2014	1/22/2025	12.15.2022		**Russell Schmader**
Belleair Bluffs	Hurricane Sheltering In Place Symposium	A joint meeting with local government agencies, public service utilities, Police and Fire Departments and local elected officials	On web site	All residents and businesses	Preparing your home against wind, flood or other damage while sheltering in place, making a plan; emergency notification; evacuation; pet and medical provisionsetc.			1/22/2025	12.15.2022		**Russell Schmader**
Belleair Bluffs	Know your flood risks, understand sea level rise impacts, etc	Web site/Publications	Quarterly Newsletter/web site	Residents, Business Owners, Realtors	Protect natural functions (floodplain; habitat; etc.)	2,200	10/2/2014	1/22/2025	12.15.2022		**Russell Schmader**
Belleair Bluffs	Storm Drain markers	Storm drain markers are on every storm drain in the City. They are replaced as needed.	Brochures are given to each resident	All residents	Only Rain Down the Drain	2,200	10/2/2014	1/22/2025	12.15.2022		**Russell Schmader**
Belleair Bluffs	City Staff Meetings	City Staff meets to coordinate information for distribution, methods of distribution and when to distribute	Social media, print, web site, notification boards	Municipality	Tips for surviving the storm and hurricane preparedness tips	2,200	10/2/2014	1/22/2025	12.15.2022		**Russell Schmader**
Belleair Bluffs	Hurricane Sheltering In Place Symposium	A joint meeting with local government agencies, public service utilities, Police and Fire Departments and local elected officials	On web site	All residents and businesses	Preparing your home against wind, flood or other damage while sheltering in place, making a plan; emergency notification; evacuation; pet and medical provisionsetc.			1/22/2025	12.15.2022		**Russell Schmader**

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Belleair Shore	Know your flood risks.	Links helping understand a resident's flood risks is available to citizens through the Town's website.	On the Town of Belleair Shore's web site.	All residents	Focuses on - Understanding your flood risk.	Population of approximately 67 people (57 residential properties)	9/6/2024	1/22/2025	10/30/2024		**Mary Palmer**
Belleair Shore	Hurricane Preparedness	Information and links regarding hurricane preparedness and evacualtion routes added to Town's website	On the Town of Belleair Shore's web site.	All residents	Preparation and Awareness	Population of approximately 67 people (57 residential properties)	9/6/2024	1/22/2025	10/30/2024		**Mary Palmer**
Clearwater	Repetitive Loss Area Letter	Annual letter sent to approximately 1,250 residences in repetitive loss areas	Mailing	Repetitive Loss Area	Evaluating flood protection measures, flood insurance, be prepared, only rain down the drain, buy flood insurance, know your flood zone	3% of residences	10/4/2016	1/22/2025	3/31/2022		**Sarah Kessler**
Clearwater	My Clearwater Magazine – Flood Program article	Annual magazine article – mailed to residences and available at municipal buildings	Mailing	Municipality			10/4/2016	1/22/2025	6/30/2022		**Sarah Kessler**
Clearwater	Handout	Always available in City Hall, municipal building, and library	Handout	Municipality	Know your flood risk, purchase flood insurance, register to receive warnings, Only Rain Down the Drain, get building permits, illegal dumping, make an emergency plan, how sea level rise affects your property	75% of residences	10/4/2016	1/22/2025	10/31/2022		**Sarah Kessler**
Clearwater	Extensive Social Media Posts	Frequent posts to several accounts on Facebook (City of Clearwater, Clearwater Police Department, Clearwater Fire and Rescue), Twitter (CLW Public Safety), and Instagram (Clearwater Police, Clearwater Fire Rescue)	Social Media	All residents	Turn around don't drown, make a plan, Only Rain down the drain, prepare for the storm, protect your property	30% of residents	10/4/2016	1/22/2025	12/16/2022		**Sarah Kessler**
Clearwater	Press release – Secure Chemicals before storm	Annual press release sent out to news agencies	Press release	All residents	Be prepared	10% of residents	10/4/2016	1/22/2025	3/31/2022		**Sarah Kessler**
Clearwater	Sunshine Line article – Stream Dumping Regulations	Annual article in Sunshine Lines, which is a utility stuffer and included with the bill.	Newsletter article	All residents	Only Rain Down the Drain	100% of residents	10/4/2016	1/22/2025	3/31/2022		**Sarah Kessler**
Clearwater	Sunshine Lines article – Safe Storage During Storm Season	Annual article in Sunshine Lines, which is a utility stuffer and included with the bill.	Newsletter article	All residents	Be prepared	100% of residents	10/4/2016	1/22/2025	3/31/2022		**Sarah Kessler**
Clearwater	Sunshine Lines article – Keep Clearwater Bright and Beautiful	Annual article in Sunshine Lines, which is a utility stuffer and included with the bill.	Newsletter article	All residents	Only Rain Down the Drain	100% of residents	10/4/2016	1/22/2025	3/31/2022		**Sarah Kessler**
Clearwater	Sunshine Lines article – City Offers Flood Protection Assistance	Annual article in Sunshine Lines, which is a utility stuffer and included with the bill.	Newsletter article	All residents	Protect property from flood damage	100% of residents	10/4/2016	1/22/2025	3/31/2022		**Sarah Kessler**
Clearwater	Insurance brochure provided by Florida Department of Emergency Management	Two sided brochure always available at City Hall, Municipal Service Building, Main Library, and Fire Station 45.	Brochure	All residents	Purchase flood insurance	5% of residents	10/4/2016	1/22/2025	12/19/2018		**Sarah Kessler**
Clearwater	Flood Safety brochure provided by Florida Department of Emergency Management	Two sided brochure always available at City Hall, Municipal Service Building, Main Library, and Fire Station 45.	Brochure	All residents	Be prepared, Turn around Don't Drown, Know your Hazard	5% of residents	10/4/2016	1/22/2025	12/19/2018		**Sarah Kessler**
Clearwater	Flood Mitigation brochure provided by Florida Department of Emergency Management	Two sided brochure always available at City Hall, Municipal Service Building, Main Library, and Fire Station 45.	Brochure	All residents	Protect floodplains and natural areas, protect dunes, Only Rain Down the Drain, Build responsibly	5% of residents	10/4/2016	1/22/2025	12/19/2018		**Sarah Kessler**
Clearwater	Storm Drain markers	Storm drain markers are on every storm drain in the City. They are replaced as needed.	Sign	All residents	Only Rain Down the Drain	100% of residents	10/4/2016	1/22/2025	6/30/2022		**Sarah Kessler**

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Clearwater	Skycrest Neighborhood Association	Annual Community Meeting	Area-Specific Meeting	Municipality	Public Safety Information (ex. Turn Around Don't Drown)	50	8/26/2014	1/22/2025	6/30/2022		**Sarah Kessler**
Clearwater	Villas of Sunset Grove	Annual Community Meeting	Area-Specific Meeting	Municipality	Public Safety Information (ex. Turn Around Don't Drown)	50	8/26/2014	1/22/2025	6/30/2022		**Sarah Kessler**
Clearwater	Monthly EM Meetings	Monthly Emergency Management Meetings	Roundtable/Forum	Municipality	EM Coordination	25	8/26/2014	1/22/2025	11/30/2022		**Sarah Kessler**
Clearwater	Hurricane Season Information	City Website Information	Website	Municipality	Know your risk	5,000	8/26/2014	1/22/2025	10/31/2022		**Sarah Kessler**
Clearwater	Surge Level Signs	Clearwater Beach Newsletter	Newsletter	Floodplain Residents	Public Safety Information (ex. Turn Around Don't Drown)	1,000	8/26/2014	1/22/2025	10/4/2016		**Sarah Kessler**
Clearwater	Floodplain Management Information	City Website Information	Website	Municipality	Know your risk	5,000	8/26/2014	1/22/2025	10/31/2022		**Sarah Kessler**
Clearwater	Flooding Information	City Website Information	Website	Municipality	Know your risk	5,000	8/26/2014	1/22/2025	10/31/2022		**Sarah Kessler**
Clearwater	Flood Flyer	Annual mailing to inform about flood hazards	Mailing	Repetitive Loss Properties, Floodplain Residents, Insurance	Know your risk	14,980	8/26/2014	1/22/2025	3/30/2022		**Sarah Kessler**
Clearwater	Flood Flyer	Annual mailing to inform about protective measures	Mailing	Repetitive Loss Properties, Floodplain Residents, Insurance	Public Safety Information (ex. Turn Around Don't Drown)	14,980	8/26/2014	1/22/2025	3/30/2022		**Sarah Kessler**
Clearwater	Loss Mitigation	Annual article in Sunshine Lines, which is a utility stuffer and included with the bill.	Mailing	Municipality	Make your Family/ Business Disaster Plan	49,000	8/26/2014	1/22/2025	6/30/2022		**Sarah Kessler**
Dunedin	Flood Map Information Services	Postcard	Direct Mailing	Banks, Insurance Companies, Realtors	Know your risk	244 businesses	12/10/2019	1/22/2025	11/1/2024		**Joseph DiPasqua**
Dunedin	Flood Event Preparation	Letter	Direct Mailing	Facilities with flammable/toxic substances storage	Protect your property from the hazard(s)	60 businesses	12/10/2019	1/22/2025	11/1/2024		**Joseph DiPasqua**
Dunedin	Flood Event Preparation	Letter w/Hazard Disclosure/Flood Insurance Information Enclosure	Direct Mailing	Realtors	Purchase of Flood Insurance	13 businesses	12/10/2019	1/22/2025	11/1/2024		**Joseph DiPasqua**
Dunedin	Repetitive Loss Information	Letter	Direct Mailing	Repetitive Loss Properties	Informational	All repetitive loss areas	12/10/2019	1/22/2025	11/1/2024		**Joseph DiPasqua**
Dunedin	Flood Awareness	Insert in Dunedin Beacon	Home delivery to all residents.	Municipality	Informational	100% of residents	12/10/2019	1/22/2025	11/1/2024		**Joseph DiPasqua**
Dunedin	Facts on Flooding Mailer	Brochure	Direct Mailing	Floodplain Properties	Informational	All floodplain properties	12/10/2019	1/22/2025	11/1/2024		**Joseph DiPasqua**
Dunedin	Repetitive Loss Information	Brochure	Direct Mailing	Repetitive Loss Properties	Informational	All repetitive loss areas	12/10/2019	1/22/2025	11/1/2024		**Joseph DiPasqua**
Dunedin	Website	Flood Awareness Webpage	Website	Municipality	Informational	100% of residents	12/10/2019	1/22/2025	11/1/2024		**Joseph DiPasqua**
Dunedin	Flood Zone Lookup	Internet based information	Website	Municipality	Know your risk	100% of residents	12/10/2019	1/22/2025	11/1/2024		**Joseph DiPasqua**
Gulfport	Annual Hurricane Seminar	Community venue	Community-wide event and later aired on GTV Channel 615	Municipality	Property and family protection from hazards	14,000	9/10/2014	1/22/2025	9/9/2024		**Michael Taylor, AICP**
Gulfport	Flood Hazard Information Brochure	Brochure insert with utility bills	Brochure/Publication	Municipality	Protect your property from the hazard(s)	11,400	9/10/2014	1/22/2025	9/9/2024		**Michael Taylor, AICP**
Gulfport	Flood Protection Newsletter	Separate mail out to all floodplain properties	Mailing	Floodplain Residents	Protect your property from the hazard(s)	8,400	9/10/2014	1/22/2025	9/9/2024		**Michael Taylor, AICP**
Gulfport	Flood Protection Newsletter	Separate mail out to all repetitive loss areas	Mailing	Repetitive Loss Areas	Protect your property from the hazard(s)	200	9/10/2014	1/22/2025	9/9/2024		**Michael Taylor, AICP**
Gulfport	Mail out to banks, insurance companies, real estate companies, & contractors located within the City	Letter focusing on available hazard information and City services for mitigation	Mailing	Businesses	Insure your property for your hazard(s)	1,000	9/10/2014	1/22/2025	9/9/2024		**Michael Taylor, AICP**
Gulfport	GTV Channel 615	Gulfport television station	Hazard protection television programming	Municipality	Hazard mitigation for property and family	14,000	9/10/2014	1/22/2025	9/9/2024		**Michael Taylor, AICP**
Gulfport	Storm surge high water mark signage	6 high water, storm surge markers placed in areas of known flooding throughout the City	Signage	Municipality	Know your risk	14,000	9/10/2014	1/22/2025	9/9/2024		**Michael Taylor, AICP**
Gulfport	Gulfport City Library	Hazard and mitigation reference materials, and FIRMs on-file for review	Books, brochures, information sheets, and FIRMs for patrons to review	Municipality	Property and family protection from hazards	14,000	9/10/2014	1/22/2025	9/9/2024		**Michael Taylor, AICP**
Gulfport	Gulfport website: www.mygulfport.us	Flood and hazard mitigation information	Website	Municipality	Build Responsibly	14,000	9/10/2014	1/22/2025	9/9/2024		**Michael Taylor, AICP**

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Gulfport	Surviving The Storm	Distribution of publication in City facilities and Annual Hurricane Seminar	Publication	County-wide	Public Safety Information (ex. Turn Around Don't Drown)	14,000	9/10/2014	1/22/2025	9/9/2024		**Michael Taylor, AICP**
Gulfport	Public Outreach Strategy	City staff and residents participate on a committee focusing on outreach for hazard mitigation	Community Event	Municipality	Build Responsibly	14,000	9/10/2014	1/22/2025	9/9/2024		**Michael Taylor, AICP**
Gulfport	City staff site visits	City staff will meet with property owners upon request to assist with property hazard mitigation	Area-Specific Meeting	Municipality	Protect your property from the hazard(s)	8,400	9/10/2014	1/22/2025	9/9/2024		**Michael Taylor, AICP**
Gulfport	Annual LMS Report to City Council	City staff presents the annual LMS, floodplain management planning update to City Council	Presentation to Governing Body	Municipality	Comprehensive hazard risk identification and mitigation	14,000	9/10/2014	1/22/2025	9/9/2024		**Michael Taylor, AICP**
Gulfport	E-mail Blast	Weekly Notifications, Important Storm Notices and Publications	Registered e-mail addresses	Municipality	Storm notices and related information	3,500	1/5/2024	1/22/2025	9/9/2024		**Michael Taylor, AICP**
Gulfport	Stormsewer Signage - "Dump No Waste, Drains To Bay"	Placards attached to all storm drains located in or near floodplain	Stormwater Catch Basin Lids	Municipality	"Dump No Waste, Drains To Bay"	14,000	1/5/2024	1/22/2025	9/9/2024		**Michael Taylor, AICP**
Gulfport	Landscaper Information	BTR, PC brochure, must provide proof of training and certification.	Business Tax Receipt	Landscaping Businesses	Prevention of pollution, overuse of chemicals, runoff pollution entering stormwater system	5,000	1/5/2024	1/22/2025	9/9/2024		**Michael Taylor, AICP**
Indian Rocks Beach	Brochures in City Hall lobby	Numerous brochures related to flooding, natural benefits of floodplains, stormwater, etc.	Brochures for pick-up by visitors	Entire Community	10 CRS Topics from2017 CRS Manual.		9/2/2014	1/22/2025	1/6/2022		**Dean Scharmen**
Indian Rocks Beach	Flood-related materials cataloged in IRB Library	Documents, booklets, brochures, etc. available at library	General Outreach	Entire Community	9 documents listed in 2017 CRS Manual and numerous other documents		9/2/2014	1/22/2025	1/6/2022		**Dean Scharmen**
Indian Rocks Beach	City of Indian Rocks Beach website	Flood information on City website	website	Entire Community	10 CRS Topics from 2017 CRS Manual		9/2/2014	1/22/2025	1/6/2022		**Dean Scharmen**
Indian Rocks Beach	City Newsletter to Repetitive Loss Areas	Information in City Newsletter mailed to properties in repetitive loss areas	Newsletter mailed to every address in IRB	repetitive loss properties identified by FEMA and neighboring properties susceptible to same flood hazards	10 Topics	4300	9/2/2014	1/22/2025	1/6/2022		**Dean Scharmen**
Indian Rocks Beach	City of Indian Rocks Beach Quarterly Newsletter	Flood-related articles	Newsletter mailed to registered voters	Registered voters	10 Topics	3,615	9/2/2014	1/22/2025	1/6/2022		**Dean Scharmen**
Indian Rocks Beach	Belleair Bee Newspaper	Articles	General	Entire Community	Natural functions of floodplains/Build Responsibly	4,300	10/9/2017	1/22/2025	1/6/2022		**Dean Scharmen**
Indian Rocks Beach	Social Media Posts	Social Media	Web	Entire Community	9 Topics (all except Natural Functions of Floodplains)	4,300	10/9/2017	1/22/2025	1/6/2022	City and Stakeholder social media posts	**Dean Scharmen**
Indian Rocks Beach	Rotary Club Presentations	Presentation at Member Meeting	General	Business Community	9 Topics (all except Natural Functions of Floodplains)	50	10/9/2017	1/22/2025			**Dean Scharmen**
Indian Rocks Beach	Welcome Packet	Brochures in new resident welcome packet	General	Entire Community	10 Topics	30	10/9/2017	1/22/2025			**Dean Scharmen**
Indian Rocks Beach	Brochures for pickup in Public Services Office	Brochures on display	Informational	Entire Community	10 Topics	50	10/9/2017	1/22/2025			**Dean Scharmen**
Indian Rocks Beach	Target Group letter to Real Estate Agents with City Flood Brochure Enclosed	Letter and Brochure	Direct Mailing	Real Estate Agents	10 Topics	18	12/29/2021	1/22/2025	1/6/2022		**Dean Scharmen**
Indian Rocks Beach	Target Group letter to Insurance Companies with city Flood Brochure enclosed	Letter and Brochure	Direct Mailing	Insurance companies	10 Topics	25	12/30/2021	1/22/2025	1/6/2022		**Dean Scharmen**
Indian Rocks Beach	Target Group letter to Landscapers with city Flood Brochure enclosed	Letter and Brochure	Direct Mailing	Lanscaping companies	10 Topics	22	12/31/2021	1/22/2025	1/6/2022		**Dean Scharmen**
Indian Shores	Brochures in City Hall	Numerous brochures related to the National Flood Insurance Program[1],	Brochures/ Publications	Walk-in visitors to Town Hall	Preparation and awareness	1,423	9/16/2014	1/22/2025			**Michelle Tidwell**
Indian Shores	Town of Indian Shores website	2007 - 2008 Winter NFIP, CRS Update, Annual Progress Report 510, 2008 [2]	Website	Indian Shores Residents	Preparation and awareness	1,423	9/16/2014	1/22/2025			**Michelle Tidwell**

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Indian Shores	Hurricane Awareness Party	Guest Speakers: Meteorologist; Brian McClure from Bay News 9 and Pinellas County Emergency Management	Community Event	County-wide	Preparation and awareness	1,423	9/16/2014	1/22/2025			**Michelle Tidwell**
Indian Shores	Newsletter	Newsletter with flood information twice per year	Newsletter	Indian Shores Residents	Know your risk	2,500	9/16/2014	1/22/2025			**Michelle Tidwell**
Kenneth City	Town of Keeneth City Website	Information and links added to Town's website	Websute	Kenneth City Residents	Preparation and Awareness	5,000	9/28/2021	1/22/2025			
Largo	Imperial Palms Hurricane Preparedness (6/11/14)	Neighborhood meeting to discuss hurricane preparedness	Community Event	Municipality	Risk Assessment/ Preparation and Recovery Planning	100	8/20/2014	1/22/2025	9/19/2016		**Doug Swartz**
Largo	Preparing Business for disasters and recovery (6/18/14)	Meet with Central Pinellas Chamber of Commerce to discuss steps for businesses to take for planning and preparation as well as recovery.	Roundtable/Forum	Businesses	Make your Family/ Business Disaster Plan	200	8/20/2014	1/22/2025	9/19/2016		**Doug Swartz**
Largo	HomeBanc Belleair (5/27/14)	Meeting with Business to discuss preparedness	Community Event	Business	Risk Assessment/ Preparation and Recovery Planning	10	10/31/2014	1/22/2025	9/19/2016		**Betti Johnson**
Largo	Royal Palms Hurricane Preparedness (6/24/14)	Neighborhood meeting to discuss hurricane preparedness	Community Event	Municipality	Risk Assessment/ Preparation and Recovery Planning	250	8/20/2014	1/22/2025	9/19/2016		**Doug Swartz**
Largo	Palm Hill MHP Hurricane Preparedness (6/18/14)	Neighborhood meeting to discuss hurricane preparedness	Community Event	Municipality	Risk Assessment/ Preparation and Recovery Planning	150	8/20/2014	1/22/2025	9/19/2016		**Doug Swartz**
Largo	Community Awareness Campaign (ongoing)	Video series links on City web site	Website	Municipality	Risk Assessment/ Preparation and Recovery Planning		8/20/2014	1/22/2025	9/19/2016		**Doug Swartz**
Largo	BRACE for the Storm (May 6, 2014)	Internet based workshop to provide homeowners with an understanding of how to make their home safe from the next Hurricane and other disaster that threaten Florida residents.	Community Event	Municipality	Protect your property from the hazard(s)	1,600	8/21/2014	1/22/2025	9/19/2016		**Johan Hendrickson**
Largo	Annual Flood Mailing	Mail out to properties within the SFHA regarding risks, flood insurance benefits, natural and beneficial floodplains, development permit requirements and City of Largo Flood Zone map.	Mailing	Floodplain Residents	Know your risk	2,200	8/21/2014	1/22/2025	9/19/2016		**Johan Hendrickson**
Largo	Largo Fire Open House	Open House to provide homeowners with an understanding of how to make their home safe from the next Hurricane and other disaster that threaten Florida residents.	Community Event	Municipality	Risk Assessment/ Preparation and Recovery Planning	1500	10/31/2014	1/22/2025	9/19/2016		**Betti Johnson**
Largo	Repetitive Loss Mailing	Mail out to Repetitive Loss properties within City regarding risks, flood insurance benefits, natural and beneficial floodplains, development permit requirements and City of Largo Flood Zone map.	Mailing	Repetitive Loss Properties	Know your risk	7	8/26/2014	1/22/2025	9/19/2016		**Johan Hendrickson**
Largo	Central Pinellas Business Showcase	Business-to-Business and Business-to-Consumer Expo. Provided NFIP brochures.	Community Event	Businesses	Insure your property for your hazard(s)	1,500	8/26/2014	1/22/2025	9/19/2016		**Johan Hendrickson**
Largo	Emergency Preparedness City of Largo Website	Preparation/Checklists/NHC Videos/Evacuation/Shelters/Pet Safety/Links to other Resources	Website	Municipality	Public Safety Information (ex. Turn Around Don't Drown)		8/26/2014	1/22/2025	9/19/2016		**Johan Hendrickson**
Largo	Floodplains: City of Largo Website	Terms & Definitions/Links to Resources/CRS Annual Floodplain Management Plan Update/FEMA link to FIRM's/View Elevation Certificates online	Website	Municipality	Protect your property from the hazard(s)		8/26/2014	1/22/2025	9/19/2016		**Johan Hendrickson**
Largo	Guide	2014 Pinellas County Hurricane Guide	Brochure/ Publication	Municipality	All-Hazard Preparedness, Recovery Guide		8/26/2014	1/22/2025	9/19/2016		**Johan Hendrickson**
Largo	Flood: Are You Protected From The Next Disaster?	FEMA/NFIP Brochure- Flood Insurance	Brochure/ Publication	Municipality	Insure your property for your hazard(s)		8/27/2014	1/22/2025	9/19/2016		**Johan Hendrickson**
Largo	NFIP/CRS Saving: Lives, Property, Money	NFIP/CRS Brochure - What is NFIP, CRS? Community participation and benefits of CRS.	Brochure/ Publication	Municipality	Insure your property for your hazard(s)		8/27/2014	1/22/2025	9/19/2016		**Johan Hendrickson**
Largo	Annual Lakes & Ponds Education Day (April 12, 2014)	Workshop for volunteers and citizens interested in the health and management of our water resources, specifically community lakes and stormwater ponds. (67 participants)	Community Event	County-wide	Protect natural functions (floodplain; habitat; etc.)		8/27/2014	1/22/2025	9/19/2016		**Johan Hendrickson**
Largo	Stress Relievers – Hurricane Recovery Focus (May 20, 2015)	Condo Association Managers Luncheon	Community Event	Condominium Management	Disaster Recovery	20	9/19/2016	1/22/2025	9/19/2016		**David Mixson**
Largo	Largo Annual Hurricane Expo (May 28, 2015)	Workshop followed by an ask the experts panel	Live presentation	Largo residents and business owners	Hurricane Preparedness	25 Citizens	9/19/2016	1/22/2025	9/19/2016		**David Mixson**

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Largo	National Hurricane Week	Educational outreach utilizing Ready.gov	Social Media (Facebook and Twitter)	Citywide	Hurricane Preparedness	Unlimited	9/19/2016	1/22/2025	9/19/2016		**David Mixson**
Largo	Emergency Management for Businesses (June 1, 2015)	Information letter sent to all city businesses from EM	Direct Mailing	Largo Business	Emergency Management	4,000	9/19/2016	1/22/2025	9/19/2016		**David Mixson**
Largo	Largo V News (2015 Hurricane Season)	Video clips recorded for citizen access on city website	www.largo.com	Citywide	Hurricane Preparedness	Unlimited	9/19/2016	1/22/2025	9/19/2016		**David Mixson**
Largo	Hurricane Preparation	Educational outreach	Community presentation	Imperial Palms Residents	Hurricane Preparedness	44	9/19/2016	1/22/2025	9/19/2016		**David Mixson**
Largo	Largo Fire Rescue Open House (October 17, 2015)	Informational display staffed by EM professionals. Handouts provided	Community Event	Largo residents	Disaster Preparedness	2,500	9/19/2016	1/22/2025	9/19/2016		**David Mixson**
Largo	Largo Small Business event (November 4, 2015)	Informational display staffed by EM professionals. Handouts provided.	Community Event	Largo Businesses	Disaster Plan for Business	20	9/19/2016	1/22/2025	9/19/2016		**David Mixson**
Largo	Active Shooter Awareness (December 21, 18 2015)	Information provided and mini tent card for Active Shooter event	City Bulletin (Electronic)	City of Largo Employees	Active Shooter Training	800	9/19/2016	1/22/2025	9/19/2016		**David Mixson**
Largo	Emergency Management Updates/News and Notice Items (Feb 08, 2016-Sep. 19 2016) Continuously Updated	Educational Outreach via web links infographics, and videos.	www.largo.com	Largo Residents-City Wide		1,606	9/19/2016	1/22/2025	9/19/2016		**Summer Mahr**
Largo	Facebook/Twitter outreach (Feb 08, 2016-Sep. 19 2016) Continuously Updated	Educational Outreach via web links, infographics, and videos.	Facebook	County-Wide	El Nino, Zika Awareness, Alert Pinellas, Hurricane Prep, Floods, Heatstroke, National Prep Month	20,949	9/19/2016	1/22/2025	9/19/2016		**Summer Mahr**
Largo	Hurricane Preparation / Public Education (April 17, 2016)	Educational outreach	Community presentation	Ranch MHP	Hurricane Preparedness	45	9/19/2016	1/22/2025	9/19/2016		**Summer Mahr**
Largo	Hurricane Preparation / Public Education (May 6, 2016)	Educational outreach	Community presentation	Imperial Palms Residents	Hurricane Preparedness	50	9/19/2016	1/22/2025	9/19/2016		**Summer Mahr**
Largo	Hurricane Preparation / Public Education (May 10, 2016)	Educational outreach	Community presentation	Teakwood East	Hurricane Preparedness	100	9/19/2016	1/22/2025	9/19/2016		**Summer Mahr**
Largo	Largo Annual Hurricane Expo (May 26, 2016)	Educational outreach/Workshop followed by ask the expert panel	Community presentation	Largo Residents and Business Owners-at Largo Public Library	Hurricane Preparedness	50	9/19/2016	1/22/2025	9/19/2016		**Summer Mahr**
Largo	Hurricane Preparation / Public Education (May 27, 2016)	Educational outreach	Community presentation	Pinellas Heights	Hurricane Preparedness	20	9/19/2016	1/22/2025	9/19/2016		**Summer Mahr**
Largo	Hurricane Preparation / Public Education (June 7, 2016)	Educational outreach	Community presentation	Teakwood West	Hurricane Preparedness	80	9/19/2016	1/22/2025	9/19/2016		**Summer Mahr**
Largo	Hurricane Preparation / Public Education (June 18, 2016)	Educational outreach	Community presentation	Oak Crest MHP	Hurricane Preparedness	60	9/19/2016	1/22/2025	9/19/2016		**Summer Mahr**
Largo	Hurricane Preparation / Public Education (June 22, 2016)	Educational outreach	Community presentation	Pelican Place Condos	Hurricane Preparedness	20	9/19/2016	1/22/2025	9/19/2016		**Summer Mahr**
Largo	Hurricane Preparation / Public Education (June 30, 2016)	Educational outreach	Community presentation	The Barrington	Hurricane Preparedness	25	9/19/2016	1/22/2025	9/19/2016		**Summer Mahr**
Largo	Hurricane Preparation / Public Education (September 14, 2016)	Educational outreach	Community presentation	Four Seasons	Hurricane Preparedness	40	9/19/2016	1/22/2025	9/19/2016		**Summer Mahr**
Largo	Hurricane Door Hanger Project Aug-Present (continuous project)	Educational Door hanger	Canvas of door hangers to residents in different evacuation zones (starting with "A")	City Residents	Hurricane Preparedness	5000	9/19/2016	1/22/2025	9/19/2016		**Summer Mahr**
Largo	Pinellas County All Hazards Guide Distribution	Educational Newspaper Guide	Various Educational Outreach Events and Expos	City Residents	Hurricane Preparedness	800	9/19/2016	1/22/2025	9/19/2016		**Summer Mahr**
Largo	The Barrington Health and Safety Fair (October 6, 2016)	Distributed All Hazards Guides and hurricane safety information	Community Event	Barrington Residents	Hurricane Preparedness	25	10/24/2017	1/22/2025			**Summer Mahr**
Largo	Largo Fire Rescue Open House (October 17, 2016)	Pinellas County Emergency Management and Largo Public Education had a table set up distributing Hurricane Preparedness Information	Community Event	Citizens of Largo and nearby municipalities	Hurricane Preparedness-knowing what to do before during and after the storm	600	10/24/2017	1/22/2025			**Summer Mahr**
Largo	Largo Business Night (November 2, 2016)	Distributed Hurricane Preparedness information as well as FL Get a Plan! Info, for business preparedness plans.	Community Event	City of Largo Business Owners	Hurricane Preparedness for Business Owners	35	10/24/2017	1/22/2025			**Summer Mahr**
Largo	Veteran's Day Celebration (11/11/16)	Had a safety table set up and distributed hurricane preparedness information	Community Event	Largo Citizens	Hurricane Preparedness	50	10/24/2017	1/22/2025			**Summer Mahr**
Largo	Largo Police Department Safety Day (11/12/16)	Had a safety table set up and distributed hurricane preparedness information	Community Event	Largo Citizens	Hurricane Preparedness	100	10/24/2017	1/22/2025			**Summer Mahr**
Largo	Duke Energy Safety Fair (11/17/16)	Had a safety table set up and distributed hurricane preparedness information	Community Event	Duke Energy Employees	Hurricane Preparedness	100	10/24/2017	1/22/2025			**Summer Mahr**
Largo	Fairway Village Safety Fair (2/21/17)	Had a safety table set up and distributed hurricane preparedness information	Community Event	Fairway Village Residents	Hurricane Preparedness	400	10/24/2017	1/22/2025			**Summer Mahr**

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Largo	Hurricane Preparation Presentation Teakwood Village East (4/11/17)	Educational outreach to give preparedness information for before, during, and after the storm	Community Presentation	Teakwood Village East	Hurricane Preparedness	120	10/24/2017	1/22/2025			**Summer Mahr**
Largo	Hurricane Preparation Presentation Pinellas Heights (5/18/17)	Educational outreach to give preparedness information for before, during, and after the storm	Community Presentation	Pinellas Heights	Hurricane Preparedness	25	10/24/2017	1/22/2025			**Summer Mahr**
Largo	SCC Software Health Fair (5/19/16)	Had a safety table set up and distributed hurricane preparedness information	Community Event	SCC Software Employees	Hurricane Preparedness	200	10/24/2017	1/22/2025			**Summer Mahr**
Largo	Hurricane Preparation Presentation Palm Hill North (5/22/17)	Educational outreach to give preparedness information for before, during, and after the storm	Community Presentation	Palm Hill North	Hurricane Preparedness	80	10/24/2017	1/22/2025			**Summer Mahr**
Largo	Hurricane Preparation Presentation Palm Hill South (5/24/17)	Educational outreach to give preparedness information for before, during, and after the storm	Community Presentation	Palm Hill South	Hurricane Preparedness	60	10/24/2017	1/22/2025			**Summer Mahr**
Largo	Annual Hurricane Preparedness Event at Largo Public Library (5/26/17)	Educated citizens and business owners on how to prepare before, during and after a hurricane.Guests had the opportunity to visit table vendors as well. Pinellas County Emergency Mangement and State of Florida EM joined the event on the ask the expert panel	Community Presentation	Citizens County Wide-invited to join	Hurricane Preparedness	100	10/24/2017	1/22/2025			**Summer Mahr**
Largo	Hurricane Preparation Presentation Imperial Palms Senior Apartments (6/02/17)	Educational outreach to give preparedness information for before, during, and after the storm	Community Presentation	Imperial Palms Residents	Hurricane Preparedness	50	10/24/2017	1/22/2025			**Summer Mahr**
Largo	Hurricane Preparation Presentation Glenwood Estates Mobile Home Park (6/10/17)	Educational outreach to give preparedness information for before, during, and after the storm	Community Presentation	Glenwood Estates Residents	Hurricane Preparedness	60	10/24/2017	1/22/2025			**Summer Mahr**
Largo	Hurricane Preparation Presentation The Barrington ALF (6/28/17)	Educational outreach to give preparedness information for before, during, and after the storm	Community Presentation	The Barrington Residents	Hurricane Preparedness	30	10/24/2017	1/22/2025			**Summer Mahr**
Largo	Hurricane Preparedness Preparation Presentation for Retired Employees of Pinellas County at Applebees on East Bay (7/10/17)	Educational outreach to give preparedness information for before, during, and after the storm	Community Presentation	Pinellas County Residents	Hurricane Preparedness	30	10/24/2017	1/22/2025			**Summer Mahr**
Largo	Hurricane Preparation Presentation El Dorado Village Mobile Home Park (7/11/17)	Educational outreach to give preparedness information for before, during, and after the storm	Community Presentation	El Dorado Village Residents	Hurricane Preparedness	40	10/24/2017	1/22/2025			**Summer Mahr**
Largo	Hurricane Preparation Presentation Four Seasons Mobile Home Park (7/19/17)	Educational outreach to give preparedness information for before, during, and after the storm	Community Presentation	Four Seasons Residents	Hurricane Preparedness	60	10/24/2017	1/22/2025			**Summer Mahr**
Largo	FarmShare Event (7/28/17)	Had a safety table set up and distributed hurricane preparedness information	Community Event	Pinellas County and Largo Residents	Hurricane Preparedness	400	10/24/2017	1/22/2025			**Summer Mahr**
Largo	After the Storm-Post Irma Hurricane Q and A El Dorado Village Mobile Home Park (9/21/17)	Distributed educational information and resources for post storm assistance. Educated on lessons learned from the storm, safety tips learned during the storm, and post storm analysis discussion.	Community Presentation	El Dorado Village Residents	Hurricane Preparedness-Post Storm Discussion	60	10/24/2017	1/22/2025			**Summer Mahr**
Largo	Largo Fire Rescue Open House (October 14, 2017)	Pinellas County Emergency Management and Largo Public Education had a table set up distributing Hurricane Preparedness Information	Community Event	Citizens of Largo and nearby municipalities, County-Wide	Hurricane Preparedness-knowing what to do before during and after the storm	1200	10/24/2017	1/22/2025			**Summer Mahr**
Largo	Facebook/Twitter outreach (Sep 19, 2016-Oct 24 2017) Continuously Updated	Educational Outreach via web links, infographics, and videos.	Facebook, Twitter	Citizens of Largo and nearby municipalities, County-wide	El Nino, Alert Pinellas, Zika, Hurricane Preparedness, Heatstroke, Floods, National Prep Month, Hurricane Irma Updates	Over 20,000	10/24/2017	1/22/2025			**Summer Mahr**
Largo	Hurricane Door Hanger Project, Aug-Present, (continuous project)	Educational Door hanger	Canvas of door hangers to residents in different evacuation zones (starting with "A")	City Residents	Hurricane Preparedness	5000	10/24/2017	1/22/2025			**Summer Mahr**
Largo	Pinellas County All Hazards Guide Distribution	Educational Newspaper Guide	Various Educational Outreach Events and Expos	City Residents	Hurricane Preparedness	800	10/24/2017	1/22/2025			**Summer Mahr**

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Largo Fire Rescue	Facebook/Twitter outreach	Educational Outreach via web links, infographics, and videos.	Social Media	Municipality	Hurricane Preparedness, emergency alerts, preparations before, during, and after the storm.	Over 20,000	12/18/18	1/22/2025			**Summer Mahr**
Largo Fire Rescue	After Hours Business Expo-Chamber of Commerce (3/01/18)	Shared business preparedness information with businesses in regards to making a hurricane and emergency disaster plan	Tabling Event	Business Owners	Hurricane preparedness for business owners and residents	300	12/18/18	1/22/2025			**Summer Mahr**
Largo Fire Rescue	Healthcare and Hazards Hurricane Expo(3/14/18)	Teamed up with PCEM with a safety table to share hurricane preparedness information to healthcare providers and staff.	Tabling Event	Municipality	Hurricane Preparedness	400	12/18/18	1/22/2025			**Summer Mahr**
Largo Fire Rescue	El Dorado Village MHP Hurricane Prep (3/14/18)	Taught residents preparedness steps for before, during, and after the storm	Presentation	El Dorado Village Residents	Hurricane Preparedness	40	12/18/18	1/22/2025			**Summer Mahr**
Largo Fire Rescue	Four Seasons MHP Hurricane Prep	Taught residents preparedness steps for before, during, and after the storm	Presentation	Four Seasons Residents	Hurricane Preparedness	200	12/18/18	1/22/2025			**Summer Mahr**
Largo Fire Rescue	Yankee Traveler RV Park	Taught residents preparedness steps for before, during, and after the storm	Presentation	Yankee Traveler RV Park	Hurricane Preparedness	30	12/18/18	1/22/2025			**Summer Mahr**
Largo Fire Rescue	Paradise Island MHP Hurricane Preparedness	Teamed up with Pinellas County EM Ambassador Barry Damaino to teach hurricane preparedness to citizens	Presentation	Paradise Island MHP Residents	Hurricane Preparedness	80	12/18/18	1/22/2025			**Summer Mahr**
Largo Fire Rescue	Belleair Bluffs Hurricane Symposium	Symposium held with several other agencies to give hurricane preparedness information to citizens of Belleair Bluffs and Town of Belleair	Presentation	Belleair Bluffs, Town of Belleair, and Largo Citizens	Hurricane Preparedness	80	12/18/18	1/22/2025			**Summer Mahr**
Largo Fire Rescue	Sound the Alarm Smoke Alarm Campaign	In addition to installing smoke alarms, citizens were left with hurricane preparedness information from the Red Cross	Handouts	Largo Citizens	Hurricane Preparedness	80	12/18/18	1/22/2025			**Summer Mahr**
Largo Fire Rescue	Shady Lane Oaks Hurricane Preparedness	Presentation to MHP residents regarding hurricane preparedness	Presentation	Shady Lane Oaks Residents	Hurricane Preparedness	45	12/18/18	1/22/2025			**Summer Mahr**
Largo Fire Rescue	Imperial Palms Apartments Hurricane Prep	Presentation to apartment senior residents regarding hurricane preparedness. Teamed up with Community Policing Officer Vu Tran to discuss	Presentation	Imperial Palms Residents	Hurricane Preparedness	50	12/18/18	1/22/2025			**Summer Mahr**
Largo Fire Rescue	Hurricane Prep at Regal Palms	Summer on speakers panel to present hurricane preparedness information to citizens that live throughout the city—this event was not for regal palms residents as they are already part of the facilities preparedness plan	Presentation	Largo Citizens	Hurricane Preparedness	80	12/18/18	1/22/2025			**Summer Mahr**
Largo Fire Rescue	Hurricane Prep at Pinellas Heights	Hurricane preparedness presentation for residents of Pinellas Heights	Presentation	Pinellas Heights residents	Hurricane Preparedness	70	12/18/18	1/22/2025			**Summer Mahr**
Largo Fire Rescue	Hurricane Prep at Ranchero Village	Hurricane preparedness presentation for residents of Ranchero Village MHP	Presentation	Ranchero Village residents	Hurricane Preparedness	70	12/18/18	1/22/2025			**Summer Mahr**
Largo Fire Rescue	Hurricane Prep at The Barrington	Hurricane preparedness presentation for residents of The Barrington	Presentation	Barrington Residents	Hurricane Preparedness	20	12/18/18	1/22/2025			**Summer Mahr**
Largo Fire Rescue	Hurricane Prep at Lakeview of Largo	Hurricane preparedness presentation for residents of Lakeview Largo Condos	Presentation	Lakeview Residents	Hurricane Preparedness	50	12/18/18	1/22/2025			**Summer Mahr**
Largo Fire Rescue	Hurricane Prep at Indian Rocks Baptist Church	Hurricane preparedness presentation for Largo residents and members of the church	Presentation	Largo Citizens	Hurricane Preparedness	60	12/18/18	1/22/2025			**Summer Mahr**
Largo Fire Rescue	Hurricane Prep at La Plaza MHP	Hurricane preparedness presentation for La Plaza MHP residents	Presentation	La Plaza Residents	Hurricane Preparedness	20	12/18/18	1/22/2025			**Summer Mahr**
Largo Fire Rescue	Hurricane Prep at Lincolnshire MHP	Hurricane preparedness presentation for Lincolnshire MHP residents	Presentation	Lincolnshire Residents	Hurricane Preparedness	120	12/18/18	1/22/2025			**Summer Mahr**
Largo Fire Rescue	Hurricane Prep at West Bay Oaks MHP	hurricane preparedness presentation for West Bay Oaks residents	Presentation	West Bay Oaks Residents	Hurricane Preparedness	15	12/18/18	1/22/2025			**Summer Mahr**
Largo Fire Rescue	Anti-Pesto Pest Control Hurricane Prep	Educated staff on hurricane preparedness for home and business	Presentation	Anti Pesto Employees	Hurricane Preparedness	25	12/18/18	1/22/2025			**Summer Mahr**
Largo Fire Rescue	Largo Fire Rescue Annual Hurricane Preparedness Event	Prepared citizens on hurricane safety with a speakers panel and vendor tables	Presentation	Largo Citizens	Hurricane Preparedness	120	12/18/18	1/22/2025			**Summer Mahr**
Largo Fire Rescue	El Dorado Village MHP Hurricane Prep	Hurricane Preparedness Presentation for Residents-this is a re-visit	Presentation	El Dorado Village Residents	Hurricane Preparedness	10	12/18/18	1/22/2025			**Summer Mahr**
Largo Fire Rescue	Hurricane Prep at Greater Ridgecrest Area Youth Development Initiative Center	Hurricane Preparedness Presentation for Residents of the Ridgecrest Community	Presentation	Ridgecrest Residents	Hurricane Preparedness	20	12/18/18	1/22/2025			**Summer Mahr**
Largo Fire Rescue	Pinellas County All Hazards Guide Distribution	Distribution of guide to citizens of Largo, Belleair Bluffs, and Belleair	All Hazards Guide Handout	Municipality Citizens	All Hazards-with focus on hurricane preparedness	800	12/18/18	1/22/2025			**Summer Mahr**
Largo Fire Rescue	Pinellas County All Hazards Guide, Alert Pinellas and Special Needs Registry information Distribution (2019)	Distribution of guide to citizens of Largo, Belleair Bluffs, and Belleair	All Hazards Guide Handout	Municipality Citizens	All Hazards-with focus on hurricane preparedness	3,000	10/31/2019	1/22/2025			**Summer Mahr**

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Largo Fire Rescue	Hurricane Preparedness Expo (2019)	Preparation for Citizen Before During and After the Strorm	Face to Face Presentation	Citizens	Hurricane preparedness	200	10/31/2019	1/22/2025			**Summer Mahr**
Largo Fire Rescue	New Employee and Supervisor Orientation	Educate employees on their responder status within the City and expectation to prepare their homes and families before the storm	Face to Face Presentation	City of Largo Employees	Emergency preparedness-hurricanes	200	10/31/2019	1/22/2025			**Summer Mahr**
Largo Fire Rescue	Florida County and City Managers Association-A Citywide Approach to Emergency Management	Educated city and county partners on the City of Largo's Citywide approach to emergency management	face to face presentation	city and county managers, fire department officers	Emergency Management	35	10/31/2019	1/22/2025			**Summer Mahr**
Largo Fire Rescue	Mobile Home Park Hurricane Preparedness Door Hanger Project (Countywide Initiative-Annually)	Educated mobile home residents on the importance of evacuation and storm preparedness	door hanger canvass	mobile home park residents	hurricane preparedness	17,000	10/31/2019	1/22/2025			**Summer Mahr**
Largo Fire Rescue	Emergency Management Planning Committee Meetings	Section Chiefs and Managers meet monthly to discuss action items for emergency management preparedness in the City	face to face	City Employeees	emergency management-hurricane preparedness	15	10/31/2019	1/22/2025			**Summer Mahr**
Largo Fire Rescue	Emergency Management Week	City wide training to all departments on emergency management	face to face	City employees	emergency management - hurricane preparedness	all Largo Employees	10/31/2019	1/22/2025			**Summer Mahr**
Largo Fire Rescue	Hurricane Preparedness Messages through Facebook, Twitter, Nextdoor and our City Website	Hurricane preparedness posts on all social media outlets	Social Media	Citizens	emergency management hurricane preparedness, flooding, etc	50,000+	10/31/2019	1/22/2025			**Summer Mahr**
Largo Fire Rescue	Hurricane Preparedness Presentations	Face to Face Presentations to Largo Citizens on preparedness before, during, and after the storm to various mobile home parks, living communities, organizations, and HOAs	face to face	Citizens	Hurricane Preparedness	2,000	10/31/2019	1/22/2025			**Summer Mahr**
Largo Fire Rescue	Tornado Drill (Annually in January)	City Staff participates in the Statewide Tornado Drill	Tornado Drill Exercise	City Departments	Tornado Preparedness	all city employees	10/16/2017	1/22/2025	10/31/2019		**Summer Mahr**
Largo Fire Rescue	Hurricane Preparedness Webinar for Manufactured Home Communities	Face to Face Presentations to Largo Citizens on preparedness before, during, and after the storm to various mobile home parks, living communities, organizations, and HOAs	Online/Webinar	Citizens	Hurricane Preparedness	75	2/23/2023	1/22/2025			**Summer Mahr**
Largo Fire Rescue	Largo Fire Rescue Open House	Face to Face Presentations to Largo Citizens on preparedness before, during, and after the storm to various mobile home parks, living communities, organizations, and HOAs	face to face	Citizens	Largo Fire Rescue Open House	500	3/4/2023	1/22/2025			**Summer Mahr**
Largo Fire Rescue	Hurricane Preparedness Presentation at Embassy Manufactured Home Community	Face to Face Presentations to Largo Citizens on preparedness before, during, and after the storm to various mobile home parks, living communities, organizations, and HOAs	face to face	Citizens	Hurricane Preparedness	70	3/15/2023	1/22/2025			**Summer Mahr**
Largo Fire Rescue	Hurricane Prep Presentation for Pinellas County Wide MHP Residents	Face to Face Presentations to Largo Citizens on preparedness before, during, and after the storm to various mobile home parks, living communities, organizations, and HOAs	face to face	Citizens	Hurricane Preparedness	70	3/28/2023	1/22/2025			**Summer Mahr**
Largo Fire Rescue	Belleair Bluffs Hurricane Preparedness Expo	Face to Face Presentations to Largo Citizens on preparedness before, during, and after the storm to various mobile home parks, living communities, organizations, and HOAs	face to face	Citizens	Hurricane Preparedness	50	5/2/2023	1/22/2025			**Summer Mahr**
Largo Fire Rescue	Hurricane Preparedness Presentation at Four Seasons Manufactured Home Community	Face to Face Presentations to Largo Citizens on preparedness before, during, and after the storm to various mobile home parks, living communities, organizations, and HOAs	face to face	Citizens	Hurricane Preparedness	70	5/17/2023	1/22/2025			**Summer Mahr**
Largo Fire Rescue	Hurricane Preparedness Expo (Hosted by Largo Fire and Pinellas County)	Face to Face Presentations to Largo Citizens on preparedness before, during, and after the storm to various mobile home parks, living communities, organizations, and HOAs	face to face	Citizens	Hurricane Preparedness	700	6/3/2023	1/22/2025			**Summer Mahr**
Largo Fire Rescue	Hurricane Preparedness Presentation Teakwood West Manufactured Home Community	Face to Face Presentations to Largo Citizens on preparedness before, during, and after the storm to various mobile home parks, living communities, organizations, and HOAs	face to face	Citizens	Hurricane Preparedness	100	6/6/2023	1/22/2025			**Summer Mahr**
Largo Fire Rescue	Hurricane Preparedness Presentation Paradise Island Manufacured Home Community	Face to Face Presentations to Largo Citizens on preparedness before, during, and after the storm to various mobile home parks, living communities, organizations, and HOAs	face to face	Citizens	Hurricane Preparedness	100	6/6/2023	1/22/2025			**Summer Mahr**
Largo Fire Rescue	Hurricane Preparedness Presentation El Dorado Village Manufacured Home Community	Face to Face Presentations to Largo Citizens on preparedness before, during, and after the storm to various mobile home parks, living communities, organizations, and HOAs	face to face	Citizens	Hurricane Preparedness	25	6/14/2023	1/22/2025			**Summer Mahr**

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Largo Fire Rescue	Hurricane Preparedness Presentation Ranch Manufacured Home Community	Face to Face Presentations to Largo Citizens on preparedness before, during, and after the storm to various mobile home parks, living communities, organizations, and HOAs	face to face	Citizens	Hurricane Preparedness	80	6/15/2023	1/22/2025			**Summer Mahr**
Largo Fire Rescue	Hurricane Preparedness Presentation at Imperial Palms Senior Apartments	Face to Face Presentations to Largo Citizens on preparedness before, during, and after the storm to various mobile home parks, living communities, organizations, and HOAs	face to face	Citizens	Hurricane Preparedness	80	6/21/2023	1/22/2025			**Summer Mahr**
Largo Fire Rescue	Hurricane Preparedness Presentation at Oak Crest Manufactured Home Community	Face to Face Presentations to Largo Citizens on preparedness before, during, and after the storm to various mobile home parks, living communities, organizations, and HOAs	face to face	Citizens	Hurricane Preparedness	75	7/6/2023	1/22/2025			**Summer Mahr**
Largo Fire Rescue	Hurricane Preparedness Presentation at The Barrington Assisted Living Facility	Face to Face Presentations to Largo Citizens on preparedness before, during, and after the storm to various mobile home parks, living communities, organizations, and HOAs	face to face	Citizens	Hurricane Preparedness	50	7/18/2023	1/22/2025			**Summer Mahr**
Largo Fire Rescue	Hurricane Preparedness Presentation at Pinellas Heights Senior Apartments	Face to Face Presentations to Largo Citizens on preparedness before, during, and after the storm to various mobile home parks, living communities, organizations, and HOAs	face to face	Citizens	Hurricane Preparedness	50	8/16/2023	1/22/2025			**Summer Mahr**
Largo Fire Rescue	Hurricane Preparedness Presentation at Oak Manor Assisted and Independent Living Community	Face to Face Presentations to Largo Citizens on preparedness before, during, and after the storm to various mobile home parks, living communities, organizations, and HOAs	face to face	Citizens	Hurricane Preparedness	50	8/17/2023	1/22/2025			**Summer Mahr**
Largo Fire Rescue	Hurricane Preparedness Presentation at Lake House Assisted Living Facility	Face to Face Presentations to Largo Citizens on preparedness before, during, and after the storm to various mobile home parks, living communities, organizations, and HOAs	face to face	Citizens	Hurricane Preparedness	40	8/24/2023	1/22/2025			**Summer Mahr**
Largo Fire Rescue	Hurricane Preparedness Table Display a Largo Community Center	Face to Face Presentations to Largo Citizens on preparedness before, during, and after the storm to various mobile home parks, living communities, organizations, and HOAs	face to face	Citizens	Hurricane Preparedness	200	8/7-8/31 2023	1/22/2025			**Summer Mahr**
Largo Fire Rescue	Pride in Your Park	Educated over 100 mobile home park managers and HOA presidents on the importance of hurricane evacuations and storm preparedness	face to face presentation	mobile home park managers and HOA presidents	Hurricane Preparedness	120	10/31/2019	1/22/2025	10/31/2019		**Summer Mahr**
Madeira Beach	Flood Insurance Reminder via City Billboard	Sign urging residents to call the Floodplain Manager regarding flood insurance	Electronic Billboard at City Hall	Residents of Madeira Beach	Flood insurance	500	11/17/2020	1/22/2025	10/27/2021		**Jenny Rowan**
Madeira Beach	Letters to owners of properties within repetitive loss areas.	Annual outreach. Education and where to get more information.	USPS - First Class Mail	Owners of repetitive loss properties.	Flood insurance and hurricane/flood preparedness	169	9/19/2014	1/22/2025	10/20/2022		**Jenny Rowan**
Madeira Beach	Library Educational Material	Above the Flood, NFIP, Substantially Damaged Building, Before and After Disasters, Coastal construction manual, Elevated residential structures, Engineering principles and practices, Floodproofing non-residential structures, Requirements for buildings located in flood zone, Guide to retrofitting, Mitigation of Flood and Erosion, Non-Residential floodproofing, Protecting Utilties, Protecting floodplain resources, Reducing damage, Reducing losses, Taking Shelter	Gulf Beaches Library circulation and electronic versions at www.fema.gov/library	Citizens and visitors	Flooding issues, emergency preparedness, and evacuation. Access to property after the event.	500	10/6/2016	1/22/2025	11/4/2021		**Jenny Rowan**

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Madeira Beach	Brochure – A Guide to Flood Mitigation	Brochures	Displayed in (3) public locations in town	Citizens and visitors	What is Mitigation, Build responsibly and protect Natural Floodplain Resources	500	10/6/2016	1/22/2025	11/4/2021		**Jenny Rowan**
Madeira Beach	Brochure – Did you know homeowner's insurance does not cover a flood?	Brochures	Displayed in (3) public locations in town	All residents in high risk flooding areas and tourists.	Did you know homeowner's insurance does not cover a flood? Insure your property against flooding.	500	10/6/2016	1/22/2025	10/6/2016		**Jenny Rowan**
Madeira Beach	Brochure - Why do I Need Flood Insurance?	Brochures	Displayed in (3) public locations in town	All residents in high risk flooding areas and tourists.	Benefits of flood insurance.	500	11/17/2020	1/22/2025	11/26/2021		**Jenny Rowan**
Madeira Beach	Brochure – A guide to flood safety.	Brochures	Displayed in (3) public locations in town	All residents in high risk flooding and tourists	A guide to flood safety. Know your hazard. Turn around, don't drown. Flood watch vs. flood warning, flood safety tips.	500	10/6/2016	1/22/2025	10/6/2016		**Jenny Rowan**
Madeira Beach	Brochure – Did you know homeowner's insurance does not cover a flood?	Brochures	Displayed in (3) public locations in town	All residents in high risk flooding areas and tourists.	Did you know homeowner's insurance does not cover a flood? Insure your property against flooding.	500	10/6/2016	1/22/2025	10/6/2016		**Jenny Rowan**
Madeira Beach	Director's Annual Letter and "Your Guide to Flood Information in Madeira Beach" brochure	Letter and Brochure	Mass mail to all Madeira Beach property owners	Information to residents, what to know about Madeira Beach's efforts relative to special flood hazard areas.	Protect your property from flooding, know your risk, building in floodplain, flood insurance	4,000	11/17/2020	1/22/2025	8/19/2022		**Jenny Rowan**
Madeira Beach	Post Disaster Consumer Tips	Brochures	Displayed in (3) public locations around town	All residents in high risk flooding areas and tourists.	Flooding, natural disasters, how to stay safe, Turn around don't drown. How to stay safe and what to do and what not to do during a natural disaster	500	10/6/2016	1/22/2025	10/6/2016		**Jenny Rowan**
Madeira Beach	Elevation Certificates	EC's available to view or download	Website	All residents of Madeira Beach and potential property owners		250	11/17/2020	1/22/2025	5/2/2022		**Jenny Rowan**
Madeira Beach	NFIP, FP Mgmt, Find your Flood Zone, Be Prepared, Know your Evacuation Zone, Directors Annual Letter, Beach Flood Facts, Flood Map FIRM, Agency Resources, Publications list, Get Flood Insurance, FEMA mapped flood information, Limit moderate wave action, Monthly advice for residents	Educational material and links to information and agencies	Website	All residents of Madeira Beach	Flooding/storm preparation and mitigation	500	11/17/2020	1/22/2025	11/26/2021		**Jenny Rowan**
Madeira Beach	Annual Hurricane Expo	Onsite event with vendors, speakers, and guest meteorologist	Public Meeting/YouTube	Citizens of Madeira Beach	Hurricane preparedness, including evacuation procedures, securing property, etc.	750	10/19/2021	1/22/2025	4/9/2022		**Jenny Rowan**
Madeira Beach	Monthly updates	Social Media flooding awareness	Social Media	Citizens	Flooding Preparedness, Flood Insurance	1,000	10/27/2021	1/22/2025			**Jenny Rowan**
Madeira Beach	Site Visits	Staff meet with property owners upon request to assist with property hazard mitigation and flooding issues	Site Visits	Citizens	Flooding preparedness, mitigation	<100	11/4/2021	1/22/2025			**Jenny Rowan**
Madeira Beach	Annual LMS Report to Board of Commissioners	City staff presents the annual LMS, floodplain management planning update to BOC	Presentation to BOC at public meeting, on YouTube, and through Spectrum (cable)	Citizens	Flooding preparedness, mitigation	200	11/4/2021	1/22/2025			**Jenny Rowan**
Madeira Beach	Storm Drain Markers	Markers on every storm drain in City	Markers	Citizens	Only rain down the drain	4,000	11/4/2021	1/22/2025			**Jenny Rowan**

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Madeira Beach	Emergency Management Meetings	Annual training, post-disaster recovery	Meeting and neighborhood assessment	Impacted residents	Flood resources	~500	11/4/2021	1/22/2025			**Jenny Rowan**
North Redington Beach	NRB News	Annual Newsletter	Mailing	Municipality	Protect your property from the hazard, know your risk, insure your property, public safety information, build responsibility, protect natural functions, make your family/ business disaster plan, hurricane information	1,150	8/20/2014	1/22/2025			**Renee Schmader**
North Redington Beach	You live in a Special Flood Hazard Area	Annual Flyer	Mailing	Municipality	Protect your property from the hazard, know your risk, insure your property, public safety information, build responsibility, protect natural functions, make your family/ business disaster plan, hurricane information	1,150	8/20/2014	1/22/2025			**Renee Schmader**
North Redington Beach	Town Website	Website	Website	Municipality	Protect your property from the hazard, know your risk, insure your property, public safety information, build responsibility, protect natural functions, make your family/ business disaster plan, hurricane information	1,150	8/20/2014	1/22/2025			**Renee Schmader**
North Redington Beach	After the Flood	Door Flyer	Hand Delivery after a flood event	Municipality	Protect your property from the hazard, know your risk, insure your property, public safety information, build responsibility, protect natural functions, make your family/ business disaster plan, hurricane information.	1,150	8/20/2014	1/22/2025			**Renee Schmader**
Oldsmar	Repetitive Loss Mailer	Notice to property owner's residing in City's mapped repetitive loss area	Mailing	Repetitive loss area residentents	Flood protection measures/protecting property	277	11/3/2023	1/22/2025	4/5/2023		**Mandi Clark**
Oldsmar	Signage - Only Rain Down Drain	Signage	Visual	Muncipality	Prevent Stormwater Dumping	15,000	11/3/2023	1/22/2025	11/30/2023		**Debb Vitraelli**
Oldsmar	Building permit brochure with SFHA map	Information for construction within the SFHA	Brochure/Publication	Floodplain Residents	Build Responsibly/Know your risk	8,500	10/16/2014	1/22/2025	11/30/2023		**Tatiana Childress**
Oldsmar	Pinellas County Hurricane Guide	Hurricane Guide available at City facilities	Brochure/Publication	County-wide	General Guidelines on Disaster Preparedness	920,000	10/16/2014	1/22/2025	11/30/2023		**Tatiana Childress**
Oldsmar	Mandatory Purchase of Insurance Flyer	Information about who is obligated under law to purchase flood insurance	Mailing	Floodplain Residents	Insure your property for your hazard(s)	8,500	10/16/2014	1/22/2025	11/30/2023		**Tatiana Childress**
Oldsmar	Alert Pinellas notice on utility bills	Service that notifies residents of disaster warnings	Mailing	Municipality	Public Safety Information (ex. Turn Around Don't Drown)	14,000	10/16/2014	1/22/2025	11/30/2023		**Tatiana Childress**

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Oldsmar	NOAA Extreme Weather information sheet	Information about extreme weather	Brochure/ Publication	Municipality	Public Safety Information (ex. Turn Around Don't Drown)	14,000	10/16/2014	1/22/2025	11/30/2023		**Tatiana Childress**
Oldsmar	Hurricane Season signs on Welcome to Oldsmar signs	Signs placed so motorists know it is hurricane season	Signage	Motorists	Make your Family/ Business Disaster Plan	70,000	10/16/2014	1/22/2025	11/30/2023		**Tatiana Childress**
Oldsmar	Hurricane planning sign on City Hall sign	Sign placed for motorists to remind them to get an evacuation plan	Signage	Motorists	Make your Family/ Business Disaster Plan	55,000	10/16/2014	1/22/2025	11/30/2023		**Tatiana Childress**
Oldsmar	Storm Surge Signage	Signs placed showing height of storm surge	Signage	Municipality	Life Threatening	15,000	11/30/2023	1/22/2025	11/30/2023		**Debb Vitraelli**
Oldsmar	Storm Surge Street Signs	Storm Surge Signs on Stop Signs indicating approx surge level per location	Multimodal	Municipality	Know your risk	100,000	11/29/2022	1/22/2025	11/30/2023	Partnership with County	**Debb Vitraelli**
Oldsmar	Community Event	Expo for hurricane preparedness, with local partners	Magazine, Digital, Website, City Eblast	Municipality	Prepare for Hurricane Season	15,000	11/30/2023	1/22/2025	11/30/2023		**Debb Vitraelli**
Oldsmar	Information distributed through Upper Tampa Bay Chamber of Commerce	Hurricane information given to business owners	Newsletter	Businesses	Make your Family/ Business Disaster Plan	350	10/16/2014	1/22/2025	11/30/2023		**Tatiana Childress**
Oldsmar	Elevation Certificates on website	All available elevation certificates on website for download	Website	Floodplain Residents	Build Responsibly	8,500	10/16/2014	1/22/2025	1/15/2023		**Tatiana Childress**
Oldsmar	Letter sent to all lenders in City	Flood zone map flyer and mandatory insurance flyer included	Mailing	Lending	Know your risk	8	10/16/2014	1/22/2025	11/15/2023		**Tatiana Childress**
Oldsmar	Letter sent to all real estate agents in City	Flood zone map flyer and mandatory insurance flyer included	Mailing	Real Estate Agents	Know your risk	42	10/16/2014	1/22/2025	1/15/2023		**Tatiana Childress**
Oldsmar	Letter sent to all insurance companies doing business in the City	Flood zone map flyer and mandatory insurance flyer included	Mailing	Insurance	Insure your property for your hazard(s)	200	10/16/2014	1/22/2025	1/15/2023		**Tatiana Childress**
Oldsmar	Public Meeting	Public meeting with local HOA representatives	In-person	HOA Representatives, Property Management	Hurricane and Flooding Education	10	12/23/2020	1/22/2025	11/30/2023		**Tatiana Childress**
Oldsmar	Public Meeting	Hurricane Preparedness Presentation	In-person	Oldsmar Neighborhood Association	Hurricane and Flooding Education	30	7/1/2023	1/22/2025	11/30/2023		**Debb Vitraelli**
Oldsmar	Public Meeting	Public meeting with Subdivision residents	In-person	Subdvision residents	Infrastructure and Draining Improvements, Flood Awareness	17	12/23/2020	1/22/2025	12/15/2017		**Tatiana Childress**
Oldsmar	Website	Digital Resource	Digital	Website Visitor	Flood Smart FEMA Assistance	365,000	11/30/2023	1/22/2025	11/30/2023		**Debb Vitraelli**
Oldsmar	Website	Digital Resource	Digital	Website Visitor	Know Flood Zone, Know Evacuation Zone	365,000 visitors	12/23/2020	1/22/2025	11/30/2023		**Debb Vitraelli**
Oldsmar	Website	Digital Resource	Digital	Website Visitor	County Hurricane Preparedness Guide link	365,000 visitors	12/23/2020	1/22/2025	11/30/2023		**Debb Vitraelli**
Oldsmar	Website	Digital Resource	Digital	Website Visitor	Alert Pinellas Register	365,000 visitors	12/23/2020	1/22/2025	11/30/2023		**Debb Vitraelli**
Oldsmar	Website	Digital Resource	Digital	Website Visitor	Tools, Resources to assist before, during, & after a disaster strikes.	365,000 visitors	12/23/2020	1/22/2025	11/30/2023		**Debb Vitraelli**
Oldsmar	Website	Digital Resource	Digital	Website Visitor	Local Mitigation Strategy	365,000 visitos	11/30/2023	1/22/2025	11/30/2023		**Debb Vitraelli**
Oldsmar	Website	Digital Resource	Digital	Website Visitor	Look up Property FIRM	365,000	11/30/2023	1/22/2025	11/30/2023		**Debb Vitraelli**
Oldsmar	Website	Digital Resource	Digtal	Website Visitor	Nat Flood Ins Program	365,000	11/30/2023	1/22/2025	11/30/2023		**Debb Vitraelli**

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Oldsmar	Website	Digital Resource	Digital	Website Visitor	Evacuation Assistance	365,000	11/30/2023	1/22/2025	11/30/2023		**Debb Vitraelli**
Oldsmar	Website	Digital Resource	Digtal	Website Visitor	Pinellas LMS Group	365,000	11/30/2023	1/22/2025	11/30/2023		**Debb Vitraelli**
Oldsmar	Website	Digital Resource	Digital	Website Visitor	Tornado Information	365,000	11/30/2023	1/22/2025	11/30/2023		**Debb Vitraelli**
Oldsmar	Website	Digital Resource	Digital	Website Visitor	Flood Facts	365,000	11/30/2023	1/22/2025	11/30/2023		**Debb Vitraelli**
Oldsmar	Website	Digital Resource	Digital	Website Visitor	FEMA Direct Link	365,000 visitors	11/30/2023	1/22/2025	11/30/2023		**Debb Vitraelli**
Oldsmar	Website	Digital Resource	Digital	Website Visitor	Know Your Flood Risk	365,000	11/30/2023	1/22/2025	11/30/2023		**Debb Vitraelli**
Oldsmar	Website	Digital Resource	Digital	Website Visitor	Disaster Prep	365,000 visitors	11/30/2023	1/22/2025	11/30/2023		**Debb Vitraelli**
Oldsmar	Website	Digital Resource	Digital	Website Visitor	PCEM Resource	365,000 visitors	11/30/2023	1/22/2025	11/30/2023		**Debb Vitraelli**
Oldsmar	Website	Digital Resource	Digital	Website Visitor	Nat Hurricane Center	365,000 visitors	11/30/2023	1/22/2025	11/30/2023		**Debb Vitraelli**
Oldsmar	Website	Digital Resource	Digital	Website Visitor	Nat Weather Service	365,000 visitors	11/30/2023	1/22/2025	11/30/2023		**Debb Vitraelli**
Oldsmar	Website	Digital Resource	Digital	Website Visitor	Tree Debris	365,000 visitors	11/30/2023	1/22/2025	11/30/2023		**Debb Vitraelli**
Oldsmar	Website	Digital Resource	Digital	Website Visitor	Yard Debris	365,000 visitors	11/30/2023	1/22/2025	11/30/2023		**Debb Vitraelli**
Oldsmar	Website	Digital Resource	Digital	Website Visitor	Storm Debris	365,000 visitors	11/30/2023	1/22/2025	11/30/2023		**Debb Vitraelli**
Oldsmar	Website	Digital Resource	Digital	Website Visitor	Shelters	365,000 visitors	11/30/2023	1/22/2025	11/30/2023		**Debb Vitraelli**
Oldsmar	Website	Digital Resource	Digital	Website Visitor	Pets	365,000 visitors	11/30/2023	1/22/2025	11/30/2023		**Debb Vitraelli**
Oldsmar	Website	Digital Resource	Digital	Website Visitor	Special Needs	365,000 visitors	11/30/2023	1/22/2025	11/30/2023		**Debb Vitraelli**
Oldsmar	Website	Digital Resource	Digital	Website Visitor	Boil Water Notice	365,000 visitors	11/30/2023	1/22/2025	11/30/2023		**Debb Vitraelli**
Oldsmar	Website	Digital Resource	Digital	Website Visitor	Disaster Links	365,000 visitors	11/30/2023	1/22/2025	11/30/2023		**Debb Vitraelli**
Oldsmar	Website	Digital Resource	Digital	Website Visitor	Disaster Plan	365,000 visitors	11/30/2023	1/22/2025	11/30/2023		**Debb Vitraelli**
Oldsmar	Website	Digital Resource	Digital	Website Visitor	Evacuation Zone	365,000 visitors	11/30/2023	1/22/2025	11/30/2023		**Debb Vitraelli**
Oldsmar	Website	Digital Resource	Digital	Website Visitor	Evacuation Route	365,000 visitors	11/30/2023	1/22/2025	11/30/2023		**Debb Vitraelli**

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Oldsmar	Website	Digital Resource	Digital	Website Visitor	Know Your Zone	365,000 visitors	11/30/2023	1/22/2025	11/30/2023		**Debb Vitraelli**
Oldsmar	Website	Digital Resource	Digital	Website Visitor	Flood Zone	365,000 visitors	11/30/2023	1/22/2025	11/30/2023		**Debb Vitraelli**
Oldsmar	Website	Digital Resource	Digital	Website Visitor	Repair Flooded Home	365,000 visitors	11/30/2023	1/22/2025	11/30/2023		**Debb Vitraelli**
Oldsmar	Website	Digital Resource	Digital	Website Visitor	Traffic Tips	365,000 visitors	11/30/2023	1/22/2025	11/30/2023		**Debb Vitraelli**
Oldsmar	Website	Digital Resource	Digital	Website Visitor	Traffic Signals	365,000 visitors	11/30/2023	1/22/2025	11/30/2023		**Debb Vitraelli**
Oldsmar	Website	Digital Resource	Digital	Website Visitor	Report Streetlight Out	365,000 visitors	11/30/2023	1/22/2025	11/30/2023		**Debb Vitraelli**
Oldsmar	Website	Digital Resource	Digital	Website Visitor	Sandbag Disposal	365,000 visitors	11/30/2023	1/22/2025	11/30/2023		**Debb Vitraelli**
Oldsmar	Website	Digital Resource	Digital	Website Visitor	Sandbag Use	365,000 visitors	11/30/2023	1/22/2025	11/30/2023		**Debb Vitraelli**
Oldsmar	Website	Digital Resource	Digital	Website Visitor	Storm Surge	365,000 visitors	11/30/2023	1/22/2025	11/30/2023		**Debb Vitraelli**
Oldsmar	Website	Digital Resource	Digital	Website Visitor	Street Flooding	365,000 visitors	11/30/2023	1/22/2025	11/30/2023		**Debb Vitraelli**
Oldsmar	Website	Digital Resource	Digital	Website Visitor	Streets & Stormwater	365,000 visitors	11/30/2023	1/22/2025	11/30/2023		**Debb Vitraelli**
Oldsmar	Website	Digital Resource	Digital	Website Visitor	Down Power Lines	365,000 visitors	11/30/2023	1/22/2025	11/30/2023		**Debb Vitraelli**
Oldsmar	Website	Digital Resource	Digital	Website Visitor	Tampa Electric	365,000 visitors	11/30/2023	1/22/2025	11/30/2023		**Debb Vitraelli**
Oldsmar	Website	Digital Resource	Digital	Website Visitor	Power Outage	365,000 visitors	11/30/2023	1/22/2025	11/30/2023		**Debb Vitraelli**
Oldsmar	Video	Hurricane Prep	Digital	Website, Social Media, YouTube Subscribers	Important Message for Hurricane Preparedness	450,000	11/30/2023	1/22/2025	11/30/2023		**Debb Vitraelli**
Oldsmar	City Eblast	Digital Resource	Digtal	Subscribers	Hurricane Resources	450,000	11/30/2023	1/22/2025	11/30/2023		**Debb Vitraelli**
Oldsmar	City Eblast	Digital Resource	Digtal	Subscribers	Flood Insurance	450,000	11/30/2023	1/22/2025	11/30/2023		**Debb Vitraelli**
Oldsmar	City Eblast	Digital Resource	Digtal	Subscribers	FEMA Assistance	450,000	11/30/2023	1/22/2025	11/30/2023		**Debb Vitraelli**
Oldsmar	City Eblast	Digital Resource	Digtal	Subscribers	Hurricane Guide	450,000	11/30/2023	1/22/2025	11/30/2023		**Debb Vitraelli**
Oldsmar	City Eblast	Digital Resource	Digtal	Subscribers	Ready Pinellas App	450,000	11/30/2023	1/22/2025	11/30/2023		**Debb Vitraelli**
Oldsmar	City Eblast	Digital Resource	Digtal	Subscribers	Evacuation Zones	450,000	11/30/2023	1/22/2025	11/30/2023		**Debb Vitraelli**
Oldsmar	City Eblast	Digital Resource	Digtal	Subscribers	ALERT Pinellas	450,000	11/30/2023	1/22/2025	11/30/2023		**Debb Vitraelli**
Oldsmar	City Eblast	Digital Resource	Digtal	Subscribers	Flood Zones	450,000	11/30/2023	1/22/2025	11/30/2023		**Debb Vitraelli**
Oldsmar	City Eblast	Digital Resource	Digtal	Subscribers	Ready, Plan	450,000	11/30/2023	1/22/2025	11/30/2023		**Debb Vitraelli**
Oldsmar	City Eblast	Digital Resource	Digtal	Subscribers	Set, Prepare	450,000	11/30/2023	1/22/2025	11/30/2023		**Debb Vitraelli**
Oldsmar	City Eblast	Digital Resource	Digtal	Subscribers	Protect, Learn	450,000	11/30/2023	1/22/2025	11/30/2023		**Debb Vitraelli**

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Oldsmar	Magazine Article	Tri-annual publication	Print, Digital	Residents, Public	Hurricane Preparedness	8,000	12/23/2020	1/22/2025	11/30/2023		**Debb Vitraelli**
Oldsmar	Magazine Article	Tri-annual publication	Print, Digital	Residents, Public	Fertilizer Ban	8,000	11/30/2023	1/22/2025	11/30/2023		**Debb Vitraelli**
Oldsmar	Magazine Article	Tri-annual publication	Print, Digital	Residents, Public	Buy Flood Insurance	8,000	12/23/2020	1/22/2025	11/30/2023		**Debb Vitraelli**
Oldsmar	Magazine Article	Tri-annual publication	Print, Digital	Residents, Public	Discounted Flood Insurance	8,000	12/23/2020	1/22/2025	11/30/2023		**Debb Vitraelli**
Oldsmar	Magazine Article	Tri-annual publication	Print, Digital	Residents, Public	Flood Zone Designations	8,000	12/23/2020	1/22/2025	11/30/2023		**Debb Vitraelli**
Oldsmar	Tornado Drill	City Staff participates in Tornado Drill, Community Promotion	Physical, Digital	City Departments, General Public	Tornado Preparedness	15,000	11/30/2021	1/22/2025	11/30/2023		**Debb Vitraelli**
Oldsmar	National Preparedness Month	Social Media campaign	Daily topics	General public	Hurricane Preparedness	25,000	11/30/2023	1/22/2025	11/30/2023		**Debb Vitraelli**
Oldsmar	Florida Severe Weather Week	Social Media campaign for prep, resouces for severe weather	Daily topics	General public	Various weather scenarios	25,000	11/30/2021	1/22/2025	11/30/2023		**Debb Vitraelli**
Oldsmar	Hurricane Preparedness Week	Social Media campaign promoting proper hurricane preparations and resources	Daily topics	General public	Flood Insurance, Evacuation, Hurricane Guide, Strengthen Home, Written	25,000	12/23/2020	1/22/2025	11/30/2023		**Debb Vitraelli**
Oldsmar	ALERT Pinellas promotion	Social Media campaign promoting sign up for emergency notifications	Frequent Reminders	General public	Free Service, Reminders pre-storm events, multiple receipt options, weather	25,000	12/23/2020	1/22/2025	11/30/2023		**Debb Vitraelli**
Oldsmar	Fertilizer Ban	Reminders via Social Media	Digital	General public	Fertilizer Ban June	25,000	11/18/2021	1/22/2025	11/30/2023		**Debb Vitraelli**
Oldsmar	2nd Friday Downtown	Event hosted by the Upper Tampa Bay Chamber of Commerce	Materials provided in-person to event attendees	General public	Hurricane Preparedness, OldsmarStrong.com magnets	2,000 per event	11/18/2021	1/22/2025	11/30/2023		**Debb Vitraelli**
Oldsmar	Save Our Bay Program	Save Our Bay - Vertical Oyster Gardens	City Facebook Page, Twitter, Instagram, Press Releases, City Manager	General public	VOGs help clean bay waters, program partnership with TB Watch	15,000	11/30/2021	1/22/2025	11/30/2023		**Debb Vitraelli**
Oldsmar	Coastal Cleanup	Keep coastal areas and shorelines clean.	City Facebook Page, Twitter, Instagram, Experience Oldsmar	General Public	Participants assigned various coastal plots to clean	35,000	11/30/2021	1/22/2025	11/30/2023		**Debb Vitraelli**
Oldsmar	Climate Resiliency Plan	Provide greater understanding of climate risks.	City Facebook Page, Twitter, Instagram, Experience Oldsmar	General Public	Identify perils of flood, educate public on risks, plan for future	35,000	11/30/2021	1/22/2025	11/30/2023		**Debb Vitraelli**
Oldsmar	Mobile Home Park - Public Outreach	In parternship with PCEM, distribution of annual Hurricane Guide to clubhouse	In person	General Public, Mobile Home Owners	Hurricane Preparedness	3,000	11/30/2021	1/22/2025	11/30/2023		**Debb Vitraelli**
Oldsmar	Mayor Podcast	Podcast segment on emergency, storm related events	Digital	General Public	Flooding, Mitigation, Hurricane, Natural Disasters, Wind, Water	15,000	11/30/2023	1/22/2025	11/30/2023		**Debb Vitraelli**
Oldsmar	Experience Oldsmar Podcast	Podcast segments released to majority of podcast hosting sites	Digital	General public	Flooding, Mitigation, Hurricane, Natural Disasters, Wind, Water,	15,000	11/30/2021	1/22/2025	11/30/2023		**Debb Vitraelli**
Oldsmar	OldsmarStrong.com	Custom URL for Emergency Management	Digital, Marketing Materials	General Public	Emergency Prepareness Resources	365,000 visitors	11/30/2021	1/22/2025	11/30/2023		**Debb Vitraelli**
Oldsmar	Rain Barrel Workshop	In person education on creating rain barrels	City Facebook Page, Twitter, Instagram, City Eblast, Organic Garden	General Public	Rain barrels for repurpose stormwater runoff	15,000	11/30/2023	1/22/2025	11/30/2023		**Debb Vitraelli**
Oldsmar	Rain Garden 101	In-Person Seminar	City Facebook Page, Twitter, Instagram, City Eblast, Organic Garden	General Public	Repurpose stormwater runoff, erosion control	8,000	11/30/2021	1/22/2025	11/30/2023		**Debb Vitraelli**
Oldsmar	Adopt-A-Street Program	City stormwater system and waterways cleaned via participation.	City Facebook Page, Twitter, Instagram, Experience Oldsmar	General Public	Participants adopt section of City-owned street and play role in maintenance of	35,000	11/30/2021	1/22/2025	11/30/2023		**Debb Vitraelli**
Oldsmar	Invasive Fish Roundup	Free fishing day to round up invasive species in local waterways	City Facebook Page, Twitter, Instagram, Experience Oldsmar	General Public	Help catch invasive species of fish to clean up ecosystem.	35,000	11/30/2021	1/22/2025	11/30/2023		**Debb Vitraelli**
Oldsmar	St. Petersburg Drive Complete Streets Public Meeting	Public Meeting for stakeholders	In Person	Residents of Project Impact areas	Project overview for stormwater, streetscaping, drainage	1,500	1/1/2023	1/22/2025	11/30/2023		**Debb Vitraelli**
Oldsmar	Citizens Academy	Education on City Services, Disaster Preparedness, Flood Zones/Insurance	In Person	Residents Enrolled	Promote emergency, mitiation efforts of City staff	35/class	11/29/2022	1/22/2025	11/30/2023		**Debb Vitraelli**
Oldsmar	Florida City Government Week	Florida City Government Week	City Facebook, Twitter, Instagram	General Public	Promote emergency, mitiation efforts of City staff	25,000	11/30/2021	1/22/2025	11/30/2023		**Debb Vitraelli**

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Oldsmar	Proclamation - Florida City Government Week	Florida City Government Week	In Person at City Council Meeting	General public	Florida City Government Week promoting City preparedness for	8,000	11/30/2021	1/22/2025	11/30/2023		**Debb Vitraelli**
Oldsmar	Employee Orientation & Meetings	Educate employees on their responder status within the City and expectation to prepare their homes and families before the storm.	In-Person	City Employees	Emergency preparedness-hurricanes	160	11/30/2021	1/22/2025	11/30/2023		**Debb Vitraelli**
Oldsmar	Proclamation - Fire Prevention Week	Fire Prevention Week	In Person at City Council Meeting	General public	Fire Prevention Week promoting preparedness for emergencies and home	15,000	11/30/2021	1/22/2025	11/30/2023		**Debb Vitraelli**
Oldsmar	Municipal Emergency Management Group Monthly Meeting	Local emergency management planning, best practices, improvements	Attendance at quarterly meetings	City EOC Staff	Storm, Incident Preparation	10	11/30/2023	1/22/2025	11/30/2023		**Debb Vitraelli**
Oldsmar	Oldsmar in a Minute Video/Podcast	Weekly Notifications, Important Storm Notices	City Social Media, Podcast Deployment	General Public	Emergency Preparedness, Reminders	15,000	11/29/2022	1/22/2025	11/30/2023		**Debb Vitraelli**
Oldsmar	Annual LMS Report to City Council	City staff presents the annual LMS, floodplain management planning update to City Council	Presentation to Governing Body	Municipality	Comprehensive hazard risk identification and mitigation	15,000	11/30/2023	1/22/2025	11/30/2023		**Debb Vitraelli**
Pinellas Park	Country in the Park (Annual event in March)	Annual Music Festival and Business Exposition.City distributes aboutfloodplain and emergency management marketing pieces and brochures annually at this event.	Community Event	County-wide	Hurricane, Storm, and Emergency Preparedness; Protect your family and property from the hazard(s) and to consider insurance	9000	3/15/2014	1/22/2025	10/29/2019		**Tiffany Menard**
Pinellas Park	National Preparedness Month (Annually in September)	Social Media Campaign promoting disaster preparedness	Daily preparedness topics posted on City and Fire Dept Facebook pages; posts onNextdoor w/ links to ready.gov.	County-wide / General Public	Various topics from ready.gov on disaster preparedness.	10,000 followers on City FB; 6,000 followers on Fire FB; 6,000 registered users on Nextdoor	12/10/2018	1/22/2025	10/29/2019		**Tiffany Menard**
Pinellas Park	PPFD Open House / Preparedness Expo (Annual event in May)	Pinellas Park EM and Pinellas County EM operateFDEM "Kids Get A Plan" interactive display, promote Know Your Zone, Alert Pinellas, etc.	Community Event	City of Pinellas Park and surrounding communites	Information on evacuation zones, emergency notification, storm preparedness, recovery, and mitigation.	Approximately 1,500 attendees	10/16/2017	1/22/2025	10/29/2019		**Tiffany Menard**
Pinellas Park	Pinellas County All Hazards Guide Distribution (annually throughout hurricane season)	Newspaper type guide to all hazard preparedness and recovery	Available in city buildings and distributed at community events.	Municipality	All hazards preparedness and recovery information	20,000	12/10/2018	1/22/2025	10/29/2019		**Tiffany Menard**
Pinellas Park	National Night Out Event (Annually in October)	Annual event to bring first responders and citizens together.Emergency Management and City Planning promoting Know Your Zone, Alert Pinellas, floodplain management; 200+ FloodWatch brochures and information on emergency preparedness.	Community Event	Municipality	Protect your property from the hazard(s), storm preparedness,evacuation plan(s), and emergency notification.	City population is about 53,098	10/16/2017	1/22/2025	10/29/2019		**Tiffany Menard**
Pinellas Park	National Hurricane Preparedness Week (Annual campaign in May)	Media campaign, daily posts on Facebook, Nextdoor, and City website, Chamber of Commerce Meetings and brochure distribution	Municipality, local businesses	City-wide	Hurricane preparation	City website experiences about 400,000 hits annually	10/3/2016	1/22/2025	10/29/2019		**Tiffany Menard**
Pinellas Park	Hurricane Preparedness Month Postcard (Annual mailout in April- May)	Annual hurricane preparedness postcard mailed to city utility customers	Mailing	Municipality	Hurricane Preparedness	35,000 residents	10/16/2017	1/22/2025	10/29/2019		**Tiffany Menard**
Pinellas Park	Tornado Drill (Annually in January)	City Staff participates in the Statewide Tornado Drill	Tornado Drill Exercise	City Departments	Tornado Preparedness	534 employees	10/16/2017	1/22/2025	10/29/2019		**Tiffany Menard**
Pinellas Park	Hurricane Preparedness Table- Top Exercise (Annual)	Hurricane preparedness, response and recovery exercise	Table Top Discussion	City Department heads/directors	Hurricane Preparedness for the City	50 persons	10/16/2017	1/22/2025	10/29/2019		**Tiffany Menard**
Pinellas Park	Employee Storm Preparedness(ongoing)	Review storm prep/response procedures with new employees	Presentation	New employees	Storm preparedness, response, recovery responsibilities	2016-2019: 300 (Average 75 per year)	12/10/2018	1/22/2025	10/29/2019		**Tiffany Menard**
Pinellas Park	Social media outreach (Facebook, Twitter, Nextdoor) - ongoing	Posts to city and fire department social media sites:Facebook, Twitter and Nextdoor	Social Media	Municipality and county-wide	Communication about road closures, flooding, storm updates, evacuation information, etc.	10,000 followers on City FB; 6,000 followers on Fire FB; 6,000 registered users on Nextdoor; 800 Twitter followers.	10/16/2017	1/22/2025	10/29/2019		**Tiffany Menard**
Pinellas Park	Water Bill Flyer (Annual)	Annual flood hazards flyer sent in water bills to ALL businesses and residences served by City water.	Flyer in City water bills.	Municipality - businesses and residents.	Target message is Alert Pinellas (flood, huricanes), Know Your Zone, flood insurance, and pollution of waterways (illegal dumping of trash and chemicals) and storm preparation.	City Population is53,098	9/29/2020	1/22/2025	9/29/2020		**Tiffany Menard**

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Pinellas Park	Repetitive Loss Area Mailing	Mailing of a letter and a Tip Sheet regarding living within a RLA	Mailing	Repetitive Loss Areas	Know your hazard (flood) and to consider insurance	49	6/1/2014	1/22/2025	10/29/2019		**Tiffany Menard**
Pinellas Park	Flood Hazards and Property Protection	Information for residents: Elevation certificates, flood insurance, CRS, FIRM, Mandatory insurance purchase, insurance overview	City of Pinellas Park Website with links	Municipality	Insure and protect your property from flood hazards	Approximately 500,000 hits annually to city website and department pages.	8/14/2014	1/22/2025	10/29/2019		**Tiffany Menard**
Pinellas Park	Stormwater Runoff: Only Rain Down the Drain	Link to Pinellas County Environmental Management - preventing storm water pollutants, protecting storm drains, storm placard information	City of Pinellas Park Website-links to Pinellas County	Municipality	Protect natural functions (floodplain; habitat; etc.)	Approximately 500,000 hits annually to city website and department pages.	8/14/2014	1/22/2025	10/29/2019		**Tiffany Menard**
Pinellas Park	City of Pinellas Park Website - Emergency Management	City of Pinellas Park Emergency Managementwith links to county, state, and federal emergency management websites	City of Pinellas Park Website	County-wide	Emergency preparedness and public safety informationInformation to help Florida residents and businesses prepare for and recover from hurricanes and other disasters.	Approximately 500,000 hits annually to city website and department pages.	12/10/2018	1/22/2025	10/29/2019		**Tiffany Menard**
Pinellas Park	Pinellas Park Home Depot Home Preparedness Events	Home Depot educational events to bring first responders and citizens together. City Emergency Management, Fire, Police, etc -booths and demonstrations. Children's workshop, handouts,links to emergency topics.	Community Event:Children's Workshop.Booth with handouts and laptop with links to Emergency Topics	General public	Protect your property from the hazard(s), storm preparedness and evacuation plan(s)Community Outreach-CPR demo, AlertPinellas and Know Your Zone education	250 attendees	10/3/2016	1/22/2025	10/29/2019		**Tiffany Menard**
Pinellas Park	Habitat for Humanity - Disaster Preparedness for Homeowner Candidates (Quarterly)	Classes held quarterly for Habitat homeowner candidates on disaster preparedness. Attendees earn credits as part of homeownership program.	Classroom presentation	Habitat for Humanity homeowner candidates.	Preparing your home against wind, flood or other damage; making a plan; emergency notification; evacuation; etc.	25 per session / approx 100 annually	10/29/2019	1/22/2025	10/29/2019		**Tiffany Menard**
Pinellas Park	Hurricane Preparedness Public Education - MHP Residents (Ongoing)	Hurricane preparedness education to mobile home park residents within Pinellas Park's jurisdiction	Presentation/Education	Mobile Home Park Residents	hurricane preparedness	Approx. 3000	10/3/2016	1/22/2025	10/29/2019		**Tiffany Menard**
Pinellas Park	Hurricane Preparedness Public Education (Ongoing)	Hurricane preparedness education to residents of Over-55 communities within Pinellas Park's jurisdiction	Presentation/Educatoin	Over-55 Community Residents (Mainlands of Tamarac)	hurricane preparedness	Approx. 8000	10/3/2016	1/22/2025	10/29/2019		**Tiffany Menard**
Pinellas Park	National Hurricane Preparedness Week Proclamation (Annually in May)	Presentation by City staff in front of televised City Council on hurricane preparedness and storm safety	Presentation	Municipality	Hurricane Preparedness	City population is 53,098	10/16/2017	1/22/2025	10/29/2019		**Tiffany Menard**
Pinellas Park	Municipal Emergency Management Coordinators' Meeting (Quarterly)	Presentation and discussion of local emergency management topics, best practices, and recommendations for improvements.	Attendance at quarterly meetings	City and Fire District, emergency management coordinators in Pinellas County	Storm Preparation and Safety	50 persons	10/16/2017	1/22/2025	10/29/2019		**Tiffany Menard**
Pinellas Park	Storm Preparation and Safety Event-Community Outreach - Faith Based Community (2017)	Handouts on disaster preparedness, information provided on Know Your Zone and Alert Pinellas.	Oureach Event at Praise Cathedral Church	Parishioners/ city residents	Storm Preparation and Safety	500 persons	10/16/2017	1/22/2025	10/29/2019		**Tiffany Menard**
Pinellas Park	4th of July Event, Kenneth City Parade and Park (2017)	Discussion and handouts of emergency management brochures	Attendance at 4th of July Festival	County-wide	Storm Preparation and Safety	10,000 persons	10/16/2017	1/22/2025	10/29/2019		**Tiffany Menard**
Pinellas Park	Severe Weather Awareness Week Campaign (Annually in January)	Media Campaign, daily posts on Facebook, NextDoor, and City Website	Municipality	City-wide	Severe Weather Awareness and Safety	City website experiences about 500,000 hits annually	10/16/2017	1/22/2025	10/29/2019		**Tiffany Menard**
Pinellas Park	Pinellas Park/Gateway Chamber of Commerce-Disaster Prep for Business Community (Annually in May)	Presentation to chamber of commerce members on disaster preparedness for small businesses.	Presentation	Members of Chamber of Commerce-Pinellas Park/Gateway	Information on preparing your business for disasters; having a continuity plan; recovery after a disaster.	100	10/29/2019	1/22/2025	10/29/2019		**Tiffany Menard**
Pinellas Park	Storm Preparedness for Seniors: Independent Living Apartments - St. Giles Manor and St. Giles Manor 2 (Annually)	Presentation by City Emergency Management to the residents of both properties on hurricane preparedness	Presentation by City Emergency Management to residents	Senior Citizens	Hurricane Preparedness	300	10/16/2017	1/22/2025	10/29/2019		**Tiffany Menard**
Pinellas Park	Mobile Home Park Hurricane Preparedness Door Hanger Project (Countywide Initiative-Annually)	Distribution of door hangers to mobile home park residents. Project is a county-wide initiative to reach all mobile home park residents.	Door to door distribution	Mobile home park residents - English and Spanish speaking.	Storm preparation, evacuation, emergency notification.	20 Parks/3700 Units	10/29/2019	1/22/2025	10/29/2019		**Tiffany Menard**
Pinellas Park	Pinebrook Park Event (2018)	Promoting AlertPinellas and Know Your zone to neighborhood residents	Community Event	Residents or Pinebrook Park neighborhood	Hurricane Season Preparedness	300	12/10/2018	1/22/2025	10/29/2019		**Tiffany Menard**

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Pinellas Park	Smoke Alarm Sweep with American Red Cross (2018)	Neighborhood smoke alarm install with fire safety and hurricane preparedness outreach	Community Event	Residents of Mainlands 3 Community	Fire Safety and Hurricane Safety	400	12/10/2018	1/22/2025	10/29/2019		**Tiffany Menard**
Pinellas Park	Storm Prep/Boy Scouts (2018)	Educational Outreach	Community Presentation	Members of Boy Scout Trooop 337	Emergency preparedness and public safety information	20	12/10/2018	1/22/2025	10/29/2019		**Tiffany Menard**
Pinellas Park	Hurricane Expo at Big Storm Brewery (2018)	Educational Outreach	Community Event	Citizens of Pinellas Park and surrounding communites	Hurricane preparedness before, during, after storm.	200	12/10/2018	1/22/2025	10/29/2019		**Tiffany Menard**
Pinellas Park	FEMA Flood Risk Open House (2018))	Open house for residents to learn about flood risk.	Community Event with Pinellas County	County-wide	Learn how to protect yourself and property from flood risk.	750	12/10/2018	1/22/2025	10/29/2019		**Tiffany Menard**
Redington Beach	Quarterly Newsletter	Newsletter with flood info	Email blast	Residents of Redington Beach	Protect your property from flooding/flood insurance info	1400	14th August 2014	1/22/2025	9/16/2020		**Adriana Nieves**
Redington Beach	Repetitive loss letters	Letters to all property owners in flood area (annual)	Individual mailings	residents in areas where floods occurred	Contact town with mitigation or grant requests	400	9/16/2020	1/22/2025	9/16/2020		**Adriana Nieves**
Redington Beach	Letters to Realtors, Insurance agents	Letter and insert informing local realtors and insurance agents about town's help	Individual mailings to local agents, realtors	clients of these realtors & agents	Town's assistance available to new clients or buyers	50	9/16/2020	1/22/2025	11/25/2019		**Adriana Nieves**
Redington Beach	Program for Public Information (PPI) (Multi-jurisdictional)	Quarterly meetings	Multi-Media	Residents of Redington Beach	All Subjects Multi-Hazard (ex. Turn around Don't Drown)	1400	9/16/2020	1/22/2025	5/29/2020		**Adriana Nieves**
Redington Beach	Hurricane Table	Table with Informative Brochures	Table set up in lobby	Anyone who enters town hall	Preparation for, awareness of, mitigation, insurance for flood events	500	9/16/2020	1/22/2025	6/23/2020		**Adriana Nieves**
Redington Beach	Flood Zone Map	GIS Map	Website	Current and Potential Residents of Redington Beach	Protect natural functions (floodplain; habitat; etc.)	1400	9/16/2020	1/22/2025	9/16/2020		**Adriana Nieves**
Redington Shores	Hurricane Preparedness Workshop	Panel of experts to share best practices for hurricane preparedness	Webinar & in-person meeting	Town residents	Make your Family/ Business Disaster Plan	2,500	8.25/14	1/22/2025	10/29/2020		**Brad Dykens**
Redington Shores	Annual Newsletter	Newsletter with flood info 2X per year	Posted on website, distributed by everbridege and social media. Printed copies distributed to condos, hotels, and local businesses.	Town residents	What Town residents should know about flood ins. & safety	2,200	8/25/2014	1/22/2025	10/29/2020		**Traci Cain**
Redington Shores	Repetitive loss letters	Letters to all property owners in flood area (twice a year)	Individual mailings	residents in areas where floods occurred	Contact town with mitigation or grant requests	600	8/25/2014	1/22/2025	10/29/2020		**Steve Andrews**
Redington Shores	Hurricane/Flood information table	Table of over 50 Informative Brochures	Table set up in lobby. Materials refreshed as needed.	Anyone who enters town hall	Preparation for, awareness of, mitigation, insurance for flood events	1,000	8/25/2014	1/22/2025	10/29/2020		**Steve Andrews**
Redington Shores	Letters to Realtors, Insurance agents	Letter and insert informing local realtors and insurance agents about town's help	Individual mailings to local agents, realtors	clients of these realtors & agents	Town's assistance available to new clients or buyers	unknown	8/25/2014	1/22/2025	10/29/2020		**Steve Andrews**
Redington Shores	Town of Redington Shores website-Flood and Hurricane pages	Website Flood and Hurricane information and links to other sites.	Website available to the public. Reviewed annually before hurricane season and revised as necessary.	any interested residents	Prevention, preparedness, and mitigation strategies for hurricanes and flood.	unknown	8/25/2014	1/22/2025	10/29/2020		**Steve Andrews**
Redington Shores	Program for Public Information (PPI)	Meetings to create and oversee Outreach Program	Multi-Media	Municipality	All Subjects Multi-Hazard (ex. Turn around Don't Drown)	5,000	8/30/2016	1/22/2025	10/29/2020		**Steve Andrews**
Safety Harbor	Hurricane Evacuation Zone Map	GIS Map	Website	Municipality	Make your Family/ Business Disaster Plan	33,061	11/29/2021	1/22/2025	8/24/2021		**Cecilia Chen**
Safety Harbor	Bi-Monthly newsletter	Outreach to residents	Newsletter	Municipality	Protect your property from the hazard(s)	17,200	11/29/2021	1/22/2025	8/24/2021		**Cecilia Chen**
Safety Harbor	Flood Zone Map	GIS Map	Website	Municipality	Protect natural functions (floodplain; habitat; etc.)	17,200	11/29/2021	1/22/2025	8/24/2021		**Cecilia Chen**

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Safety Harbor	Social Media	Outreach to residents via social media platforms (Facebook, Twitter, Instagram, YouTube, Nextdoor)	Social Media	Municipality	Communication about disaster prepardness, storm updates, flooding, road closures, evacuation information, public service annoucements.	Facebook - 5,000 followers X (formerly Twitter) - 1,249 followers Instagram - 3,134 followers YouTube - 160 subscribers Nextdoor - 7,632 members	11/30/2020	1/22/2025	11/18/2024		**Cecilia Chen**
Safety Harbor	eNews	Outreach to residents via opt-in email subscriber list	eNews	Municipality	Communication about disaster prepardness, storm updates, flooding, road closures, evacuation information, public service annoucements.	1,058	10/24/2023	1/22/2025	11/18/2024		**Cecilia Chen**
Safety Harbor	Disaster Binder	Hard copy of flyers and brouchures with disaster preparation information.	Hard Copy Binder	Municipality	Communication about disaster prepardness, storm updates, flooding, road closures, evacuation information, public service annoucements.		10/24/2023	1/22/2025	10/24/2023		**Cecilia Chen**
Safety Harbor	Nixle Text Alert	Outreach to residents via opt-in text message subscriber list	SMS Text Message	Municipality	Communication about disaster prepardness, storm updates, flooding, road closures, evacuation information, public service annoucements.	1,110	10/24/2023	1/22/2025	11/18/2024		**Cecilia Chen**
Seminole	Hurricane EXPO 6.7.14	Large venue Community Exposition	Community Event	County-wide	Be prepared, informed and take appropriate actions	2,000	8/25/2014	1/22/2025			**Brad Dykens**
Seminole	Home Depot Seminole Be Prepared 3.13.14	Large venue Community Exposition	Community Event	Municipality	Make your Family/ Business Disaster Plan	500	8/25/2014	1/22/2025			**Brad Dykens**
Seminole	Hurricane preparedness 5.29.14	Large group Presentation and table display	Area-Specific Meeting	Hurricane Vulnerable Seniors	Make your Family/ Business Disaster Plan	100	8/25/2014	1/22/2025			**Brad Dykens**
Seminole	Redington Shores Hurricane preparedness discussion 5.29.14	Large group Presentation and discussion video conference with community	Webinar/E-Town Hall Meeting	Municipality	Make your Family/ Business Disaster Plan	2,500	8/25/2014	1/22/2025			**Brad Dykens**
Seminole	Neighborly Senior Center 6.16.14	Group presentation	Area-Specific Meeting	Hurricane Vulnerable Seniors	Make your Family/ Business Disaster Plan	50	8/25/2014	1/22/2025			**Brad Dykens**
Seminole	Heritage Presbyterian Village 6.17.14	Group Presentation	Area-Specific Meeting	Hurricane Vulnerable Seniors	Make your Family/ Business Disaster Plan	200	8/25/2014	1/22/2025			**Brad Dykens**
Seminole	Seminole ELKS 8.17.14	Group Presentation	Area-Specific Meeting	Floodplain Residents	Make your Family/ Business Disaster Plan	300	8/25/2014	1/22/2025			**Brad Dykens**
South Pasadena	Hurricane Presentation	Presentation to residents of large apartment complex – Bay Island Condominiums	Area-Specific Meeting on Hurricane Preparedness	Board members	Evacuation Planning	10	12/11/2018	1/22/2025	12/11/2018	Review	**David Mixson**
South Pasadena	Fire Station Open House	Informational Table staffed by PCEM. Know Your Zone and Disaster Preparedness.	Information and Print	Municipal Residents and Business Owners	All Hazards EM Guide, Know Your Zone, Evacuation Planning	250	12/11/2018	1/22/2025	1/14/2023	Review	**David Mixson**
South Pasadena	Mass Casualty Drill	Palms of Pasadena Hospital Mass Casualty Drill	Exercise	Hospital Staff	Mass Casualty Exercise	50	12/11/2018	1/22/2025	12/11/2018	Review	**David Mixson**
South Pasadena	After Action Review	Palms of Pasadena Emergency Management Stakeholders	Review/Tabletop	Hospital Staff	Mandatory Patient Evacuation	10	12/16/2022	1/22/2025	12/16/2022	Review	**David Mixson**

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South Pasadena	Active Shooter Drill	Palms of Pasadena Emergency Management Stakeholders	Exercise	Hospital Staff	Mass Casualty Exercise	25	6/29/2023	1/22/2025	11/21/2023	New Entry	**David Mixson**
South Pasadena	Hurricane Presentation	Presentation to residents of large mobile home complex – Causeway Village Clubhouse	Area-Specific Meeting on Hurricane Preparedness	Hurricane Vulnerable Residents	Make your Family/ Business Disaster Plan	35	12/11/2018	1/22/2025	12/11/2018	Review	**David Mixson**
South Pasadena	Hurricane Presentation	Presentation to residents of large apartment complex – Bay Island Condominiums	Area-Specific Meeting on Hurricane Preparedness	Hurricane Vulnerable Residents	Make your Family/ Business Disaster Plan	65	12/11/2018	1/22/2025	12/11/2018	Review	**David Mixson**
South Pasadena	Hurricane Presentation	Presentation to residents of large apartment complex – Chateau Towers Condominiums	Area-Specific Meeting on Hurricane Preparedness	Hurricane Vulnerable Residents	Make your Family/ Business Disaster Plan	30	12/11/2018	1/22/2025	12/11/2018	Review	**David Mixson**
South Pasadena	Hurricane Presentation	Presentation to residents of large apartment complex – Lutheran Residences	Area-Specific Meeting on Hurricane Preparedness	Hurricane Vulnerable Residents	Make your Family/ Business Disaster Plan	40	12/11/2018	1/22/2025	12/16/2022	Review	**David Mixson**
South Pasadena	Hurricane Presentation	Presentation to residents of large apartment complex – Lutheran Residences	Area-Specific Meeting on Hurricane Preparedness	Hurricane Vulnerable Residents	Make your Family/ Business Disaster Plan	40	12/11/2018	1/22/2025	12/16/2022	Review	**David Mixson**
South Pasadena	All Hazards Preparedness	Hurricane Preapredness Guide 2023	An annual guide to all-hazard planning	Hurricane Vulnerable Residents	Evacuation Planning	400	1/6/2021	1/22/2025	11/21/2023	Review	**David Mixson**
South Pasadena	Hurricane Presentation	Presentation via the Zoom online platform and City Cable Channel	Area-Specific Meeting on Hurricane Preparedness	Hurricane Vulnerable Residents	Make your Family/ Business Disaster Plan	200	12/16/2022	1/22/2025	12/16/2022	Review	**David Mixson**
South Pasadena	All Hazards Guide and Mask Giveaway	Set up drive through event at City Hall for mask giveaway and All Hazard Guides	An annual guide to all-hazard planning	All City Residents and Business Owners	Stop the Spread (COVID-19) and Hurricane Safety	50	1/6/2021	1/22/2025	12/3/2020	Review	**David Mixson**
South Pasadena	Hurricane Preparedness	How to Prepare for Hurricane Sesaon	City Newsletter - Summer	All City Residents and Business Owners	Evacuation Planning	250	1/6/2021	1/22/2025	12/16/2022	Review	**David Mixson**
South Pasadena	Fire Safety & Disaster Preparedness	Winter Home Fire Safety	City Newsletter - Winter	All City Residents and Business Owners	Fire Safety and Hurricane Safety	250	1/6/2021	1/22/2025	12/16/2022	Review	**David Mixson**
South Pasadena	Flood Awareness Flood Threat/Warning System	City Newsletter	City Newsletter	All City Residents and Business Owners	General information Flood Preparation and Safety	5065	9/10/2021	1/22/2025	9/10/2021	Review	**Terri Sullivan**
South Pasadena	Risk Rating 2.0	City Newsletter	City Newsletter	All City Residents and Business Owners	General information Flood Preparation and Safety	5065	9/10/2021	1/22/2025	9/10/2021	Review	**Terri Sullivan**
South Pasadena	Forerunner community flood resilience platform	New platform added to website to increase awareness	Website	All City Residents and Business Owners	Tool to better manage flood risk and increase resilience	5065	11/21/2023	1/22/2025	11/21/2023	Review	**Terri Sullivan**
South Pasadena	Flood Awareness	Website	Website	Properties listed as repetitive loss	General information Flood Preparation and Safety	5065	9/10/2021	1/22/2025	9/10/2021	Review	**Terri Sullivan**
South Pasadena	Repetitive Loss Areas	Letter	Direct Mailing	Properties located within 13 different repetitive loss areas	General information about grants, flood insurance.	170	9/10/2021	1/22/2025	9/10/2021	Review	**Terri Sullivan**
St. Pete Beach	Repetitive Loss Areas	Letter	Direct Mailing	Properties located within 13 different repetitive loss areas	General information about grants, flood insurance.	269	10/3/2016	1/22/2025	10/3/2017		**Lynn Rosetti**
St. Pete Beach	Flood Awareness	Website	Website	Municipality	General information regarding all aspects of Flood Protection and contacts	10,000	10/3/2016	1/22/2025	10/3/2017		**Lynn Rosetti**

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St. Pete Beach	St Pete Beach is Subject to Flooding	Paradise News Insert	Direct Mailing	Municipality	Assistance available, Flood Insurance Rate Maps, Safety Measures, Preparation before the storm, Warning Systems, etc.	10,000	10/3/2016	1/22/2025	10/3/2017		**Lynn Rosetti**
St. Pete Beach	Lenders, Insurance and Real Estate Agents	Letter	Direct Mailing	Agents	Grant information, Historic Flood Information, Flood Protection	30	10/3/2016	1/22/2025	10/3/2017		**Lynn Rosetti**
St. Pete Beach	Hurricane Preparedness Expo	Hurricane preparedness educaton provided to residents. PCEM, WTSP ch 10 Meterologist, NWS, Fox 13 Meteorologist	Event	Residents	Be prepared!!	85	5/1/2020	1/22/2025			**Kelly Intzes**
St. Pete Beach	Hurricane Preparedness	Hurricane preparedness posts on social media	social media	residents	emeregnecy management, hurricane preparedness, etc.	1000	5/1/2020	1/22/2025			**Kelly Intzes**
St. Pete Beach	Hurricane Preparedness Walk-thru	Hurricane preparedness education.Tote bags contained with All hazard guide, flood insurance information, masks,hand sanitizer, 2.1.1. Prize giveways donated by Home Depot	Event	Residents	Be prepared!!	100	7/12/2020	1/22/2025			**Kelly Intzes**
St. Petersburg	Flood Brochure	Sent to all residents in Utility bill	Brochure/Publication	Municipality	Know your risk	160k	8/18/2014	1/22/2025	7/15/2019		**Hannah Rebholz**
St. Petersburg	Flood Brochure	Residents in SFHA	Brochure/Publication	Municipality	Know your risk	46,474	8/18/2014	1/22/2025	9/26/2016		**Hannah Rebholz**
St. Petersburg	Website	Provides residents with helpful links to services the City and County provide.	Website	Municipality	Know your risk	120k	8/18/2014	1/22/2025	9/26/2016		**Hannah Rebholz**
St. Petersburg	Guide	Protecting Your Home from Flood Damage	Brochure/Publication	Municipality	Protect your property from the hazard(s)	250	8/18/2014	1/22/2025	9/26/2016		**Hannah Rebholz**
St. Petersburg	Guide	Federal Disaster Assistance and National Flood Insurance	Brochure/Publication	Municipality	Insure your property for your hazard(s)	250	8/18/2014	1/22/2025	9/26/2016		**Hannah Rebholz**
St. Petersburg	Guide	Emergency Preparedness Guide	Brochure/Publication	Municipality	Know your risk	250	8/18/2014	1/22/2025	9/26/2016		**Hannah Rebholz**
St. Petersburg	Flood Brochure	Residents in Repetitive Loss Area	Brochure/Publication	Residents	Know your risk	1,771	12/16/2022	1/22/2025	12/16/2022		**Hannah Rebholz**
St. Petersburg	Social Media Posts	Social Media Posts to cover preparedness, insurance, risk ect.	Social Media Post	Residents	Know your risk, protect our property, insure.	82.5k	12/16/2022	1/22/2025	12/16/2022		**Hannah Rebholz**
St. Petersburg	Bus Wrap	Raise awarness and educate residents on where to find information for City Services. First year with bus wraps, starting small with one bus	Bus Wrap	Residents	Be prepared for a hurricane and/or flood event.	260k	12/16/2022	1/22/2025	12/16/2022		**Hannah Rebholz**
St. Petersburg	Hurricane Preparedness Public Education	Hurricane preparedness education provided to neighborhood/ homeowner associations.	In-person Presentation	Residents – Homeowners associations	Be prepared for a hurricane and/or flood event.	300	9/15/2016	1/22/2025	9/15/2016		**Amber Boulding**
St. Petersburg	Hurricane Preparedness Public Education	Hurricane preparedness education provided to churches	In-person Presentation	Residents – faith-based organizations	Be prepared for a hurricane and/or flood event.	300	9/15/2016	1/22/2025	9/15/2016		**Amber Boulding**
St. Petersburg	Hurricane Preparedness Public Education	Hurricane preparedness education provided to school groups	Seminar/Classroom Instruction	Students (grade school and college)	Be prepared for a hurricane and/or flood event.	150	9/15/2016	1/22/2025	9/15/2016		**Amber Boulding**
St. Petersburg	EM Business Education Program	Disaster Preparedness for Small Businesses – offered quarterly	Seminar/Classroom Instruction	Businesses	Make your Business Disaster Plan	100	9/15/2016	1/22/2025	9/15/2016		**Amber Boulding**
St. Petersburg	Emergency Management Fair	City of St. Petersburg Emergency Management Disaster Preparedness	In-person Presentation	Residents, Students	Emergency Management activities (preparedness, mitigation, and response) in the City of St. Petersburg	150	9/15/2016	1/22/2025	9/15/2016		**Amber Boulding**
St. Petersburg	Evacuation Program for Residents	WRXB radio interview to go over evacuation and preparedness plans for South St. Pete residents	Radio Interview	Residents	How to be prepared and successfully evacuate if ordered.	2000	9/15/2016	1/22/2025	9/15/2016		**Amber Boulding**
St. Petersburg	Executive/Policy Group ICS Training	Provide high level NIMS/ICS training to City Leaders	Seminar/Classroom Instruction	Staff	How to manage an emergency at the executive/policy group level	30	9/15/2016	1/22/2025	9/15/2016		**Amber Boulding**
Tarpon Springs	Notice to Repetitive Loss Properties	Direct mail annually	Mailing	Repetitive Loss Properties	Know your risk	124	10/10/2014	1/22/2025	7/1/2023	Annual Flooding / Grant Availability Outreach	**Megan Araya**
Tarpon Springs	Publication Distribution	Surviving the Storm Publication	Publication, Website	Municipality	Know your risk	20,000	10/10/2014	1/22/2025	6/1/2023	Annual Hurricane Outreach	**Megan Araya**

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Tarpon Springs	Hurricane Preparedness	Presentation to Board of Commissioners	Presentation to Governing Body, Website, Facebook	Municipality	Public Safety Information (ex. Turn Around Don't Drown)	25,000	10/10/2014	1/22/2025	6/1/2023	Annual Hurricane Outreach & Emergency Preparedness	**Scott Young**
Tarpon Springs	Hurricane Preparedness	Emergency Management Plan	Presentation to Governing Body	Municipality	Protect your property from the hazard(s)	15,000	10/10/2014	1/22/2025	6/1/2023	Annual Hurricane Outreach & Emergency Preparedness	**Scott Young**
Tarpon Springs	Hurricane Preparedness	Handout	Brochure, Publication, Website	Municipality	Public Safety Information (ex. Turn Around Don't Drown)	2,500	10/10/2014	1/22/2025	6/1/2023	Annual Hurricane Outreach	**Megan Araya**
Tarpon Springs	Pinellas County Emergency Management	Website	Website	County-wide	Other (Please enter TARGET MESSAGE directly into cell)	949,827	10/10/2014	1/22/2025	8/3/2020	Annual Hurricane Outreach & Emergency Preparedness	**Megan Araya**
Tarpon Springs	First Call	Program to contact residents for any type of emergency via cell phone, landline, text and email	Website	Municipality	Public Safety Information (ex. Turn Around Don't Drown)	20,000	10/10/2014	1/22/2025	1/18/2023	Annual Hurricane Outreach	**Megan Araya**
Tarpon Springs	Emergency Preparedness	Adoption of LMS update: Presentation to Governing Body	Presentation to Governing Body Website	Municipality	LMS Update	1,000	8/11/2020	1/22/2025	8/11/2020	Annual Hurricane Outreach & Emergency Preparedness	**Renea Vincent**
Tarpon Springs	Emergency Preparedness	Handout	Brochure / Publication	Municipality	Flood Preparation and Safety	5,000	10/19/2016	1/22/2025	8/3/2020	Annual Hurricane Outreach & Emergency Preparedness	**Megan Araya**
Tarpon Springs	Hurricane Preparedness	Handout	Brochure / Publication	Municipality	Coping with a Flood-Before, During and After	5,000	10/19/2016	1/22/2025	8/3/2020	Annual Hurricane Outreach	**Megan Araya**
Tarpon Springs	Flood Insurance Information	Handout	Brochure / Publication	Municipality	Why You Need Flood Insurance	5,000	10/19/2016	1/22/2025	8/3/2020	Annual Hurricane Outreach	**Megan Araya**
Tarpon Springs	Flood Insurance Information	Handout	Brochure / Publication	Municipality	National Flood Insurance Program Nothing Could Dampen the Joy of Home Ownership…	5,000	10/19/2016	1/22/2025	8/3/2020	Annual Hurricane Outreach	**Megan Araya**
Tarpon Springs	Emergency Preparedness	Handout	Brochure / Publication	Municipality	Who is at Risk for Flooding?	5,000	10/19/2016	1/22/2025	8/3/2020	Annual Hurricane Outreach	**Megan Araya**
Tarpon Springs	Emergency Preparedness	Handout	Brochure / Publication	Municipality	Flood: Are You Protected from the Next Disaster?	5,000	10/19/2016	1/22/2025	8/3/2020	Annual Hurricane Outreach	**Megan Araya**
Tarpon Springs	Flood Insurance Information	Handout	Brochure / Publication	Municipality	National Flood Insurance Program: How the NFIP Works	5,000	10/19/2016	1/22/2025	1/18/2023	Annual Hurricane Outreach	**Megan Araya**
Tarpon Springs	Flood Insurance Information	Handout	Brochure / Publication	Municipality	National Flood Insurance Program: Mandatory Purchase of Flood Insurance Guidelines	5,000	10/19/2016	1/22/2025	8/3/2020	Annual Hurricane Outreach	**Megan Araya**
Tarpon Springs	Hurricane Preparedness	Handout	Brochure / Publication	Municipality	Be Prepared Checklist	20,000	10/19/2016	1/22/2025	8/3/2020	Annual Hurricane Outreach	**Megan Araya**
Tarpon Springs	Hurricane Preparedness	Website	Website	Municipality	Know Your Evacuation Zone, Pinellas County	20,000	10/19/2016	1/22/2025	6/1/2023	Annual Hurricane Outreach	**Megan Araya**
Tarpon Springs	Hurricane Preparedness	Website	Website	Municipality	Storm Preparation for Debris Removal	20,000	10/19/2016	1/22/2025	6/1/2023	Annual Hurricane Outreach	**Megan Araya**
Tarpon Springs	Hurricane Preparedness	Website	Brochure	Municipality	Hurricane Services for Elderly and Special Needs Residents	20,000	10/19/2016	1/22/2025	6/1/2023	Annual Hurricane Outreach	**Megan Araya**
Tarpon Springs	Emergency Preparedness	Website	Publication	Municipality	Survival Kit Checklist	20,000	10/19/2016	1/22/2025	6/1/2023	Annual Hurricane Outreach	**Megan Araya**
Tarpon Springs	Emergency Preparedness	Link to website on Emergency Management Page	Website	Municipality	Pinellas County Emergency Management	20,000	10/19/2016	1/22/2025	8/3/2020	Annual Hurricane Outreach	**Megan Araya**
Tarpon Springs	Emergency Preparedness	Link to website on Emergency Management Page	Website	Municipality	Florida Department of Emergency Management	20,000	10/19/2016	1/22/2025	8/3/2020	Annual Hurricane Outreach	**Megan Araya**
Tarpon Springs	Emergency Preparedness	Link to website on Emergency Management Page	Website	Municipality	Federal Emergency Management Agency	20,000	10/19/2016	1/22/2025	8/3/2020	Annual Hurricane Outreach	**Megan Araya**
Tarpon Springs	Flood Insurance Information	Link to website on Emergency Management Page	Brochure / Publication	Municipality	National Flood Insurance Program	20,000	10/19/2016	1/22/2025	8/3/2020	Annual Hurricane Outreach	**Megan Araya**
Tarpon Springs	Hurricane Preparedness	Link to website on Emergency Management Page	Website	Municipality	National Hurricane Center	20,000	10/19/2016	1/22/2025	8/3/2020	Annual Hurricane Outreach	**Megan Araya**
Tarpon Springs	Emergency Preparedness	Link to website on Emergency Management Page	Website	Municipality	Tampa Bay Regional Planning Council Emergency Management	20,000	10/19/2016	1/22/2025	8/3/2020	Annual Hurricane Outreach	**Megan Araya**

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Tarpon Springs	Touch A Truck Event	City event, emergency preparadness, education on flood zones, evacuation maps, building code	Brochures, Website, Facebook, Instagram, Twitter	Municipality	FEMA information for residents, building code question availability, evacuation map and flood zone info request availability	26,000	10/19/2016	1/22/2025	6/1/2019	Annual Hurricane Outreach & Emergency Preparedness	**Megan Araya**
Tarpon Springs	Lowe's Safety Event	City event, emergency preparadness, safety, education on flood zones, evacuation maps, building code	Brochures, Website, Facebook, Instagram, Twitter	Municipality	FEMA information for residents, building code question availability, evacuation map and flood zone info request availability	10,000	10/19/2016	1/22/2025	11/1/2019	Annual Hurricane Outreach & Emergency Preparedness	**Megan Araya**
Tarpon Springs	Hurricane Preparedness	Handout	Publication, Website, Facebook, Twitter	Municipality	Storm Savvy	20,000	10/19/2016	1/22/2025	6/18/2020	Annual Hurricane Outreach & Emergency Preparedness	**Megan Araya**
Tarpon Springs	Twitter	Tweets	Social Media	Municipality	Communication about road closures, flooding, storm updates, evacuation information	20,000	10/19/2016	1/22/2025	Ongoing	Annual Hurricane Outreach & Emergency Preparedness	**Megan Araya**
Tarpon Springs	Facebook	Posts to City of Tarpon Springs and Fire Dept Facebook public pages	Social Media	Municipality	Communication about road closures, flooding, storm	20,000	10/19/2016	1/22/2025	Ongoing	Annual Hurricane Outreach & Emergency	**Megan Araya**
Tarpon Springs	Instagram	Posts to City of Tarpon Springs and Fire Dept Instagram public pages	Social Media	Municipality	Communication about road closures, flooding, storm	20,000	10/19/2016	1/22/2025	Ongoing	Annual Hurricane Outreach & Emergency	**Megan Araya**
Tarpon Springs	Flood Insurance Information	Handout	Brochure / Publication	Municipality	NFIP FloodSmart.gov Know Your Risk	20,000	9/7/2017	1/22/2025	8/3/2020	Annual Hurricane Outreach	**Megan Araya**
Tarpon Springs	Flood Insurance Information	Handout	Brochure / Publication	Municipality	NFIP Non-Engineered Opening Guide	20,000	9/7/2017	1/22/2025	8/3/2020	Annual Hurricane Outreach	**Megan Araya**
Treasure Island	Flood Insurance Seminar	Public Meeting	Public Meeting	Municipality	Prepare Ahead; Know Your Risk	100	11/15/2018	1/22/2025	11/30/2021		**Jesse Miller**
Treasure Island	Hurricane Expo with Bay News 9	Public Meeting	Public Meeting, Televised	Municipality	Prepare Ahead; Know Your Risk	6,921	5/23/2018	1/22/2025	11/30/2021		**Jesse Miller**
Treasure Island	Flood Facts	1 Page Publication in Beach Beacon	Weekly Newspaper	N. Redington Beach, Redington Shores, Redington Beach,	Know Your Risk; Protect Your Property from Hazards; Protect Natural	14,700	8/18/2017	1/22/2025	6/28/2023	Printed in the Beach Beacon. Circulation greater than City	**Jesse Miller**
Treasure Island	FEMA's 50% Rule & How It May Affect Your Property	Handout	Brochure/Publication	Municipality	Build Responsibly	6,921	8/18/2014	1/22/2025	6/1/2023		**Jesse Miller**
Treasure Island	Risk Rating 2.0 in Florida	Handout	Brochure/Publication/Website	Muncipality	Protect Your Property; Mandatory Flood Insurance	6,921	11/30/2021	1/22/2025	11/7/2023		**Jesse Miller**
Treasure Island	Hurricane Preparedness Guide 2023	Publication	Brochure/Publication	County-wide	Know Your Risk; Sheltering; Preparedness	978,045	8/18/2017	1/22/2025	6/1/2023		**Jesse Miller**
Treasure Island	FEMA - Every Business Should Have a Plan	Brochure	Brochure/Publication, Static Displays	Municipality, Business	Prepared Ahead, Know Your Risk	6,921	10/30/2017	1/22/2025	11/30/2021		**Jesse Miller**
Treasure Island	FEMA - Preparing Makes Sense. Get Ready Now - English	Brochure	Brochure/Publication, Static Displays	Municipality	Prepare Ahead, Know Your Risk	6,921	10/30/2017	1/22/2025	11/30/2021		**Jesse Miller**
Treasure Island	FEMA - Preparing Makes Sense. Get Ready Now - Spanish	Brochure	Brochure/Publication, Static Displays	Municipality	Prepare Ahead, Know your risk	6,921	10/30/2017	1/22/2025	11/30/2021		**Jesse Miller**
Treasure Island	FEMA - Preparing Your Pets for Emergencies Makes Sense. Get Ready Now	Brochure	Brochure/Publication, Static Displays	Municipality	Prepare Ahead, Know Your Risk	6,921	10/30/2017	1/22/2025	11/30/2021		**Jesse Miller**
Treasure Island	FEMA - Preparing Makes Sense for People with Disabilities	Brochure	Brochure/Publication, Static Displays	Municipality	Prepare Ahead, Know Your Risk	6,921	10/30/2017	1/22/2025	11/30/2021		**Jesse Miller**

Pinellas County
Local Mitigation Strategy 2024 - 2025
Appendix A, Table A-2 Municipal Outreach Matrix

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Treasure Island	FEMA - Prepare for Emergencies Now: Information for Olrder Americans	Brochure	Brochure/Publication, Static Displays	Municipality	Prepare Ahead, Know Your Risk	6,921	10/30/2017	1/22/2025	11/30/2021		**Jesse Miller**
Treasure Island	FEMA - Emergency Supply List	Brochure	Brochure/Publication, Static Displays	Municipality, Individuals, Families	Prepare Ahead, Personal Responsibility	6,921	10/30/2017	1/22/2025	11/30/2021		**Jesse Miller**
Treasure Island	Re-Entry Decals	Decals for residents to re-enter an evacuated area after a storm.	Website/Brochure	Municipality	Public Safety Information (ex. Turn Around Don't Drown)	6,921	8/26/2014	1/22/2025	11/6/2023		**Jesse Miller**
Treasure Island	Alert T.I.	Program to contact residents for any type of emergency via cell phone, landline, email, text, etc.	Sign-up / website / brochure	Municipality	Direct contact to the residents for any emergency - bridge closure,	6,921	8/26/2014	1/22/2025	11/6/2023		**Jesse Miller**
Treasure Island	Building/Renovating in Flood Zones	Website	Website	Municipality	Build Responsibly	6,921	11/30/2021	1/22/2025	11/7/2023		**Jesse Miller**
Treasure Island	Preparing for a Hurricane/Storm	Website	Website	Municipality	Prepare, During and After the Storm	6,921	10/30/2017	1/22/2025	11/30/2021		**Jesse Miller**
Treasure Island	During a Hurricane/Storm	Website	Website	Municipality	Prepare, During and After the Storm	6,921	10/30/2017	1/22/2025	11/30/2021		**Jesse Miller**
Treasure Island	What to Do After a Hurricane/Storm	Website	Website	Municipality	Prepare, During and After the Storm	6,921	10/30/2017	1/22/2025	11/30/2021		**Jesse Miller**
Treasure Island	Shelter Options	Website	Website	Municipality	Prepare Ahead	6,921	11/30/2021	1/22/2025	11/30/2021		**Jesse Miller**
Treasure Island	Hazardous Waste Disposal	Website	Website	Municipality	Proper disposal of hazardous waste	6,921	8/26/2014	1/22/2025	11/30/2021		**Jesse Miller**
Treasure Island	Illicit Discharge	Website	Website	Municipality	Protect natural functions (floodplain; habitat; etc.) of Boca Ciega Bay and report illegal activity	6,921	8/26/2014	1/22/2025	11/30/2021		**Jesse Miller**
Treasure Island	Community Emergency Response Team	Website	Website	Municipality	Response and Recovery	6,921	10/30/2017	1/22/2025	11/30/2021		**Jesse Miller**
Treasure Island	Home Builders Guide To Coastal Construction	PDF	Website	Municipality	Build Responsibly	6,921	8/26/2014	1/22/2025	11/6/2023		**Jesse Miller**
Treasure Island	Wind Retrofit Guide for Residential Buildings	PDF	Website	Municipality	Build Responsibly	6,921	8/26/2014	1/22/2025	11/6/2023		**Jesse Miller**
Treasure Island	Protect Your Home from Flooding	PDF	Website	Municipality	Build Responsibly	6,921	8/26/2014	1/22/2025	11/6/2023		**Jesse Miller**
Treasure Island	FEMA's Homeowners' Guide to Retrofitting	PDF	Website	Municipality	Build Responsibly	6,921	8/26/2014	1/22/2025	111/6/2023		**Jesse Miller**
Treasure Island	FEMA's Protecting Building Utilities from Flood Damage	PDF	Website	Municipality	Build Responsibly	6,921	8/26/2014	1/22/2025	11/6/2023		**Jesse Miller**
Treasure Island	FEMA Map Service Center	Link to Website	Website	Municipality	Know Your Risk	6,921	8/26/2014	1/22/2025	11/30/2021		**Jesse Miller**
Treasure Island	Red Cross Flood Safety	Link to Website	Website	Municipality	Prepare Ahead	6,921	8/26/2014	1/22/2025	11/30/2021		**Jesse Miller**
Treasure Island	Ready.gov	Link to Website	Website	Municipality	Prepare Ahead	6,921	5/26/2017	1/22/2025	11/30/2021		**Jesse Miller**
Treasure Island	Disaster Preparedness for Kids	Link to Website	Website	Municipality	Prepare Ahead	6,921	11/24/2020	1/22/2025	11/7/2023		**Jesse Miller**
Treasure Island	Disaster Preparedness for Businesses	Link to Website	Website	Municipality	Prepare Ahead	6,921	10/30/2017	1/22/2025	11/7/2023		**Jesse Miller**
Treasure Island	Disaster Preparedness for Individuals with Disabilities	Link to Website	Website	Municipality	Prepare Ahead	6,921	10/30/2017	1/22/2025	11/7/2023		**Jesse Miller**
Treasure Island	Disaster Preparedness for Seniors	Link to Website	Website	Municipality	Prepare Ahead	6,921	10/30/2017	1/22/2025	11/7/2023		**Jesse Miller**

Pinellas County
Local Mitigation Strategy 2024 - 2025
Appendix A, Table A-2 Municipal Outreach Matrix

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Treasure Island	Disaster Preparedness for Pets	Link to Website	Website	Muncipality	Prepare Ahead	6,921	10/30/2017	1/22/2025	11/7/2023		**Jesse Miller**
Treasure Island	National Flood Insurance Program	Link to Website	Website	Municipality	Prepare Ahead, Mandatory Flood Insurance	6,921	11/30/2021	1/22/2025	11/7/2023		**Jesse Miller**
Treasure Island	Pinellas County Emergency Management	Link to Website	Website	County-wide	General Website of All Hazards Safety; Know Your Risk; Sheltering;	978,045	8/26/2014	1/22/2025	11/30/2021		**Jesse Miller**
Treasure Island	Pinellas County Storm Surge Map	Link to Website	Website	Municipality	Prepare Ahead, Know Your Risk	6,921	10/30/2017	1/22/2025	11/30/2021		**Jesse Miller**
Treasure Island	Know Your Evacuation Zone	Link to Website	Website	Muncipality	Prepare Ahead, Know Your Risk	6,921	11/30/2021	1/22/2025	11/30/2021		**Jesse Miller**
Treasure Island	Build an Emergency Kit	Link to Website	Website	Municipality	Prepare Ahead	6,921	10/30/2017	1/22/2025	11/7/2023		**Jesse Miller**
American Red Cross	Pinellas County Senior Expo	General Disaster Preparedness, Senior Health Issues, Hand out brochures and Presentation 1/14/14	Community Event	County-wide	Preparedness for seniors, Health Issues, Special Needs Shelters, Planning in Disasters	200	10/30/2014	1/22/2025			**Mark Hendrickson**
American Red Cross	Health & Safety Fair	Disaster Preparedness, Health Issues. Hampton Inn 1/24/14	Community Event	Municipality	Disaster Preparedness & What to do to save a life	50	10/30/2014	1/22/2025			**Mark Hendrickson**

Pinellas County
Local Mitigation Strategy 2024 - 2025
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American Red Cross	Touch a Truck	Show Red Cross vehicle & talk about Disaster Preparedness. Largo Central Park 1/30/14	Community Event	County-wide	What the Red Cross vehicle does and what to do to prepare for a disaster and after a disaster	1,200	10/30/2014	1/22/2025			**Mark Hendrickson**
American Red Cross	Health & Safety Fair	Disaster Preparedness, Health Issues. Pinellas Central Elementary 1/30/2014	Community Event	Municipality	Disaster Preparedness & What to do to save a life	40	10/30/2014	1/22/2025			**Mark Hendrickson**
American Red Cross	Health & Safety Fair	Disaster Preparedness, Health Issues. St Patrick's Church, Largo 2/18/2014	Community Event	Municipality	Disaster Preparedness & What to do to save a life	60	10/30/2014	1/22/2025			**Mark Hendrickson**
American Red Cross	Health & Safety Fair	Disaster Preparedness, Health Issues. Largo Central Park 2/22/2014	Community Event	County-wide	Disaster Preparedness & What to do to save a life	30	10/30/2014	1/22/2025			**Mark Hendrickson**
American Red Cross	Spring Market - Table event	Disaster Preparedness. Lake Seminole Pres Church 3/1/2014	Community Event	Municipality	Make your Family/ Business Disaster Plan	200	10/30/2014	1/22/2025			**Mark Hendrickson**
American Red Cross	St. Petersburg Saturday Market-Table event	Disaster Preparedness. St. Petersburg 3/8/2014	Community Event	Municipality	Make your Family/ Business Disaster Plan	150	10/30/2014	1/22/2025			**Mark Hendrickson**
American Red Cross	Sheltering & Preparedness for disasters	Providing a Shelter to the community & Disaster Preparedness. Palm Harbor United Methodist 3/18/14	Community Event	Church members	How to become a Shelter for Red Cross & Disaster Preparedness	35	10/30/2014	1/22/2025			**Mark Hendrickson**
American Red Cross	Women's History Month - Disaster Presentation	How to prepare for disasters. St Petersburg College, Clearwater 3/26/2014	Community Event	College Students/staff	Make your Family/ Business Disaster Plan	42	10/30/2014	1/22/2025			**Mark Hendrickson**
American Red Cross	Fire Safety & Disaster Preparedness	Fire safety, preparing for disasters, Special Needs Shelters. Four Seasons MHP, 3/26/14	Community Event	Mobile Home Park Residents	Make your Family/ Business Disaster Plan	100	10/30/2014	1/22/2025			**Mark Hendrickson**
American Red Cross	Caregivers Table top & Citizen CPR	Disaster preparedness & Citizen CPR, St Petersburg Hospice	Roundtable/Forum	Hospice Volunteers & Staff	Make your Family/ Business Disaster Plan and Citizen CPR instruction	40	10/30/2014	1/22/2025			**Mark Hendrickson**
Eckerd College	Email to faculty/staff (May 2016) and distribution of annual hurricane guide to students (August 2016)	Distribution/posting of annual hurricane preparedness information	Brochure/Publication	Eckerd College community	Make your Family/ Business Disaster Plan	3,000	10/3/2014	1/22/2025	10/5/2016		**Lisa Mets**
Pinellas County Extension - UF/IFAS								1/22/2025			
Pinellas County Extension - UF/IFAS	Coastal Resilience Index	Consultation/Facilitated Assessment of Preparedness	Presentation to Governing Body	Municipality	Other- All of the above, Assessment of ability to recover post-disaster		9/18/2014	1/22/2025			**Ramona Madhosingh/Libby Carnahan**
Pinellas County Extension - UF/IFAS	Pinellas County Ext Website	Online education	Website	County-wide	Other- All of the above		9/18/2014	1/22/2025			**Ramona Madhosingh/Libby Carnahan**
Pinellas County Extension - UF/IFAS	Florida Homeowner Handbook to Prepare for Natural Disasters	New Publication, Co-authored and printed by UF/IFAS Extension, distributed in Pinellas County facilities	Brochure/Publication	County-wide	Protect your property from the hazard(s)		9/18/2014	1/22/2025			**Ramona Madhosingh/Libby Carnahan**
Pinellas County Extension - UF/IFAS	Hurricane Preparedness Workshop	Community workshop	Community Event	County-wide	Protect your property from the hazard(s)		9/18/2014	1/22/2025			**Ramona Madhosingh/Libby Carnahan**
Pinellas County Extension - UF/IFAS	Regional Floodplain Management Workshop	Workshop for professionals (urban planners, floodplain managers) on NFIP and new CRS.	Roundtable/Forum	Other: Regional, Pinellas, Pasco, Hillsborough, Manatee, Sarasota	Other - Changes to NFIP, CRS, legal implications		9/18/2014	1/22/2025			**Ramona Madhosingh/Libby Carnahan**
Pinellas County Extension - UF/IFAS	Timely Topics Blog	Online education	Newsletter	County-wide	Public Safety Information (ex. Turn Around Don't Drown)		9/18/2014	1/22/2025			**Ramona Madhosingh/Libby Carnahan**
Pinellas County Extension - UF/IFAS	Thinking Green Blog	Online education	Newsletter	County-wide	Public Safety Information (ex. Turn Around Don't Drown)		9/18/2014	1/22/2025			**Ramona Madhosingh/Libby Carnahan**
Pinellas County Extension - UF/IFAS	Water Column e-Newsletter	Online education	Newsletter	County-wide	Protect your property from the hazard(s)		9/18/2014	1/22/2025			**Ramona Madhosingh/Libby Carnahan**
Pinellas County Extension - UF/IFAS	Factsheet: Preparing your Pets for Hurricane Season	General education - printed	Brochure/Publication	County-wide	Public Safety Information (ex. Turn Around Don't Drown)		9/18/2014	1/22/2025			**Ramona Madhosingh/Libby Carnahan**
Pinellas County Extension - UF/IFAS	Factsheet: Preparing your Boats for Hurricane Season	General education - printed	Brochure/Publication	County-wide	Know your risk		9/18/2014	1/22/2025			**Ramona Madhosingh/Libby Carnahan**
Pinellas County Extension - UF/IFAS	Factsheet: Staying Connected during Hurricane Season	General education - printed	Brochure/Publication	County-wide	Public Safety Information (ex. Turn Around Don't Drown)		9/18/2014	1/22/2025			**Ramona Madhosingh / Libby Carnahan**
Pinellas County Extension - UF/IFAS	Wind and Trees Display	General education	Tabletop Display	County-wide	Insure your property for your hazard(s)		9/18/2014	1/22/2025			**Ramona Madhosingh/Libby Carnahan**
Pinellas County Extension - UF/IFAS	Disaster Preparedness for Residents	General education	Tabletop Display	County-wide	Make your Family/ Business Disaster Plan		9/18/2014	1/22/2025			**Ramona Madhosingh/Libby Carnahan**
Pinellas County Extension - UF/IFAS	Coastal Cleanups	Hands-on events where participants learn about impacts to local ecosystem	Community Event	County-wide	Protect natural functions (floodplain; habitat; etc.)		9/18/2014	1/22/2025			**Ramona Madhosingh/Libby Carnahan**

Pinellas County
Local Mitigation Strategy 2024 - 2025
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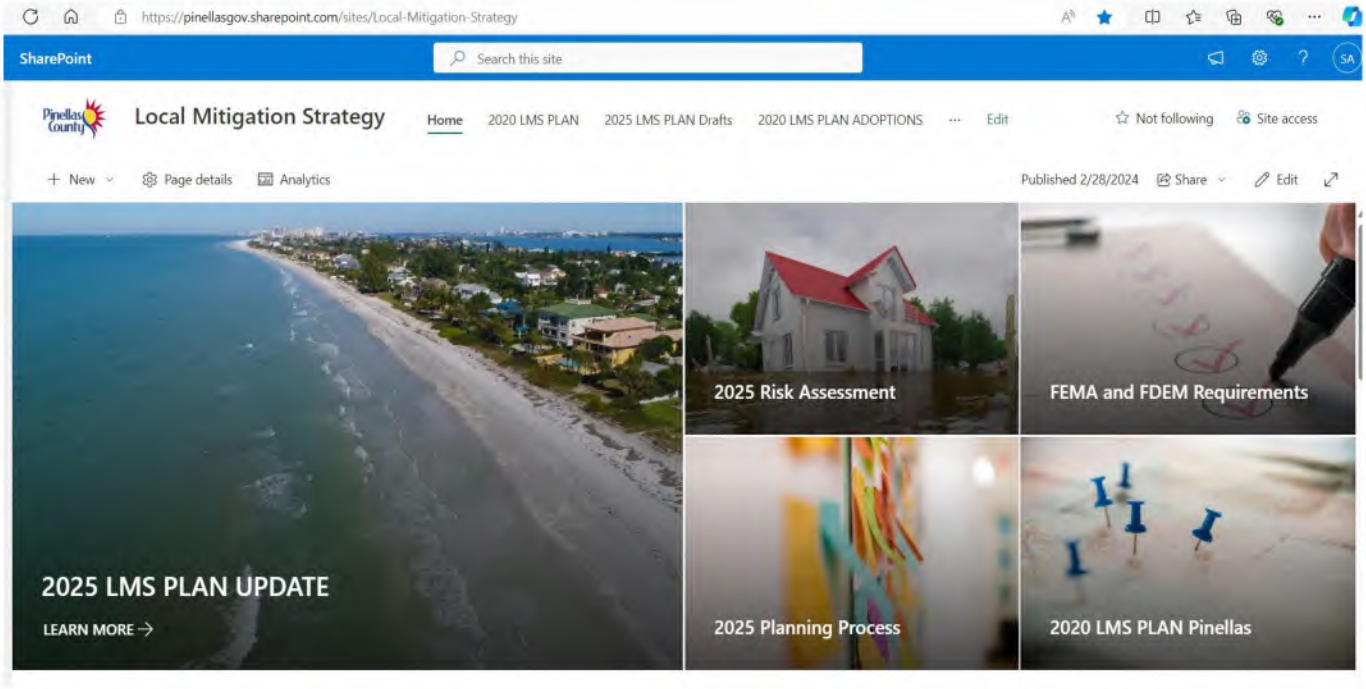
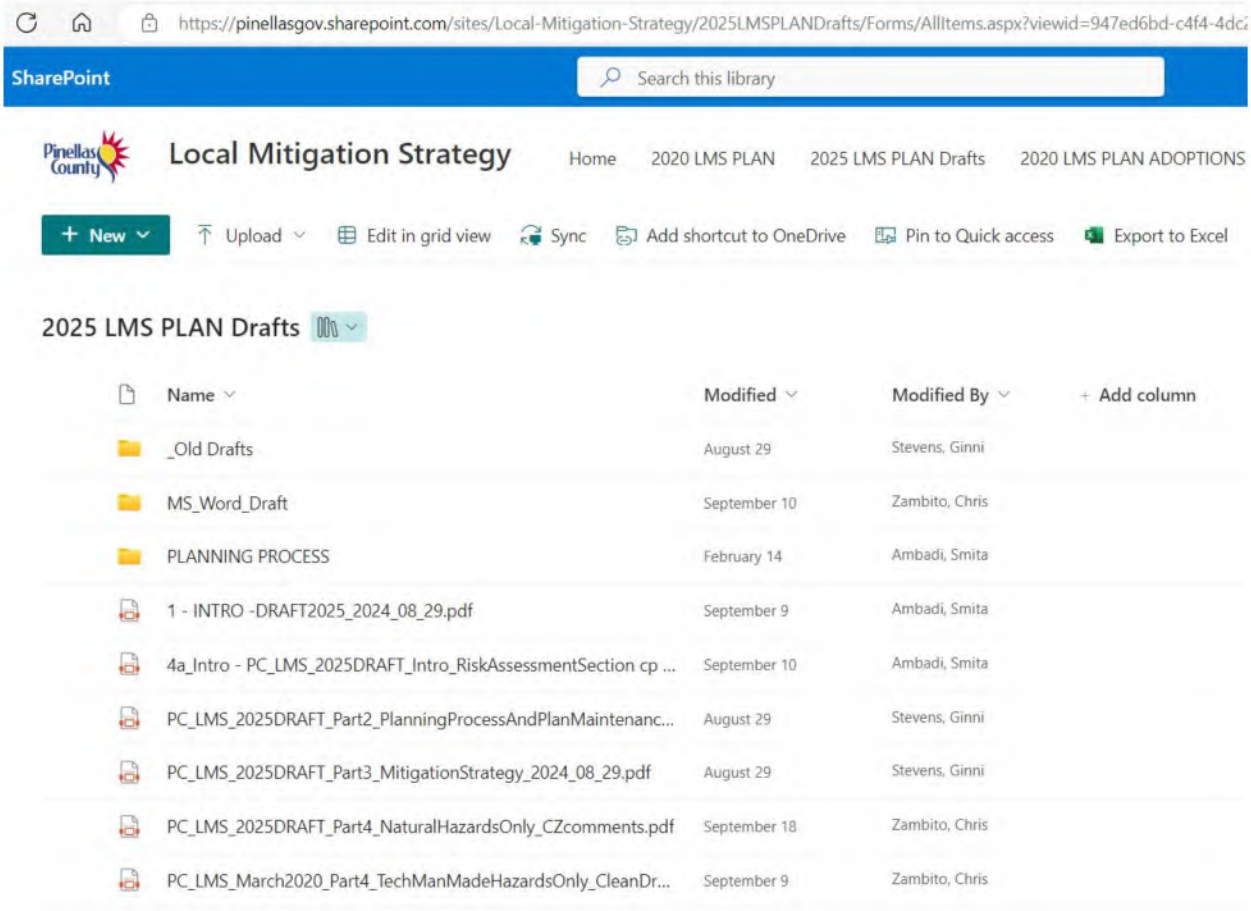
Pinellas County Extension - UF/IFAS	Going Coastal: Estuary-Friendly Living	Hands-on training where participants learn about impacts to local ecosystem	Community Event	County-wide	Protect natural functions (floodplain; habitat; etc.)		9/18/2014	1/22/2025			**Ramona Madhosingh/Libby Carnahan**
Pinellas County Extension - UF/IFAS	Sustainable Floridians	Training for residents on behaviors and impacts to environment - water, land use etc.	7-week Training Program	County-wide	Protect natural functions (floodplain; habitat; etc.)		9/18/2014	1/22/2025			**Ramona Madhosingh/Libby Carnahan**
Pinellas County Extension - UF/IFAS	Clean Marina Workshops	Training and education for marina and boat owners/operators	Presentation to Industry	Businesses	Make your Family/ Business Disaster Plan		9/18/2014	1/22/2025			**Ramona Madhosingh/Libby Carnahan**
Tarpon Springs Housing Authority	Resident Notice	Annual Update of Evacuation Levels	Door-to-Door Distribution	Residents of Tarpon Springs Housing Authority	Public Safety Information (ex. Turn Around Don't Drown)	405	8/25/2014	1/22/2025	9/21/2016		**Deb Amon**
Tarpon Springs Housing Authority	Publication Distribution	"Surviving the Storm" Publication	Door-to-Door Distribution	Residents of Tarpon Springs Housing Authority	Public Safety Information (ex. Turn Around Don't Drown)	405	8/25/2014	1/22/2025	9/21/2016		**Deb Amon**
Tarpon Springs Housing Authority	Disaster/ Emergency Preparedness	Annual Update of Disaster/Emergency Preparedness Plan	Staff Master Document Distribution	Residents of Tarpon Springs Housing Authority	Make your Family/Business Disaster Plan	405	10/31/2014	1/22/2025	9/21/2016		**Deb Amon**
Tarpon Springs Housing Authority	Pinellas County Emergency Management	TSHA's website	Website	County-wide	Make your Family/Business Disaster Plan	929,028	10/31/2014	1/22/2025	9/21/2016		**Deb Amon**
Tampa Bay Regional Planning Council	Website	The www.tampabayprepares.org website was developed to provide families and businesses with information on how to prepare for all hazards, safety tips, and mitigation. The website also has guidance to businesses on how to develop their BCP and protect themselves from economic losses. Also includes the most recent Disaster Planning Guide for Families and Businesses.	Website	County-wide (Residents and Businesses); Spanish speaking	All Target Messages are addressed	12,000	8/22/2014	1/22/2025			**Betti Johnson**
Tampa Bay Regional Planning Council	Disaster Planning Guide - Spanish	A county-specific All-Hazards printed guide which preparedness and mitigation information including floodplain management strategies in Spanish	Brochure/ Publication	Spanish Speaking Residents	All Target Messages are addressed	10,000	8/22/2014	1/22/2025			**Betti Johnson**
Tampa Bay Regional Planning Council	Presentations to Regional Council Members	Staff briefs the Regional Council members on Emergency Management/ Floodplain Management issues throughout the year at the monthly meetings. These include the importance of the Local Mitigation Strategies, CRS and Flood Insurance, available mitigation workshops, hurricane evacuation planning and domestic security.	Presentation to Governing Body	Council members represent the (4) County Commissioners, municipalities and gubernatorial appointees.	All Target Messages are addressed	35	8/22/2014	1/22/2025			**Betti Johnson**
Tampa Bay Regional Planning Council	Community Presentations	Preparedness / Mitigation Talks to Homeowner Groups	Area-Specific Meeting	Hurricane Vulnerable Seniors	Make your Family/ Business Disaster Plan	50	8/22/2014	1/22/2025			**Betti Johnson**
Tampa Bay Regional Planning Council	Presentations to Planners	Briefing to LMS Members on Climate Change and Sea Level Rise	Area-Specific Meeting	County-wide	Know your risk	35	8/22/2014	1/22/2025			**Betti Johnson**
Tampa Bay Regional Planning Council	Participation in Public Safety Events	Booths at NOAA Hurricane Hunter Expo	Community Event	Students and Citizens	Know your risk	200	8/22/2014	1/22/2025			**Betti Johnson**
Palm Harbor Fire Rescue	Facebook Page	Updates on Palm Harbor Fire Rescue Facebook Page	Social Media/ Email	Municipality	Public Safety Information (ex. Turn Around Don't Drown)	Unknown	8/14/2014	1/22/2025			**Bob Markford**
Palm Harbor Fire Rescue	New E-Flash	Updates sent via e-mail in the form of an E-Flash	Social Media/ Email	Those that subscribe and are on the e-flash e-mailing list	Public Safety Information (ex. Turn Around Don't Drown)	100-150	8/14/2014	1/22/2025			**Bob Markford**
Palm Harbor Fire Rescue	Hurricane Preparedness	Talks to various Homeowners Groups in PH	Area-Specific Meeting	Municipality	Know your risk	100-200	8/14/2014	1/22/2025			**Bob Markford**
Pinellas County	Pinellas County Program for Public Information (PPI)	Flood related messages, target audiences, projects, and initiatives	Flood and Hurricane Outreach Program	Unincorporated and countywide projects	PPI Messages	300,000	11/28/2016	1/22/2025	3/18/2019	Located in Attachment 7-6; item was inadvertently omitted from this list, however was entered on the 7-3 Countywide Table	**Lisa Foster**
USF St Petersburg	HURRICANE PREPAREDNESS		Emai/Website/Guide	USF Campus Community	Get a Kit; Make a pLan; Stay Informed	8,500	9/6/2022	1/22/2025	9/6/2022	N/A	**Chief David Henry**

OUTREACH EFFORTS FOR THE LMS FIVE-YEAR UPDATE
Pinellas County

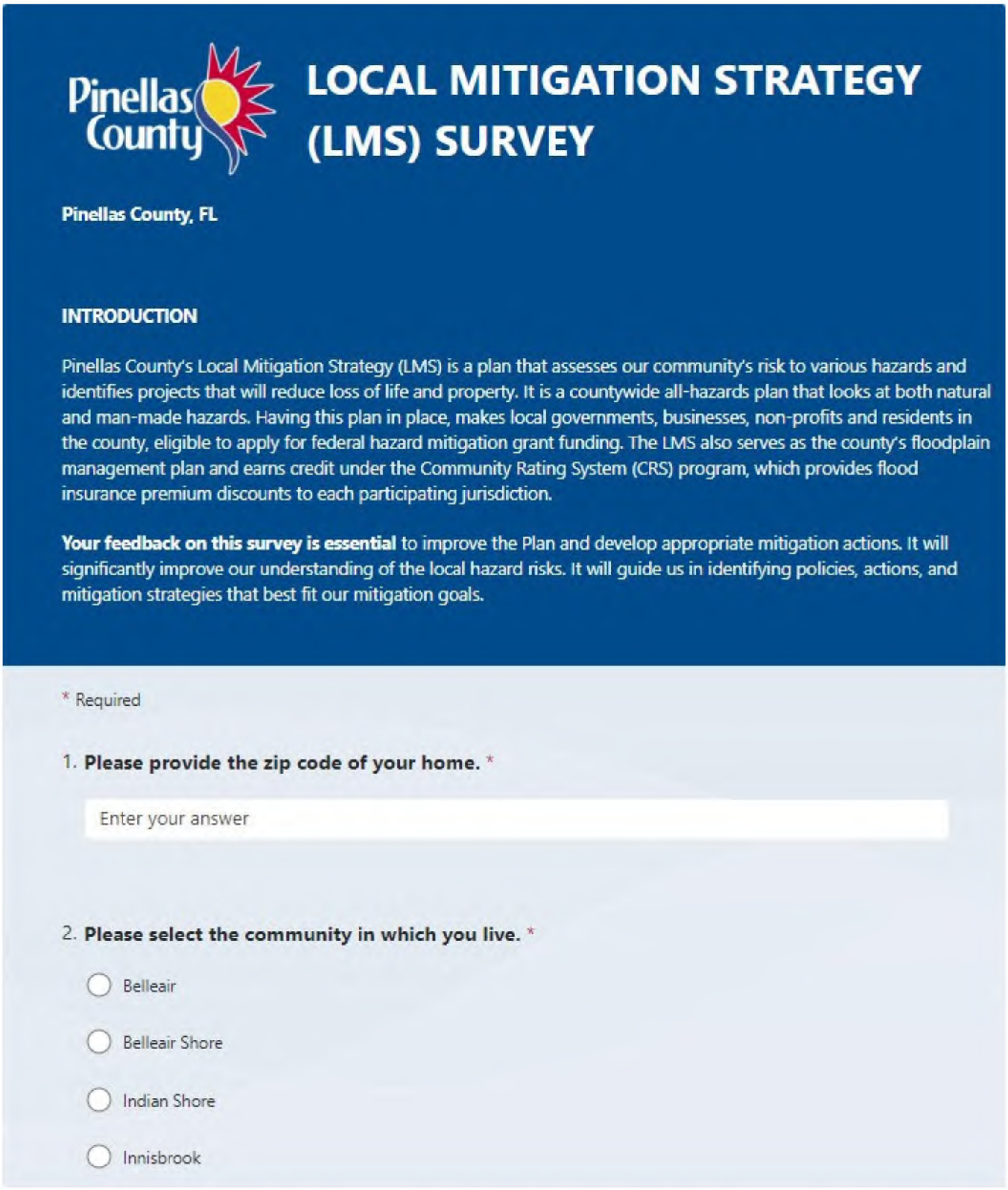
LMS SharePoint Site launched for the LMS Five-Year Update





OUTREACH EFFORTS FOR THE LMS FIVE-YEAR UPDATE
Pinellas County

LMS Online Survey – English Version



Pinellas County

LOCAL MITIGATION STRATEGY (LMS) SURVEY

Pinellas County, FL

INTRODUCTION

Pinellas County's Local Mitigation Strategy (LMS) is a plan that assesses our community's risk to various hazards and identifies projects that will reduce loss of life and property. It is a countywide all-hazards plan that looks at both natural and man-made hazards. Having this plan in place, makes local governments, businesses, non-profits and residents in the county, eligible to apply for federal hazard mitigation grant funding. The LMS also serves as the county's floodplain management plan and earns credit under the Community Rating System (CRS) program, which provides flood insurance premium discounts to each participating jurisdiction.

Your feedback on this survey is essential to improve the Plan and develop appropriate mitigation actions. It will significantly improve our understanding of the local hazard risks. It will guide us in identifying policies, actions, and mitigation strategies that best fit our mitigation goals.

* Required

1. **Please provide the zip code of your home.** *

Enter your answer

2. **Please select the community in which you live.** *

- ○ Belleair
- ○ Belleair Shore
- ○ Indian Shore
- ○ Innisbrook

OUTREACH EFFORTS FOR THE LMS FIVE-YEAR UPDATE
Pinellas County

LMS Online Survey – Spanish Version



Pinellas County

ESTUDIO SOBRE LA ESTRATEGIA LOCAL DE MITIGACIÓN (LMS)

Condado Pinellas, FL

INTRODUCCIÓN

La Estrategia Local de Mitigación (LMS) del Condado Pinellas es un plan que evalúa el riesgo de nuestra comunidad ante diversos peligros e identifica proyectos que reducirán la pérdida de vidas y propiedades. Es un plan para todo tipo de peligros naturales como los provocados por el hombre. Este plan permite a los gobiernos locales, las empresas, las organizaciones sin fines de lucro y los residentes del condado solicitar fondos federales para la mitigación de los riesgos. EL LMS también sirve como plan de manejo de las zonas inundables del condado y obtiene créditos en el marco del programa *Community Rating System (CRS)*, que ofrece descuentos en las primas de seguros contra inundaciones en cada jurisdicción participante.

Sus respuestas a este cuestionario son esenciales para mejorar el Plan y formular acciones de mitigación adecuadas. Mejorará significativamente nuestra comprensión de los riesgos de peligro locales, y nos guiará en la búsqueda de políticas, acciones y estrategias de mitigación que mejor se adapten a nuestros objetivos de mitigación.

* Required

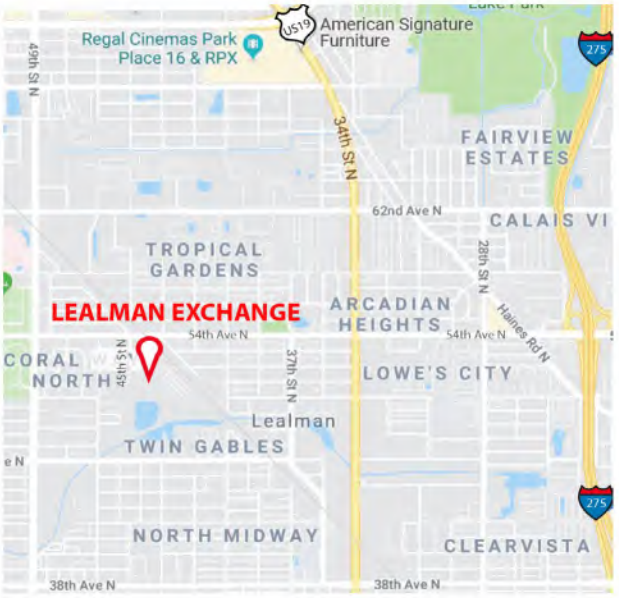
1. **Indique el código postal de su residencia.** *

Enter your answer

2. **Seleccione la comunidad en la que vive.** *

- ○ Belleair
- ○ Belleair Shore
- ○ Indian Shore
- ○ Innisbrook

Local Mitigation Strategy WORKSHOP



Join us at a public workshop to discuss the 5-Year Update for the Local Mitigation Strategy (LMS).

When? **Monday, April 15, 2024**
6:00 – 8:00 p.m.

Where? **Lealman Exchange**
5175 45th Street N.
St. Petersburg, FL 33714

The Pinellas County Local Mitigation Strategy (LMS) is a detailed plan that assesses various types of hazards. It evaluates the risks our communities face from both natural and manmade disasters. The LMS helps numerous jurisdictions manage projects that aim to reduce or even prevent the loss of life and property. Implementing this plan also allows local governments, businesses, non-profits and residents to qualify for federal funding.

Additionally, the LMS acts as the county's floodplain management plan. It earns credit under the Community Rating System (CRS) program, which gives residents and property owners discounts on flood insurance premiums.

The Federal Emergency Management Agency (FEMA) requires us to update the entire plan every five years. We need your help to keep this plan relevant by addressing the evolving risks that may bring harm to our communities.

This public workshop will provide information on hazards we face and seek citizen input on updating our plan to address them.

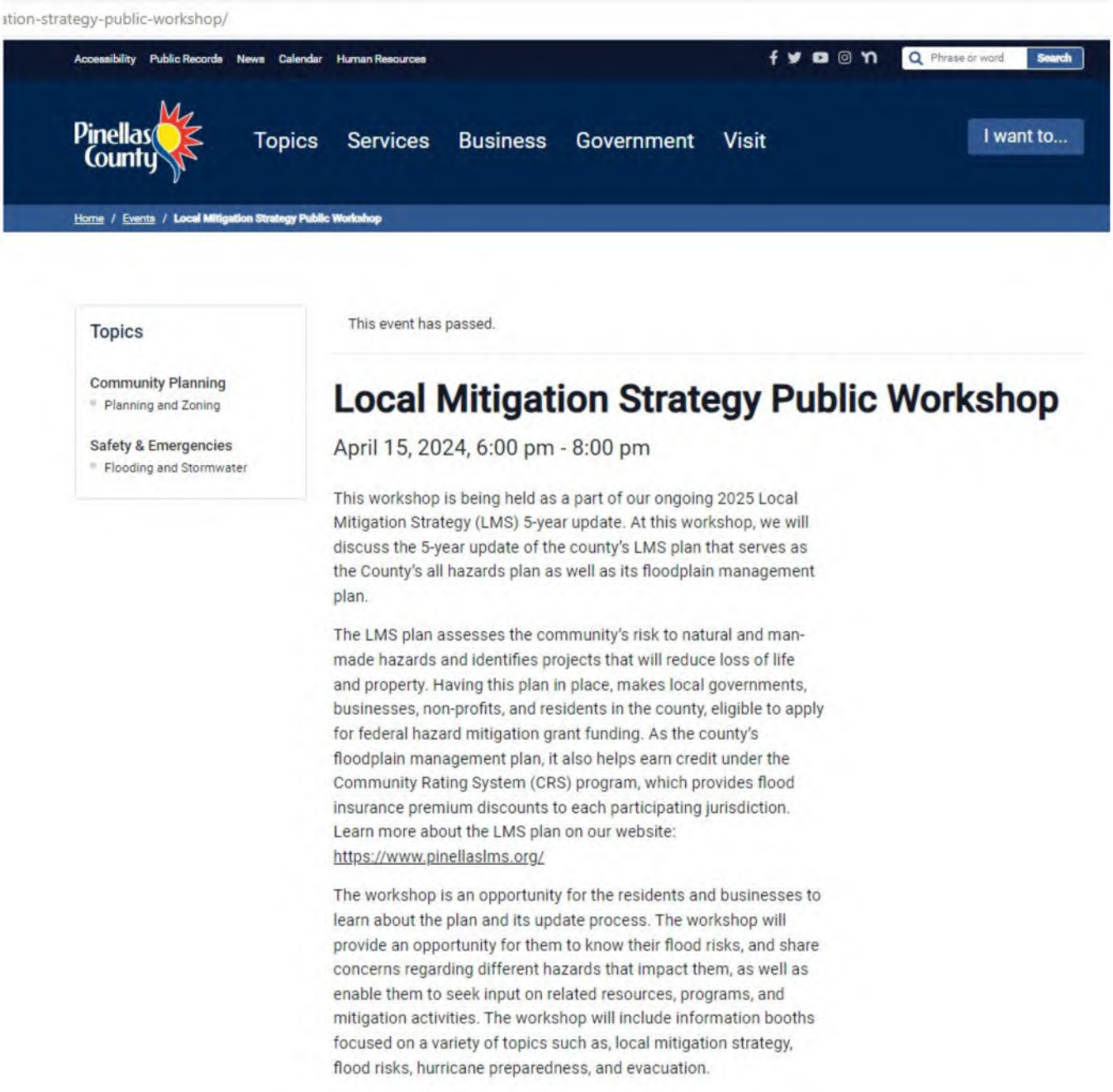
Pinellas County
Housing & Community Development

Want to know more about the project?
www.pinellaslms.org or (727) 464-8200

Pinellas County complies with all federal, state and local laws related to persons with disabilities. To request alternate formats of this information, contact the Office of Human Rights at (727) 464-4062 (V/TDD) or email accommodations@pinellas.gov. 3/24

OUTREACH EFFORTS FOR THE LMS FIVE-YEAR UPDATE
Pinellas County

LMS Workshop advertised on the County Calendar



ıtion-strategy-public-workshop/

Accessibility Public Records News Calendar Human Resources

Phrase or word Search

Pinellas County Topics Services Business Government Visit I want to...

Home / Events / Local Mitigation Strategy Public Workshop

Topics

Community Planning
- Planning and Zoning

Safety & Emergencies
- Flooding and Stormwater

This event has passed.

Local Mitigation Strategy Public Workshop

April 15, 2024, 6:00 pm - 8:00 pm

This workshop is being held as a part of our ongoing 2025 Local Mitigation Strategy (LMS) 5-year update. At this workshop, we will discuss the 5-year update of the county's LMS plan that serves as the County's all hazards plan as well as its floodplain management plan.

The LMS plan assesses the community's risk to natural and man-made hazards and identifies projects that will reduce loss of life and property. Having this plan in place, makes local governments, businesses, non-profits, and residents in the county, eligible to apply for federal hazard mitigation grant funding. As the county's floodplain management plan, it also helps earn credit under the Community Rating System (CRS) program, which provides flood insurance premium discounts to each participating jurisdiction. Learn more about the LMS plan on our website: https://www.pinellaslms.org/

The workshop is an opportunity for the residents and businesses to learn about the plan and its update process. The workshop will provide an opportunity for them to know their flood risks, and share concerns regarding different hazards that impact them, as well as enable them to seek input on related resources, programs, and mitigation activities. The workshop will include information booths focused on a variety of topics such as, local mitigation strategy, flood risks, hurricane preparedness, and evacuation.

OUTREACH EFFORTS FOR THE LMS FIVE-YEAR UPDATE
Pinellas County
Press Release for April 15th LMS Workshop

Departments

Housing and Community Development Department
- Community Development Division
- Planning Division

Topics

Community Planning
- Community Development

Home & Property
- Emergency Preparedness

Safety & Emergencies
- Disaster Preparedness
- Flooding and Stormwater

Contact Information

Planning
310 Court Street
1st Floor
Clearwater, Florida 33756
(727) 464-8200
Fax: (727) 464-8201
Contact – Map

Community Development
440 Court Street
2nd Floor
Clearwater, Florida 33756
(727) 464-8210
Fax: (727) 464-8454
Contact – Map

DRS
440 Court Street
3rd Floor
Clearwater, Florida 33756
Contact – Phones

Permit Technicians
(727) 464-3401 – voice mail

Board of Adjustment and Appeals
(727) 464-5047 – voice mail only

News April 2, 2024

County invites residents to Local Mitigation Strategy workshop



Input will help shape 5-year update to County's Hazards Mitigation Plan

Pinellas County invites residents and business owners to participate in a Local Mitigation Strategy (LMS) workshop on Monday, April 15, from 6-8 p.m. at Lealman Exchange, 5175 45th Street N., St. Petersburg.

The workshop will showcase the County's LMS, which identifies natural and man-made hazards that threaten the area, such as floods, hurricanes and chemical spills. The LMS also sets goals and outlines actions that can reduce or prevent the loss of life, property and other resources from these threats. Attendees can share observations and concerns about how these hazards impact their communities so County staff can improve the plan.

The workshop will include information booths representing County departments and their community partners that specialize in a variety of mitigation topics such as floodplain management, hurricane preparedness and post-disaster recovery resources. Experts in these areas will work with attendees to identify their flood zones and hurricane evacuation zones, evaluate their risk for flooding, and better prepare them for emergencies.

The workshop is the first step in the five-year update of the County's plan, which is required by federal law. Updating the plan keeps the County and its municipalities eligible for federal hazard mitigation grants. The LMS plan also serves as the County's Floodplain Management Plan, which helps property owners at participating jurisdictions receive flood insurance premium discounts through the National Flood Insurance Program's Community Rating System.

For more information about the Local Mitigation Strategy, visit www.pinellaslms.org.

OUTREACH EFFORTS FOR THE LMS FIVE-YEAR UPDATE

Pinellas County

Newspaper AD for April 15th.



Spring Festival 2024 April 10-14

Buying Expensive Watches, Pocket Watches & Diamonds! WE BEAT ALL OFFERS!

OLD NORTHEAST JEWELERS

Record of Decision (ROD)

IS sea level rise... neighborhood flooding... storm surge... affecting you? TELL US!

PINELLAS COUNTY COMMUNITY OPEN HOUSE

When? Monday, April 15, 2024 6:00 – 8:00 p.m.

Where? Lealman Exchange 5175 45th Street N. St. Petersburg, FL 33714

LOCAL MITIGATION STRATEGY WORKSHOP

- Help identify risks in our community
- Learn more about current hazards
- Evaluate your flood risk
- Look up your flood zone
- Flood insurance experts onsite

LEARN MORE www.pinellaslms.org (727) 464-8200

Pinellas County Housing & Community Development

Nation & State

Focus shifts to removal of fallen Baltimore bridge

BRIDGE continued from 13A

Meet Tampa Bay's Home Improvement Experts!

TAMPA BAY HOME SHOW

Presented by Tampa Bay Times

Saturday, April 27 10 a.m. to 5 p.m.

Sunday, April 28 10 a.m. to 5 p.m.

Florida State Fairgrounds 4800 US Hwy 301 Tampa

Everything for the home... inside and out!

Discover exhibits, giveaways, door prizes and more. See the latest trends in home remodeling, from kitchens and baths to flooring and home protection. Find ways to make your home energy-efficient and maybe even a little more fun at the Tampa Bay Home Show!

FREE ADMISSION

Saturday SPECIAL GIFT to First 300 Each Day Sunday

Register for your FREE admission tickets today at www.tampabayhomeshows.com

OUTREACH EFFORTS FOR THE LMS FIVE-YEAR UPDATE
City of Gulfport

Summary of the City's outreach efforts.

From: Taylor, Michael <mtaylor@mygulfport.us>
Sent: Wednesday, March 20, 2024 3:05 PM
To: Ambadi, Smita
Subject: RE: [External] MEETING REMINDER - Today's LMS Working Group Meeting

This Message Is From an External Sender
This message came from outside your organization.

Report Suspicious

Hi Smita,

Great job with the LMS meeting this afternoon! It went quicker than I thought it would.

I just wanted to make a request to get a copy of the Workshop flyer that we discussed today. Since it is ADA compliant, I can have our PIO put it on our website, Email Blast, and social media.

Thank you Smita! I hope the rest of the afternoon will be as smooth as today's webinar!!

Mike

Michael Taylor, AICP, Principal Planner
City of Gulfport Community Development Department
2401-53rd Street South
Gulfport, FL 33707
Phone: (727) 893-1087
Fax: (727) 893-1080
mtaylor@mygulfport.us

Under Florida law, e-mail addresses are public records. If you do not want your e-mail address released in response to a public-records request, do not send electronic mail to me. Instead, contact me by phone or in writing.

OUTREACH EFFORTS FOR THE LMS FIVE-YEAR UPDATE
City of Gulfport

Workshop information shared using constant contact email blast.

City of Gulfport: Constant Contact Email Blast

Public Cameras
Do you love Gulfport and wish you could be here all the time? Check out our live streaming cameras **here!**

Gulfport Charter & Code of Ordinances
Online access is provided at the following **link.**

Bill Payment Options
View and pay Utility & Marina Billing accounts online **here.**

Employee Directory
Click **here** to view the Gulfport Employee Directory.





Pinellas County: Local Mitigation Strategy Workshop
Monday, April 15th | 6 - 8 p.m.
Lealman Exchange, 5175 45th St N.

Pinellas County's 2020 Local Mitigation Strategy (LMS) Plan is currently being revised as a part of the 2025 5-Year Update. The five-year update is required by the Federal Emergency Management Agency (FEMA) and will be completed using input received from the general public, and several public and private agencies and non-profit organizations. We would appreciate your input on this very important plan update. Please reach out to us, in case you have any comments or questions. Call (727) 464-8200 or visit **https://www.pinellaslms.org/** to learn more.

OUTREACH EFFORTS FOR THE LMS FIVE-YEAR UPDATE
City of Gulfport

Workshop information shared through Facebook.

City of Gulfport: Facebook Post

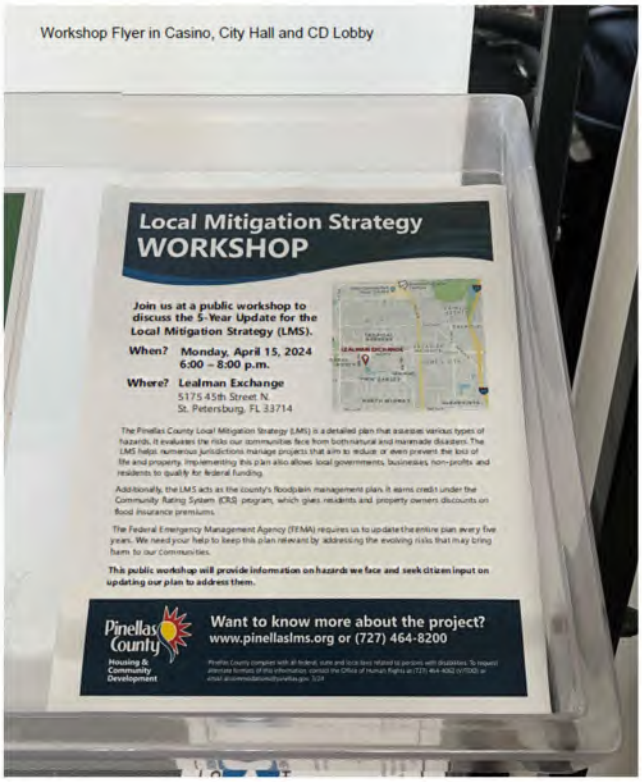
City of Gulfport Florida
Published by Kristin Ossola · Just now ·

Pinellas County's 2020 Local Mitigation Strategy (LMS) Plan is currently being revised as a part of the 2025 5-Year Update. The five-year update is required by the Federal Emergency Management Agency (FEMA) and will be completed using input received from the general public, and several public and private agencies and non-profit organizations. We would appreciate your input on this very important plan update. Please reach out to us, in case you have any comments or questions. Visit https://www.pinellaslms.org/ to learn more.

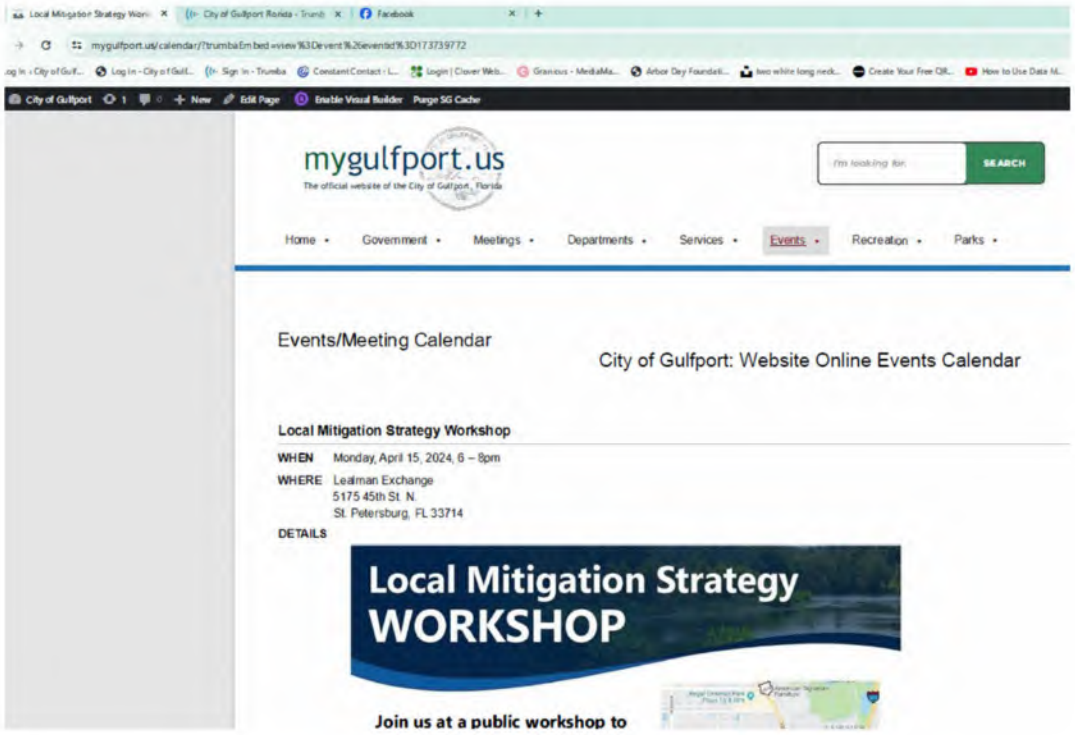


OUTREACH EFFORTS FOR THE LMS FIVE-YEAR UPDATE
City of Gulfport

Workshop Flyer Shared at the City's Casino, Community Development lobby, and City Hall lobby

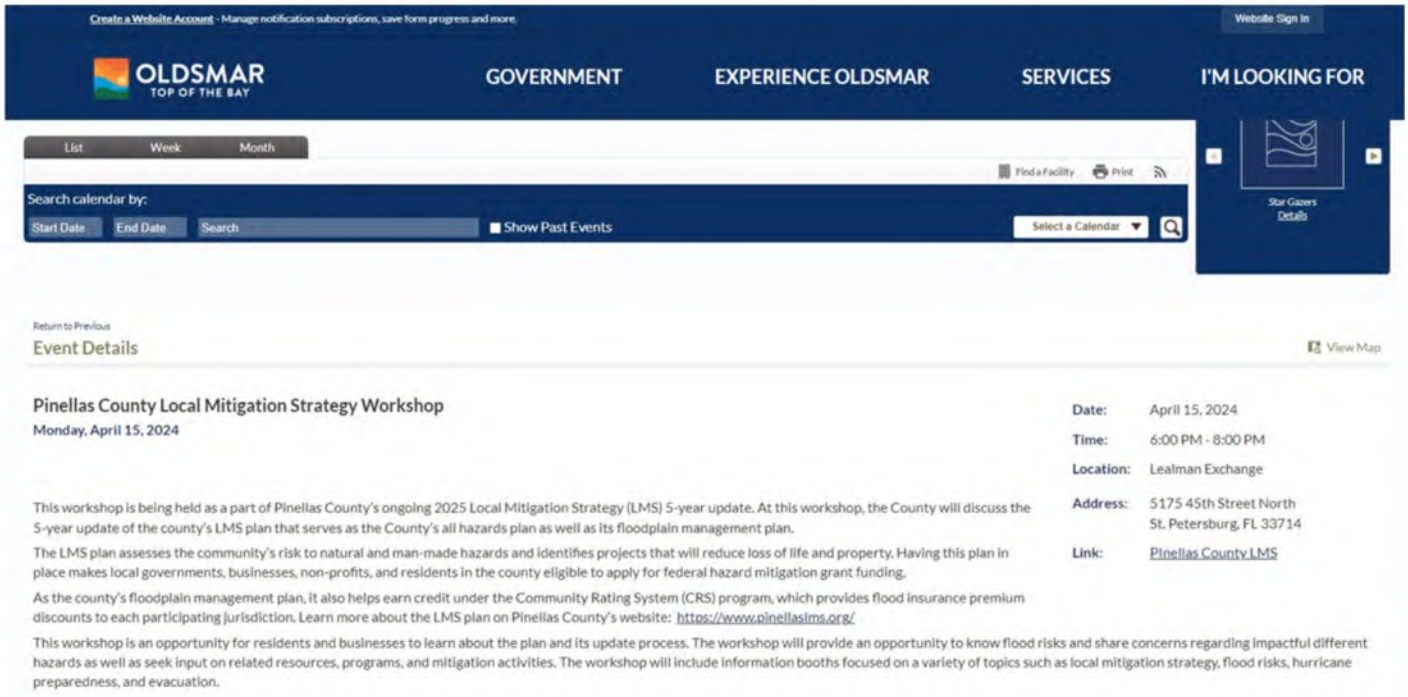


Advertised on the City's Website (Event Calendar)



OUTREACH EFFORTS FOR THE LMS FIVE-YEAR UPDATE
City of Oldsmar

Workshop advertised through the City's event calendar.



Create a Website Account - Manage notification subscriptions, save form progress and more.

Website Sign In

OLDSMAR TOP OF THE BAY

GOVERNMENT | EXPERIENCE OLDSMAR | SERVICES | I'M LOOKING FOR

List | Week | Month

Find a Facility | Print

Search calendar by:

Start Date | End Date | Search | Show Past Events | Select a Calendar

Star Gazers Details

Return to Previous

Event Details

View Map

Pinellas County Local Mitigation Strategy Workshop

Monday, April 15, 2024

Date: April 15, 2024
Time: 6:00 PM - 8:00 PM
Location: Lealman Exchange
Address: 5175 45th Street North St. Petersburg, FL 33714
Link: Pinellas County LMS

This workshop is being held as a part of Pinellas County's ongoing 2025 Local Mitigation Strategy (LMS) 5-year update. At this workshop, the County will discuss the 5-year update of the county's LMS plan that serves as the County's all hazards plan as well as its floodplain management plan.

The LMS plan assesses the community's risk to natural and man-made hazards and identifies projects that will reduce loss of life and property. Having this plan in place makes local governments, businesses, non-profits, and residents in the county eligible to apply for federal hazard mitigation grant funding.

As the county's floodplain management plan, it also helps earn credit under the Community Rating System (CRS) program, which provides flood insurance premium discounts to each participating jurisdiction. Learn more about the LMS plan on Pinellas County's website: https://www.pinellaslms.org/

This workshop is an opportunity for residents and businesses to learn about the plan and its update process. The workshop will provide an opportunity to know flood risks and share concerns regarding impactful different hazards as well as seek input on related resources, programs, and mitigation activities. The workshop will include information booths focused on a variety of topics such as local mitigation strategy, flood risks, hurricane preparedness, and evacuation.

Workshop Advertised Through the City's X (Twitter) Page



← Post

City of Oldsmar, FL
@Oldsmar

Pinellas County's 2020 LMS Plan is being revised for 5-Year Update as required by FEMA and the County wants your input at public workshop Mon, Apr 15 6-8p at Lealman Exchange. For details, visit ayr.app/l/tpPN/.

2:31 PM · Apr 15, 2024 · 58 Views

OUTREACH EFFORTS FOR THE LMS FIVE-YEAR UPDATE
City of Pinellas Park

Workshop flyer advertised through the City's social media posts.

Post details
ID: 18032577589900659

Post overview
This view of your post may not represent exactly how it appears on your Instagram feed.



Performance for your post
Reported stats may be delayed from what appears on posts.

74
Accounts Center accounts reached

Post interactions

3 likes	0 Comment
0 Save	

Account activity

0 texts	0 emails
0 calls	0 get directions
0 website clicks	

Insights activity is reported in Pacific time zone. Ads

Boost

OUTREACH EFFORTS FOR THE LMS FIVE-YEAR UPDATE
City of Pinellas Park

Summary of the City's outreach efforts.

From: Suzanne Boisvert <SBoisvert@pinellas-park.com>
Sent: Friday, May 10, 2024 11:07 AM
To: Ambadi, Smita
Subject: Social Media posts_LMS Workshop
Attachments: PPFD FB POST_LMS WORKSHOP.jpg; PPFD IG POST_LMS WORKSHOP.jpg

This Message Is From an External Sender
This message came from outside your organization.
Report Suspicious

Hi Smita,
For your records: I've attached screen shots of the social media posts we did for the april 15 workshop. We advertised on our PPFD Facebook and IG platforms.

Suzanne Boisvert, FPEM
Emergency Management Coordinator
Pinellas Park Fire Department
11350 43rd Street N
Pinellas Park, FL 33762
Office: (727) 369-5808

Workshop advertised through the City's social media posts.

Post details
ID: 846705084170815

Post overview
This view of your post may not represent exactly how it appears on Facebook's News Feed.

Pinellas Park Fire Department
Published by PinellasPark FireDept · April 5 ·

Pinellas County is hosting a Local Mitigation Strategy Update Workshop on Monday, April 15, from 6-8 p.m. at Lealman Exchange, 5175 45th Street N., St. Petersburg.

This workshop informs residents and business owners about our county's LMS, which identifies both natural and man-made hazards threatening our area. It also lays out goals and actions to help minimize the risks to life and property.

Various booths representing County departments and community partners will be o... See more



Post performance
There may be delays in stats reporting. To see the most up-to-date stats please go to your live post.

625
Accounts Center accounts reached
0% from boosted posts

625 organic	0 paid

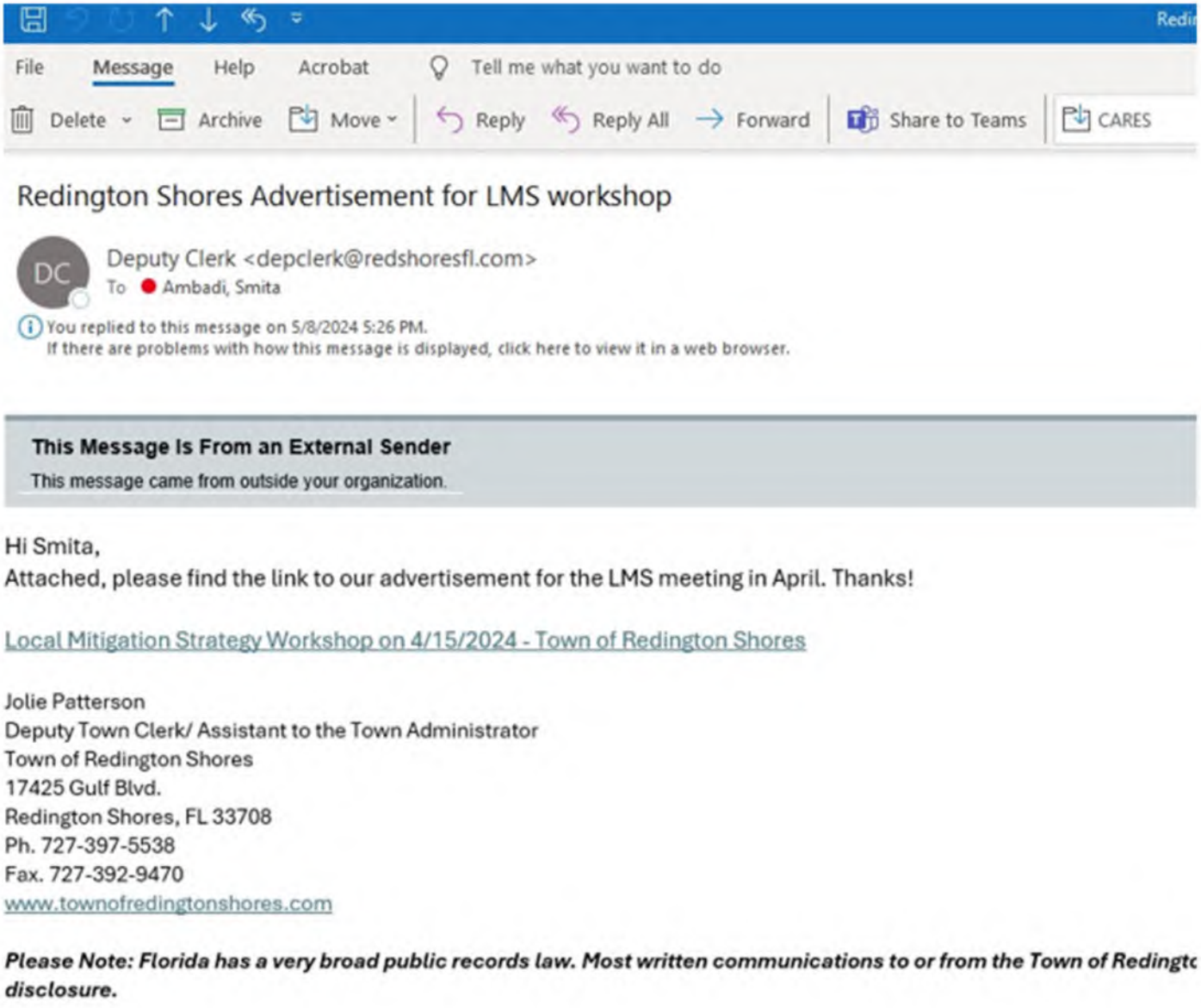
5
Post engagements

2 reactions	**0 Comment**
2 on post	0 on post
0 on shares	0 on shares
1 share	**2 clicks**
1 on post	1 photo clicks

Boost

OUTREACH EFFORTS FOR THE LMS FIVE-YEAR UPDATE
Town of Redington Shores

Town's outreach efforts.



File Message Help Acrobat Tell me what you want to do

Delete Archive Move Reply Reply All Forward Share to Teams CARES

Redington Shores Advertisement for LMS workshop

DC Deputy Clerk <depclerk@redshoresfl.com>
To Ambadi, Smita

You replied to this message on 5/8/2024 5:26 PM.
If there are problems with how this message is displayed, click here to view it in a web browser.

This Message Is From an External Sender
This message came from outside your organization.

Hi Smita,
Attached, please find the link to our advertisement for the LMS meeting in April. Thanks!

Local Mitigation Strategy Workshop on 4/15/2024 - Town of Redington Shores

Jolie Patterson
Deputy Town Clerk/ Assistant to the Town Administrator
Town of Redington Shores
17425 Gulf Blvd.
Redington Shores, FL 33708
Ph. 727-397-5538
Fax. 727-392-9470
www.townofredingtonshores.com

Please Note: Florida has a very broad public records law. Most written communications to or from the Town of Redingtc disclosure.

OUTREACH EFFORTS FOR THE LMS FIVE-YEAR UPDATE
Town of Redington Shores

Advertised the LMS Workshop through the Town's website.

https://townofredingtonshores.com/local-mitigation-strategy-workshop-on-4-15-2024/

Town of Redington Shores

HOME GOVERNMENT RESIDENTS

Local Mitigation Strategy Workshop on 4/15/2024

March 25, 2024 community, events, flood and insurance

Join us at a public workshop to discuss the 5-Year Update for the Local Mitigation Strategy (LMS).

When? Monday, April 15, 2024
6:00 – 8:00 p.m.

Where? Lealman Exchange
5175 45th Street N.
St. Petersburg, FL 33714



Click for larger

The Pinellas County Local Mitigation Strategy (LMS) is a detailed plan that assesses various types of hazards. It evaluates the risks our communities face from both natural and manmade disasters. The LMS helps numerous jurisdictions manage projects that aim to reduce or even prevent the loss of life and property. Implementing this plan also allows local governments, businesses, non-profits and residents to qualify for federal funding.

Additionally, the LMS acts as the county's floodplain management plan. It earns credit under the Community Rating System (CRS) program, which gives residents and property owners discounts on flood insurance premiums.

The Federal Emergency Management Agency (FEMA) requires us to update the entire plan every five years. We need your help to keep this plan relevant by addressing the evolving risks that may bring harm to our communities.

This public workshop will provide information on hazards we face and seek citizen input on updating our plan to address them.

Want to know more about the project?
www.pinellaslms.org or (727) 464-8200
Pinellas County complies with all federal, state and local laws related to persons with disabilities. To request alternate formats of this information, contact the Office of Human Rights at (727) 464-4062 (V/TDD) or email accommodations@pinellas.gov.

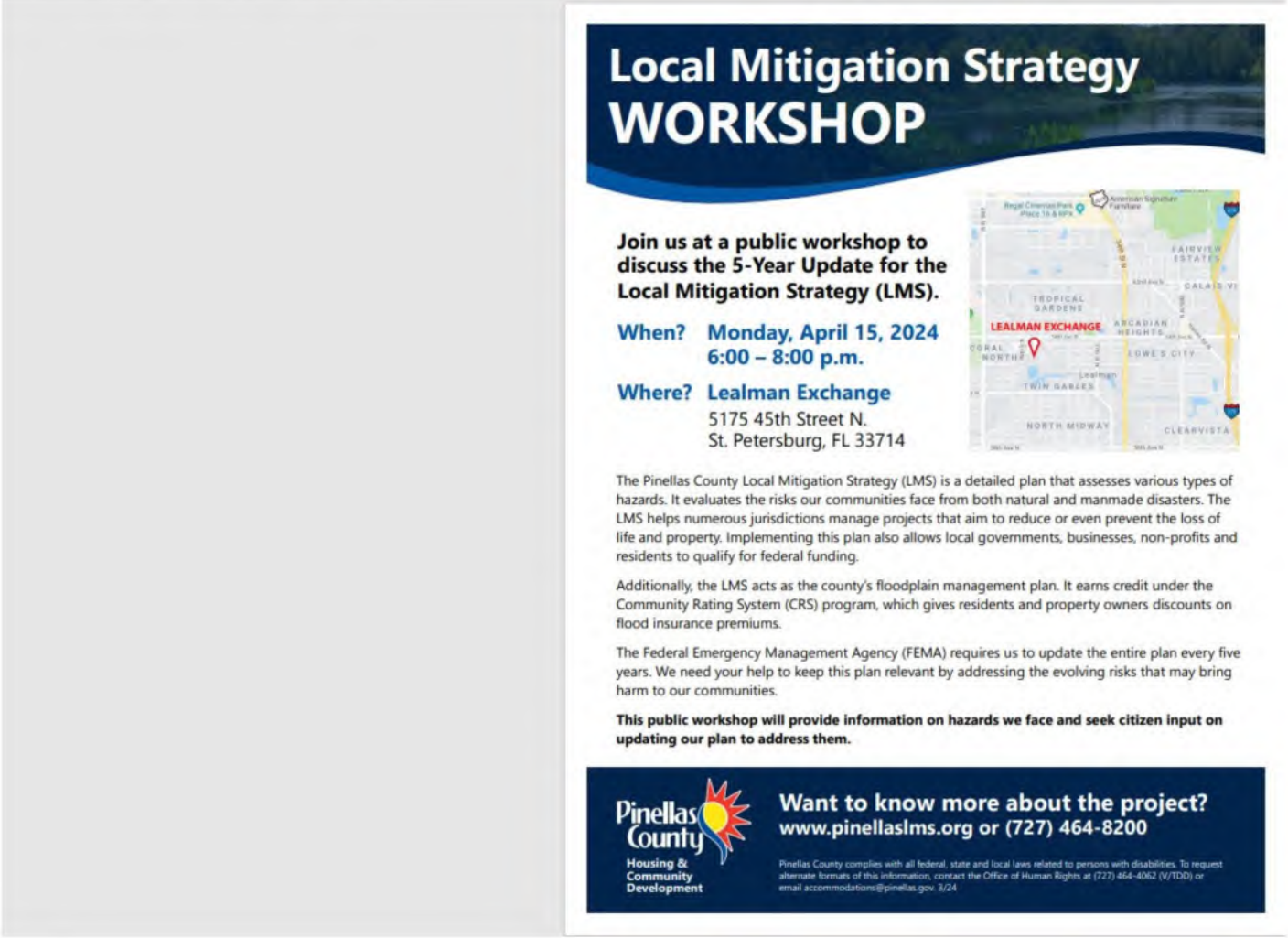
Pinellas County

OUTREACH EFFORTS FOR THE LMS FIVE-YEAR UPDATE
Town of Redington Shores

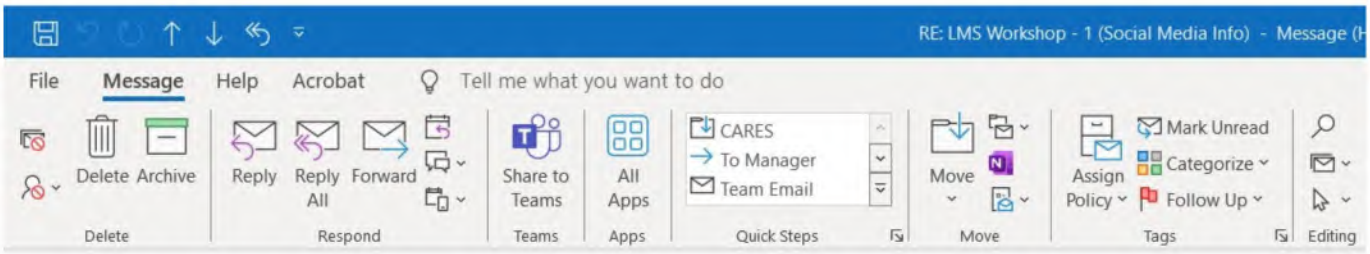
Workshop flyer distributed through the Town's website.

https://townofredingtonshores.com/wp-content/uploads/2024/03/LMS-Workshop-Flyer-March2024_FINAL-ONLINE.pdf

Draw | Ask Copilot | 1 of 1



OUTREACH EFFORTS FOR THE LMS FIVE-YEAR UPDATE
City of St. Petersburg



RE: LMS Workshop - 1 (Social Media Info)

HR Hannah J. Rebholz <hannah.rebholz@stpete.org>
To Ambadi, Smita

You replied to this message on 4/8/2024 7:58 AM.
If there are problems with how this message is displayed, click here to view it in a web browser.

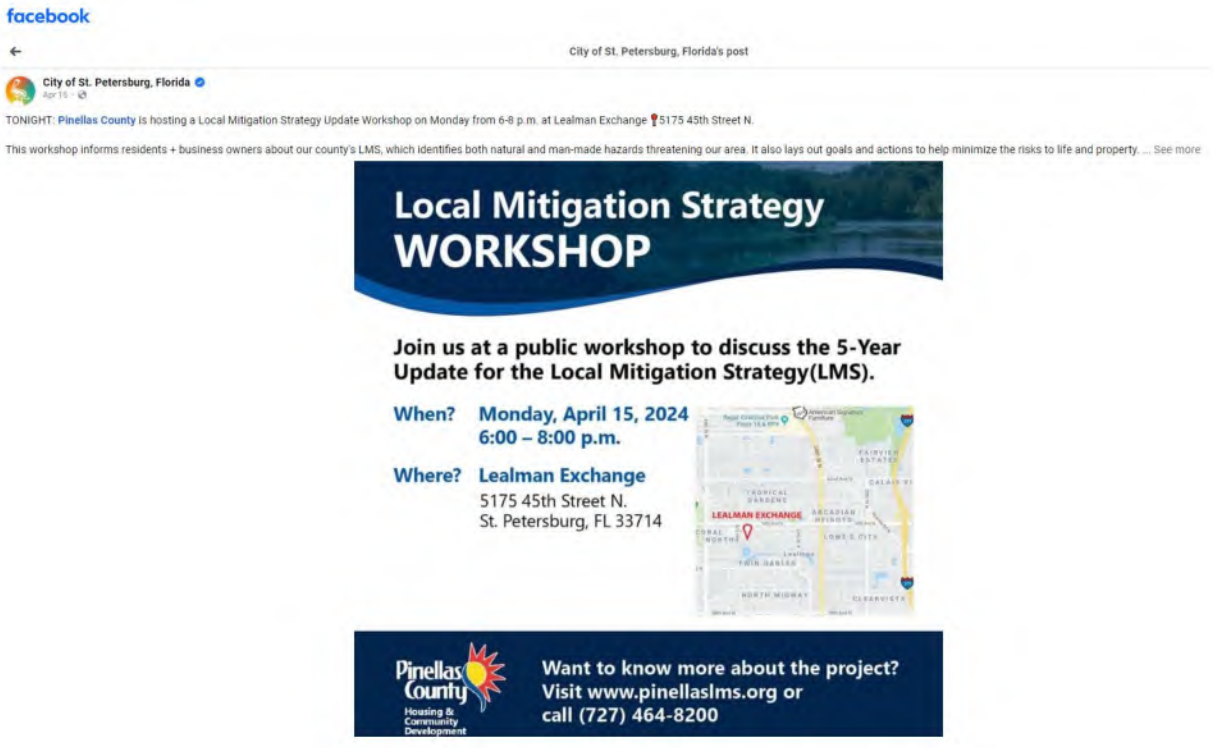
This Message Is From an External Sender
This message came from outside your organization.

Thank you Smita! I have sent everything to our marketing group for them to use!

Have a great weekend!

Hannah J. Rebholz, CFM
Floodplain Manager
O: (727) 551-3321
City of St. Petersburg | Planning & Development Services

Workshop flyer distributed through the City's Facebook page.



OUTREACH EFFORTS FOR THE LMS FIVE-YEAR UPDATE
City of St. Petersburg

Workshop flyer distributed through the City's social media.

City of St. Petersburg, Florida

Intro

This is the official government page for the City of St. Petersburg, Florida.

Page · Government organization

(727) 893-7111

ServiceCenter@stpete.org

stpete.org/service

stpete.org

Photos See all photos



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Like Comment

City of St. Petersburg, Florida
April 15 at 1:34 PM ·

TONIGHT: Pinellas County is hosting a Local Mitigation Strategy Update Workshop on Monday from 6-8 p.m. at Lealman Exchange 5175 45th Street N.

This workshop informs residents + business owners about our county's LMS, which identifies both natural and man-made hazards threatening our area. It also lays out goals and actions to help minimize the risks to life and property.

For more details about the Local Mitigation Strategy, visit: www.pinellaslms.org/



OUTREACH EFFORTS FOR THE LMS FIVE-YEAR UPDATE
City of St. Petersburg

Workshop flyer distributed through the City's social media.

City of St. Petersburg, Florida

Intro

This is the official government page for the City of St. Petersburg, Florida.

Page · Government organization

(727) 893-7111

ServiceCenter@stpete.org

stpete.org/service

stpete.org

Photos See all photos



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Like Comment

City of St. Petersburg, Florida
April 15 at 1:34 PM ·

TONIGHT: Pinellas County is hosting a Local Mitigation Strategy Update Workshop on Monday from 6-8 p.m. at Lealman Exchange 5175 45th Street N.

This workshop informs residents + business owners about our county's LMS, which identifies both natural and man-made hazards threatening our area. It also lays out goals and actions to help minimize the risks to life and property.

For more details about the Local Mitigation Strategy, visit: www.pinellaslms.org/



OUTREACH EFFORTS FOR THE LMS FIVE-YEAR UPDATE
City of St. Petersburg

Oct. 17th LMS Workshop advertised through the City's social media.

City of St. Petersburg, Florida
October 16 at 10:03 AM ·

IMPORTANT VIRTUAL PUBLIC MEETING TOMORROW:

Pinellas County Government is hosting a Local Mitigation Strategy Update via Zoom tomorrow (Oct 17). This public workshop will provide information on the hazards we face and seek citizen input on updating our plan to address them.

If you're interested in attending, please register here:
https://register.gotowebinar.com/regi.../6070507492628168541



OUTREACH EFFORTS FOR THE LMS FIVE-YEAR UPDATE
City of Clearwater

Surveys distributed through the City's Main Library

From: Stoner, David <David.Stoner@myClearwater.com>
Sent: Wednesday, May 1, 2024 4:39 PM
To: Kessler, Sarah <sarah.kessler@myclearwater.com>; Ambadi, Smita <sambadi@pinellas.gov>
Cc: Graham, Jevon A. <Jevon.Graham@myclearwater.com>; Smith, Derek <derek.smith@myClearwater.com>
Subject: RE: Local Mitigation Strategy (LMS) - SURVEY

Hi, all –

We'll be happy to put the surveys on our 1st Circulation desk near the lobby as well as our "adult floor" at the 3rd floor Reference Desk. Will physical copies be provided, or do we print them out ourselves? We're fine either way, just wondering. 😊
Thanks!

David Stoner
Main Library

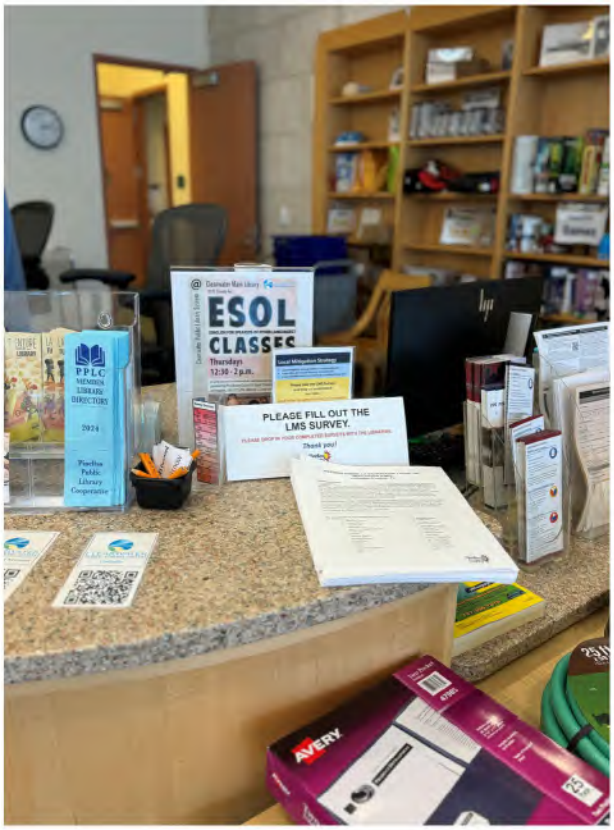
From: Kessler, Sarah <Sarah.Kessler@myclearwater.com>
Sent: Wednesday, May 1, 2024 3:47 PM
To: Ambadi, Smita <sambadi@pinellas.gov>; Stoner, David <David.Stoner@myClearwater.com>
Cc: Graham, Jevon A. <Jevon.Graham@myClearwater.com>; Smith, Derek <Derek.Smith@MyClearwater.com>
Subject: Re: Local Mitigation Strategy (LMS) - SURVEY

Great summary Smita.
David, you have any questions or concerns let me know. As mentioned below, the LMS is a federal requirement that the city council adopts. Obviously libraries are a great way to disseminate information.

Sarah E. Kessler, CFM

Lead Environmental Specialist





OUTREACH EFFORTS FOR THE LMS FIVE-YEAR UPDATE
City of Tarpon Springs

From: Megan Araya <maraya@tsfr.us>
Sent: Friday, March 1, 2024 10:51 AM
To: Allie Keen <AKeen@ctsfl.us>
Subject: FW: LMS Five-Year Update (Workshop)

Hi Allie,

Would you be able to help the county out by posting an LMS workshop announcement on Connect Tarpon? I posted something eons ago and am unsure I would know where to begin. Thank you Allie, if not I completely understand…I know we are all slammed these days.

Thank you,
Megan Araya, MBA, CFM
Emergency Management Coordinator | Floodplain Administrator
Office of Emergency and Floodplain Management
Tarpon Springs Fire Rescue

From: Allie Keen <AKeen@ctsfl.us>
Sent: Thursday, March 21, 2024 11:34 AM
To: Ambadi, Smita <sambadi@pinellas.gov>
Subject: RE: LMS Five-Year Update (Workshop)

Hey Smita!

The link below should allow you to preview the project page (let me know if you have any issues). Once you have the survey link, I can update the 'How to Get Involved' section to include a link. I will also send a newsletter out once you have the survey link. The newsletter can include the flyer, link to project page, and survey link.

https://connecttarponsprings.com/shared_link/swrfrtcz

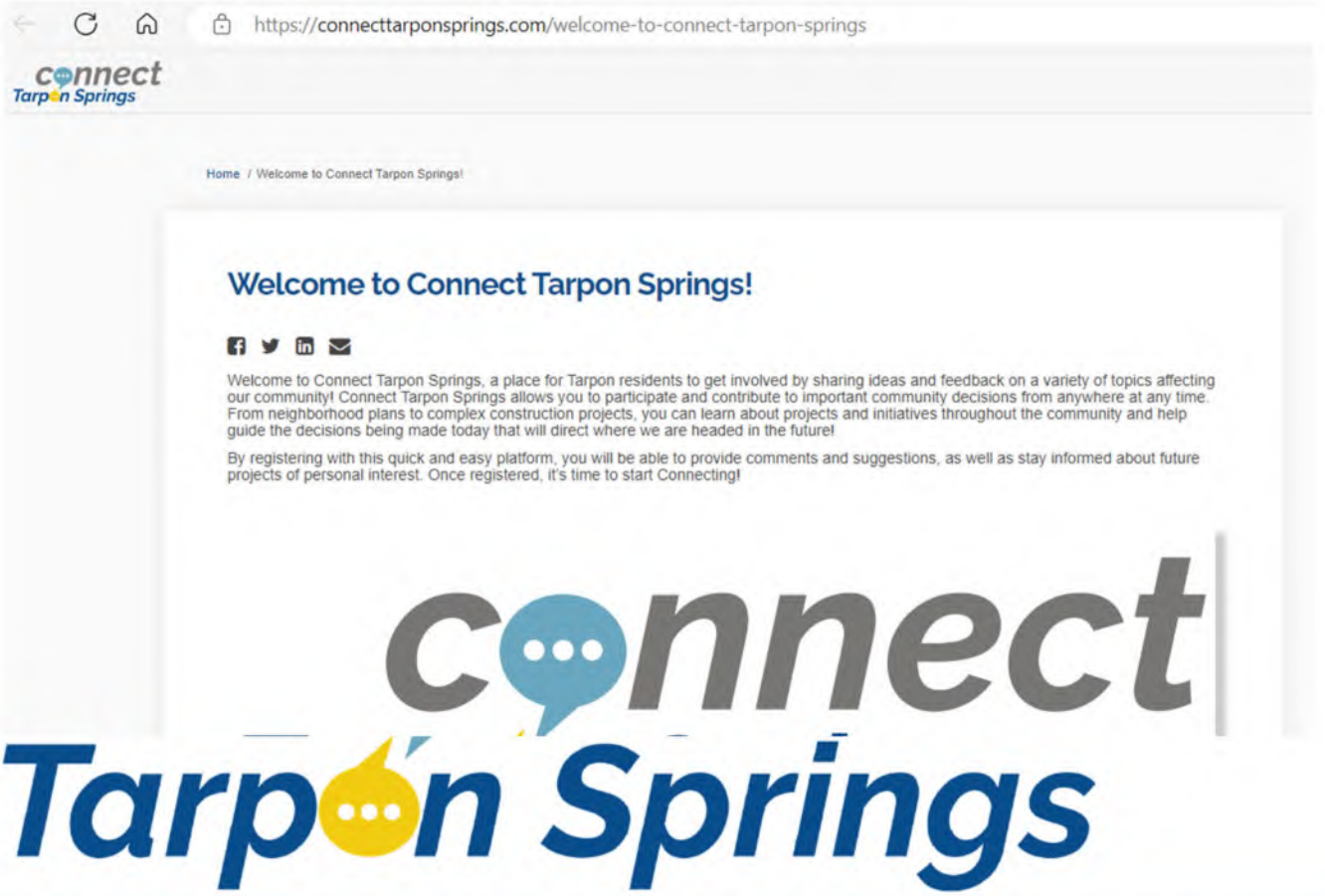
Let me know if you would like anything changed on the project page. If not, I can go ahead and publish it.

Thank you!

Allie Keen, AICP
Principal Planner
City of Tarpon Springs – Planning & Zoning
akeen@ctsfl.us
727.942.5611

OUTREACH EFFORTS FOR THE LMS FIVE-YEAR UPDATE
City of Tarpon Springs

An introduction to the LMS Program, the LMS Workshop flyer and survey links distributed through the City's Connect Tarpon Springs.



connect Tarpon Springs



OUTREACH EFFORTS FOR THE LMS FIVE-YEAR UPDATE
City of Tarpon Springs

Additionally, a newsletter released regarding the LMS Workshop

Home / Pinellas County's Local Mitigation Strategy (LMS)

Pinellas County's Local Mitigation Strategy (LMS)

BACKGROUND:



The LMS is a multijurisdictional Countywide program. Pinellas County leads this program in collaboration with our 24 municipalities and several public and private partners. As a part of this program, we maintain the LMS Plan. This plan serves as the **All-Hazards Plan** for the County and its 24 municipalities. It also serves as the **Floodplain Management Plan** for the County and its participating jurisdictions.

The LMS identifies potential hazards and vulnerabilities within the County. As our all-hazards plan, the LMS looks at both natural and man-made hazards that impact people, buildings, infrastructure, and the environment. These hazards could be natural hazards such as floods, sink holes, tropical storms, hurricanes, and wildfires. These could be man-made hazards such as hazardous waste spills, cyber security threats or reduction in air quality. In addition to identifying our risks, the Plan also identifies goals and establishes specific mitigation actions to reduce these risks. As a part of this LMS program the County, and its municipalities, actively engage in mitigation projects to address the identified risks.

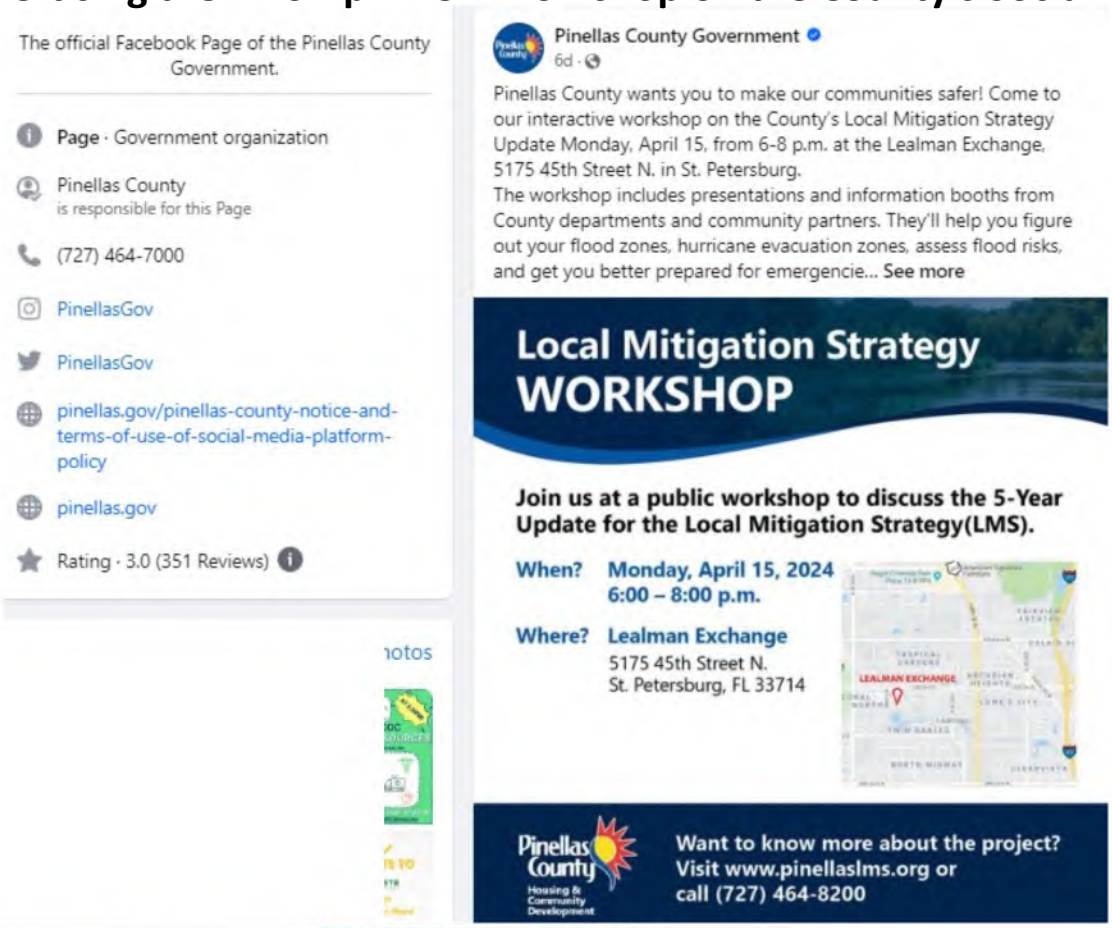
Local mitigation plans are required under Section 322 of the Robert T. Stafford Disaster Relief and Emergency Assistance Act (Stafford Act) as enacted under the Disaster Mitigation Act of 2000. Every five years, as mandated by Federal Emergency Management Agency (FEMA), we are required to do a complete update of our LMS Plan. Maintaining this Plan, helps Pinellas County and its 24 municipalities, remain eligible for federal hazard mitigation grants. It also helps us in attaining flood insurance discounts for our citizens, through the National Flood Insurance Program's Community Rating System.

Our current 2020 LMS Plan, expires in 2025. Pinellas County and its 24 municipalities are currently working on the LMS Plan's 5-year Update. This is due to the Florida Division of Emergency Management (FDEM) in November this year.

For more information about the Local Mitigation Strategy, visit: https://www.pinellaslms.org/

OUTREACH EFFORTS FOR THE LMS FIVE-YEAR UPDATE
Pinellas County

Advertising the LMS April 15th Workshop on the County's Social Media.







Survey Booths at the April 15th LMS Workshop.

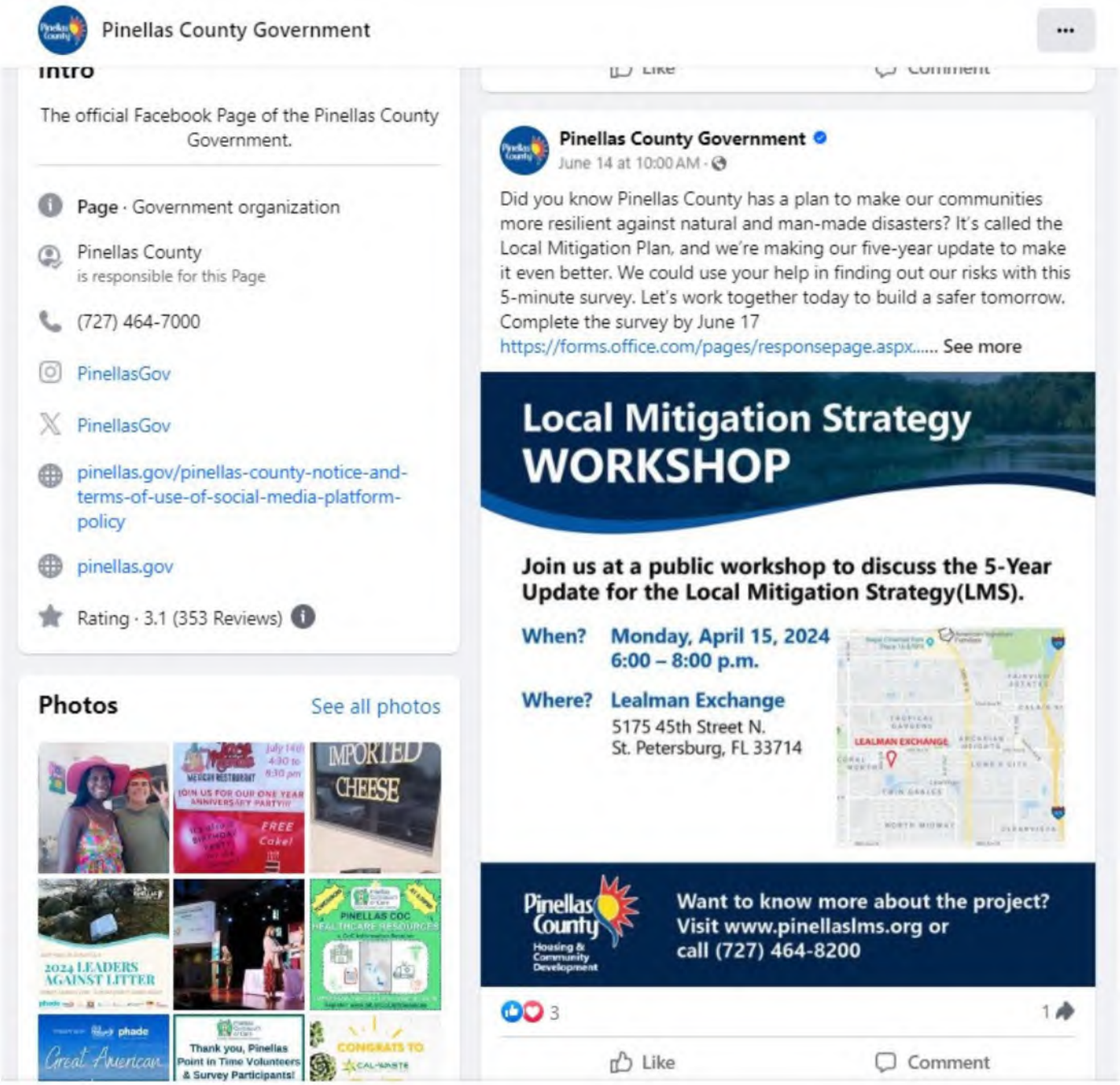
Pictures from the April 15th LMS Workshop.





OUTREACH EFFORTS FOR THE LMS FIVE-YEAR UPDATE
Pinellas County

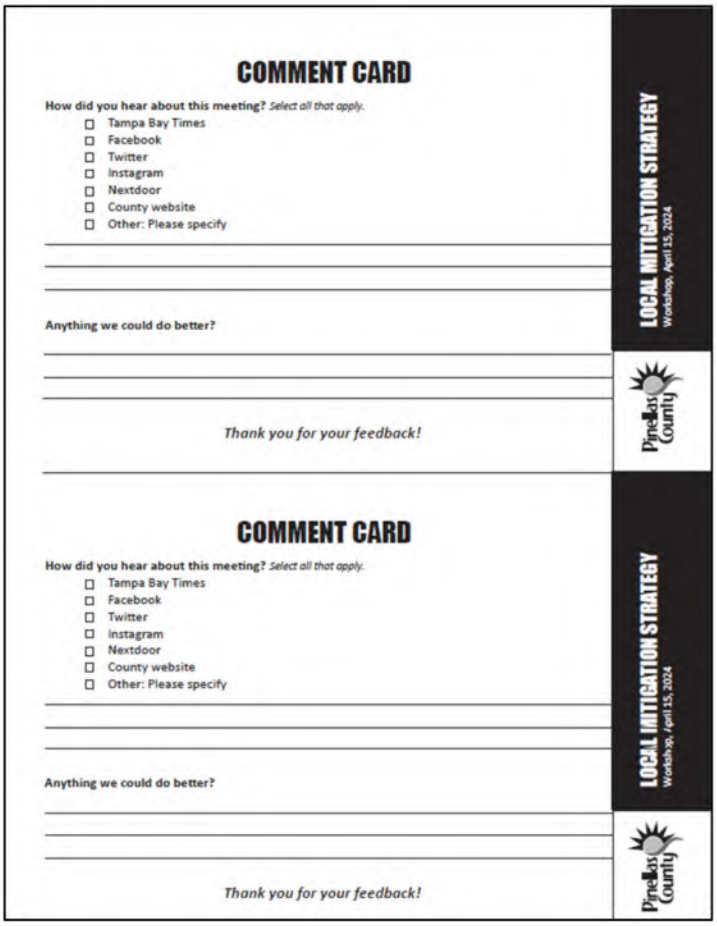
Advertising the LMS Survey on the County's Social Media.



OUTREACH EFFORTS FOR THE LMS FIVE-YEAR UPDATE
Pinellas County

LMS April 15th Workshop

Booth Handout and Comment Card



COMMENT CARD

How did you hear about this meeting? *Select all that apply.*

- ☐ Tampa Bay Times
- ☐ Facebook
- ☐ Twitter
- ☐ Instagram
- ☐ Nextdoor
- ☐ County website
- ☐ Other: Please specify

Anything we could do better?

Thank you for your feedback!

LOCAL MITIGATION STRATEGY
Workshop, April 15, 2024

Pinellas County

COMMENT CARD

How did you hear about this meeting? *Select all that apply.*

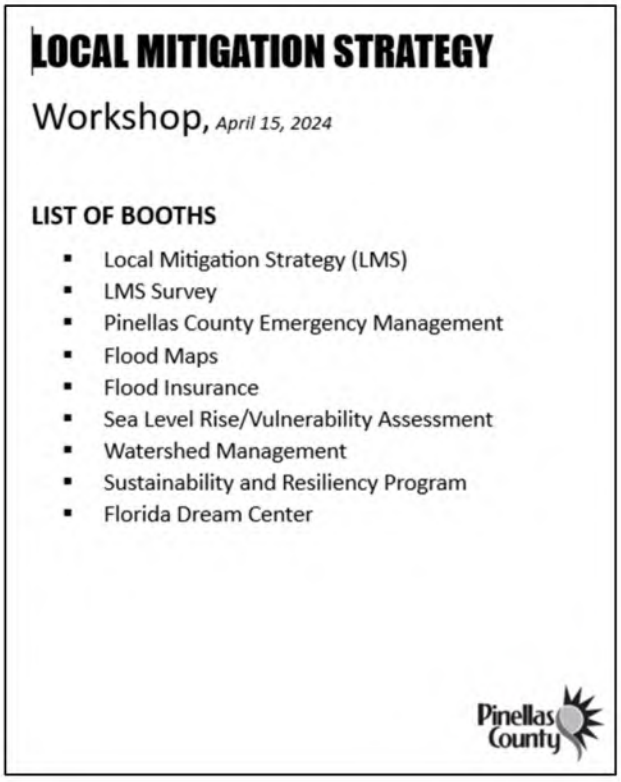
- ☐ Tampa Bay Times
- ☐ Facebook
- ☐ Twitter
- ☐ Instagram
- ☐ Nextdoor
- ☐ County website
- ☐ Other: Please specify

Anything we could do better?

Thank you for your feedback!

LOCAL MITIGATION STRATEGY
Workshop, April 15, 2024

Pinellas County



LOCAL MITIGATION STRATEGY

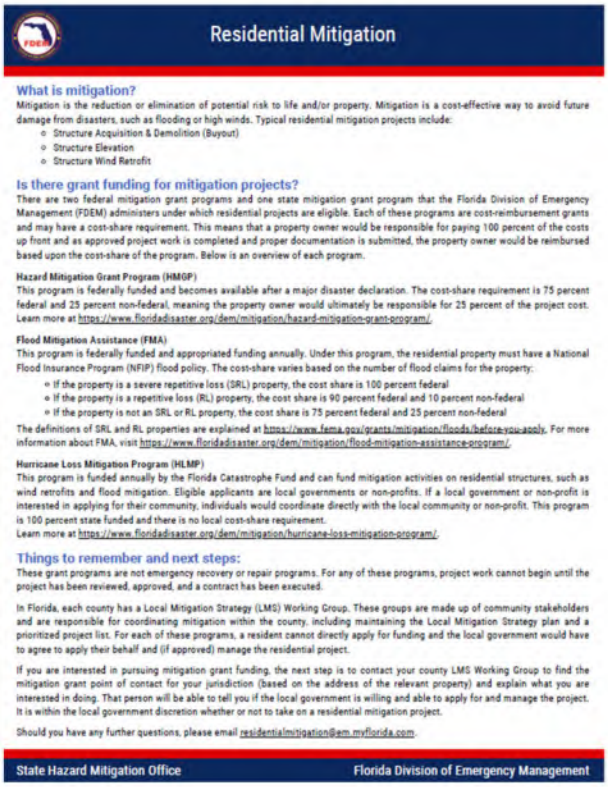
Workshop, *April 15, 2024*

LIST OF BOOTHS

- Local Mitigation Strategy (LMS)
- LMS Survey
- Pinellas County Emergency Management
- Flood Maps
- Flood Insurance
- Sea Level Rise/Vulnerability Assessment
- Watershed Management
- Sustainability and Resiliency Program
- Florida Dream Center

Pinellas County

Residential Mitigation Flyer shared at the LMS Booth



Residential Mitigation

What is mitigation?

Mitigation is the reduction or elimination of potential risk to life and/or property. Mitigation is a cost-effective way to avoid future damage from disasters, such as flooding or high winds. Typical residential mitigation projects include:

- Structure Acquisition & Demolition (Buyout)
- Structure Elevation
- Structure Wind Retrofit

Is there grant funding for mitigation projects?

There are two federal mitigation grant programs and one state mitigation grant program that the Florida Division of Emergency Management (FDEM) administers under which residential projects are eligible. Each of these programs are cost-reimbursement grants and may have a cost-share requirement. This means that a property owner would be responsible for paying 100 percent of the costs up front and as approved project work is completed and proper documentation is submitted, the property owner would be reimbursed based upon the cost-share of the program. Below is an overview of each program.

Hazard Mitigation Grant Program (HMGP)

This program is federally funded and becomes available after a major disaster declaration. The cost-share requirement is 75 percent federal and 25 percent non-federal, meaning the property owner would ultimately be responsible for 25 percent of the project cost. Learn more at https://www.floridadisaster.org/dem/mitigation/hazard-mitigation-grant-program/.

Flood Mitigation Assistance (FMA)

This program is federally funded and appropriated funding annually. Under this program, the residential property must have a National Flood Insurance Program (NFIP) flood policy. The cost-share varies based on the number of flood claims for the property:

- If the property is a severe repetitive loss (SRL) property, the cost share is 100 percent federal
- If the property is a repetitive loss (RL) property, the cost share is 90 percent federal and 10 percent non-federal
- If the property is not an SRL or RL property, the cost share is 75 percent federal and 25 percent non-federal

The definitions of SRL and RL properties are explained at https://www.fema.gov/grants/mitigation/floods/before-you-apply. For more information about FMA, visit https://www.floridadisaster.org/dem/mitigation/flood-mitigation-assistance-program/.

Hurricane Loss Mitigation Program (HLMP)

This program is funded annually by the Florida Catastrophe Fund and can fund mitigation activities on residential structures, such as wind retrofits and flood mitigation. Eligible applicants are local governments or non-profits. If a local government or non-profit is interested in applying for their community, individuals would coordinate directly with the local community or non-profit. This program is 100 percent state funded and there is no local cost-share requirement.
Learn more at https://www.floridadisaster.org/dem/mitigation/hurricane-loss-mitigation-program/.

Things to remember and next steps:

These grant programs are not emergency recovery or repair programs. For any of these programs, project work cannot begin until the project has been reviewed, approved, and a contract has been executed.

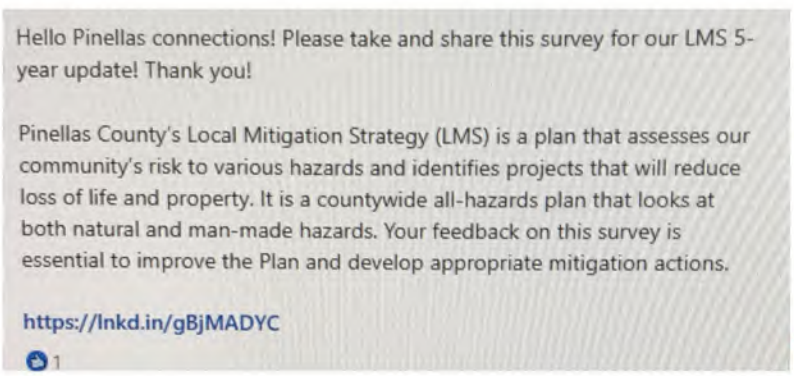
In Florida, each county has a Local Mitigation Strategy (LMS) Working Group. These groups are made up of community stakeholders and are responsible for coordinating mitigation within the county, including maintaining the Local Mitigation Strategy plan and a prioritized project list. For each of these programs, a resident cannot directly apply for funding and the local government would have to agree to apply their behalf and (if approved) manage the residential project.

If you are interested in pursuing mitigation grant funding, the next step is to contact your county LMS Working Group to find the mitigation grant point of contact for your jurisdiction (based on the address of the relevant property) and explain what you are interested in doing. That person will be able to tell you if the local government is willing and able to apply for and manage the project. It is within the local government discretion whether or not to take on a residential mitigation project.

Should you have any further questions, please email residentialmitigation@em.myflorida.com.

State Hazard Mitigation Office — Florida Division of Emergency Management

LMS April 15th Workshop Advertised through LinkedIn



Hello Pinellas connections! Please take and share this survey for our LMS 5-year update! Thank you!

Pinellas County's Local Mitigation Strategy (LMS) is a plan that assesses our community's risk to various hazards and identifies projects that will reduce loss of life and property. It is a countywide all-hazards plan that looks at both natural and man-made hazards. Your feedback on this survey is essential to improve the Plan and develop appropriate mitigation actions.

https://lnkd.in/gBjMADYC

1

OUTREACH EFFORTS FOR THE LMS FIVE-YEAR UPDATE

Pinellas County

April 15th LMS Workshop - Sign-In Sheets

PINELLAS LOCAL MITIGATION STRATEGY (LMS) WORKSHOP

April 15, 2024

NAME	CITIZEN/AGENCY	ADDRESS	EMAIL
Tom O'Shea	Oldsmar	208 Lake Charles Ct	tkevin42@outlook.com
Jose A Vargas	St Petersburg	5340 61st Terrace N St Petersburg	mbrjvarg@gmail.com
Dawn Birch Collette	Clarke	4017 56th Ave W St Pete 33714	Dawn@
Shirley Baldwin	citizen	5367 6th Pl. S. Gulfport FL 33707	Florida Breamlecker
Jesse Miller	City of Treasure Island	10451 Gulf Blvd, Treasure Island	sbaldwin312@yahoo.com
P.J. Harbert	Tarpon Springs	324 Pine St. Tarpon Springs	pharbert@ctsfl.us
Brian Ford	Agency	6620 1st Ave S	bford@insurancenesources.com
MICHELLE POWELLE	HOA	5875 18th St N. 33714	SMP1110@AOL.COM

* PINELLAS LOCAL MITIGATION STRATEGY (LMS) WORKSHOP

April 15, 2024

NAME	CITIZEN/AGENCY	ADDRESS	EMAIL
Geta Dumitru	FEMA		geta.dumitru@fema.dhs.gov
Terry & Darlene Neudecker	Citizen	657 61st Ave S St Pete 33705	dhn1955@gmail.com
Margaret Murray	Creative Pinellas	6220 6th Ave N 33710	margaret.murray@
Cathy Protopapas	Citizen - LWVNPC	615 Baynard Drive Tarpon Springs 34689	creativepinellas.org
			cathy.protopapas@yahoo.com
Erika Owen-McCann	Pinellas County	—	eowen-mccann@pinellas.gov
Marion Jones	Pinellas City	5825 18th St N Apt 7 St Pete FL 33714	
	City of Gulfport rep.		—
Sharon Wright	HDR, Inc	4708 17th Ave N	—
John Carkeet	Pinellas Cty Comms	333 Chestnut St. Clearwater	JCarkeet@pinellas.gov
Vinod K.	Citizen		smiado@hotmail.com

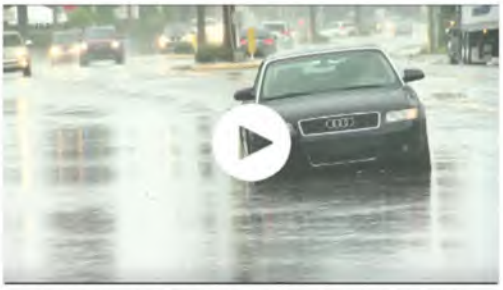
OTHER OUTREACH EFFORTS

https://www.abcactionnews.com/news/region-pinellas/pinellas-county-leaders-update-local-mitigation-strategy-to-help-protect-resi

NEWS > PINELLAS COUNTY

Pinellas County leaders update local mitigation strategy to help protect residents

Every 5 years, Pinellas County officials assess the area's risk against both natural and man-made hazards, including hurricanes.



Pinellas County leaders are working to update the local mitigation strategy, which helps the county prepare for future disasters such as hurricanes, wildfires, sinkholes, flooding, and more.





By: Casey Albritton

Posted 6:56 PM, Apr 15, 2024 and last updated 7:08 PM, Apr 15, 2024

PINELLAS COUNTY, Fla. — Every 5 years, Pinellas County officials assess the area's risk against both natural and man-made hazards, including hurricanes.

This year, local leaders want to hear from residents about what hazards they are aware of in the area.

"If we're not prepared, then we can't be ready when those things happen," said Arron Stowell, a long- time resident of Florida.

Stowell said when it comes to safety, you can never plan too much.

abc ACTION NEWS+

Storm Coverage on Your Phone or Streaming TV. Watch Live and Free 24/7.



OTHER OUTREACH EFFORTS

https://www.publicnow.com/view/6BE249F9F7D6A7A0BC6623A8EDBE3374B39C7A9C

Search Companies, Topics, Organizations, Governments...

PINELLAS COUNTY, FL

04/02/2024 | Press release | Distributed by Public on 04/02/2024 22:02

County Invites Residents To Local Mitigation Strategy Workshop

news April 2, 2024

COUNTY INVITES RESIDENTS TO LOCAL MITIGATION STRATEGY WORKSHOP

INPUT WILL HELP SHAPE 5-YEAR UPDATE TO COUNTY'S HAZARDS MITIGATION PLAN

Pinellas County invites residents and business owners to participate in a Local Mitigation Strategy (LMS) workshop on Monday, April 15, from 6-8 p.m. at Lealman Exchange, 5175 45th Street N., St. Petersburg.

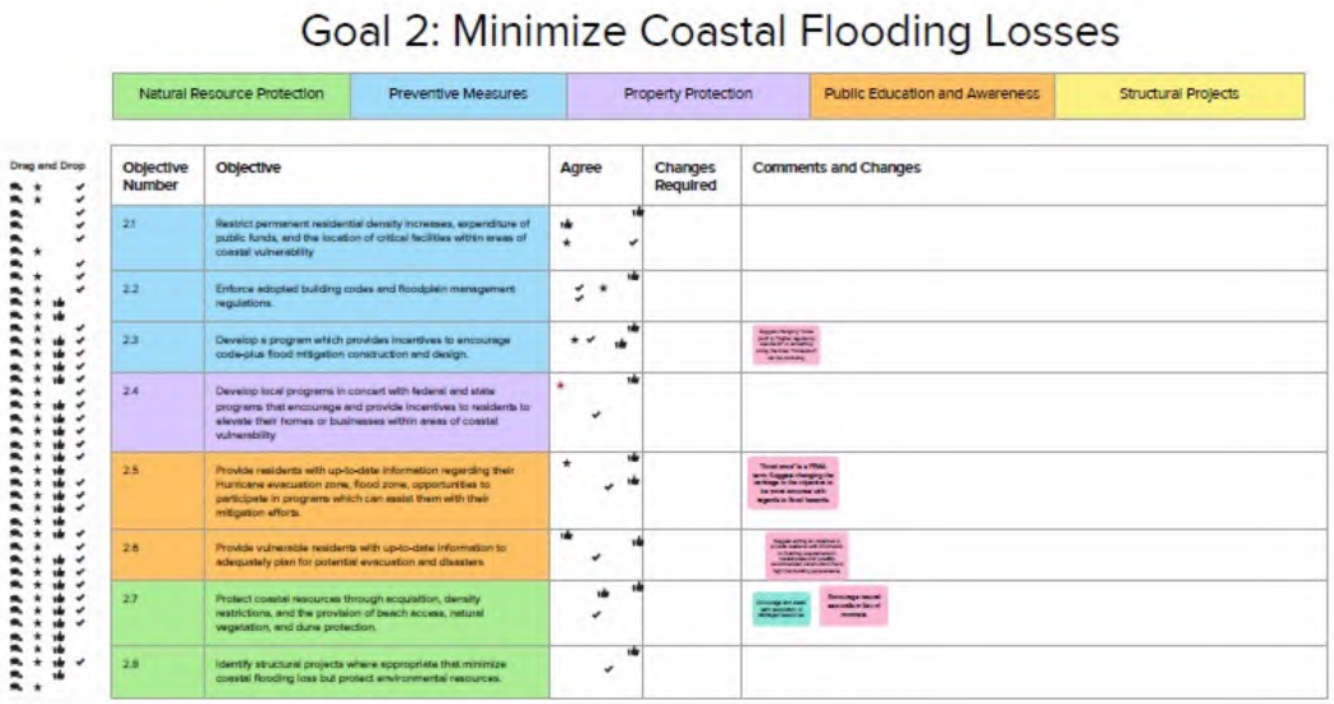
The workshop will showcase the County's LMS, which identifies natural and man-made hazards that threaten the area, such as floods, hurricanes and chemical spills. The LMS also sets goals and outlines actions that can reduce or prevent the loss of life, property and other resources from these threats. Attendees can share observations and concerns about how these hazards impact their communities so County staff can improve the plan.

The workshop will include information booths representing County departments and their community partners that specialize in a variety of mitigation topics such as floodplain management, hurricane preparedness and post-disaster recovery resources. Experts in these areas will work with attendees to identify their flood zones and hurricane evacuation zones, evaluate their risk for flooding, and better prepare them for emergencies.

The workshop is the first step in the five-year update of the County's plan, which is required by federal law. Updating the plan keeps the County and its municipalities eligible for federal hazard mitigation grants. The LMS plan also serves as the County's Floodplain Management Plan, which helps property owners at participating jurisdictions receive flood insurance premium discounts through the National Flood Insurance Program's Community Rating System.

For more information about the Local Mitigation Strategy, visit **www.pinellaslms.org**.

OUTREACH EFFORTS FOR THE LMS FIVE-YEAR UPDATE
Pinellas County
Goals and Objectives interactive session run using Mural



Pinellas County 5 Year Update – Mural

Mural is a unique tool that allows for collaboration of large groups to contribute their thoughts, changes, and additions to content in real time.

We will be using the following Mural board:
https://app.mural.co/t/snclavalindefaultcompanywork1346/m/snclavalindefaultcompanywork1346/1718678792712/48b6a40ec33fbbec5f6f53e03604a090c16710d3?sender=uf4d1cbab845c532f60ad9616

Getting Started

- The link will open in your browser.
  - Click "View as a visitor."
  - **Type in your name before entering the board.**
- Everyone will use their own browser window to interact with the board.
  - It's best if you have 2 screens and you can leave the online meeting window on one and your Mural board on the other.

Mural Introduction

- At the bottom center of the mural board, you'll see everyone's name, and yours will show up first in your list. If you find that it's distracting to see everyone's cursors and names moving around, you can click on your name to turn off the "Show Cursors" option.

Moving around the Board:

- To Zoom in or out, use your mouse's scroll wheel to zoom in/out where your mouse arrow is located, or use the +/- buttons in the lower right-hand corner to do the same.
- To Pan around the board, click and drag your mouse one direction or another, similar to how you'd navigate around Google Maps or similar.
- You can use the Outline feature in the upper right to Jump to a particular spot on the board quickly. Selecting an item auto-zooms you to that part of the board for easier navigation.

Commenting:

- To add a **new** sticky note, double click on the board. Alternately, you can single-click one of the existing sticky notes and & start typing.
- To **move** a sticky around the board, click and drag it to your intended location.
- You can **resize** the sticky, if needed by clicking once, and then pulling on the corners (not the middles) – or leave and the facilitator(s) can help.
- You can **drag and drop** icons to indicate your preferences by clicking the item once and dragging it to your intended location.
- Made a mistake? To undo something, **press CTRL + Z.** This does not impact anyone else's stickies or actions.

LOCAL MITIGATION STRATEGY (LMS) SURVEY

192	20:05	Closed
Responses	Average time to complete	Status

Please provide the zip code of your home.

192
Responses

Latest Responses

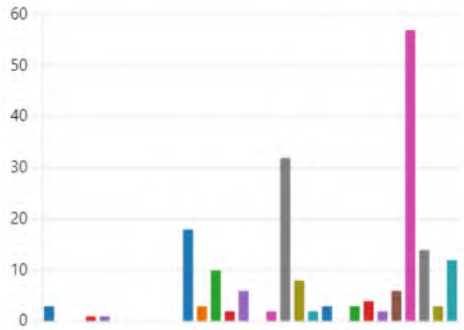
"*33713*"

"*33702*"

"*33708*"

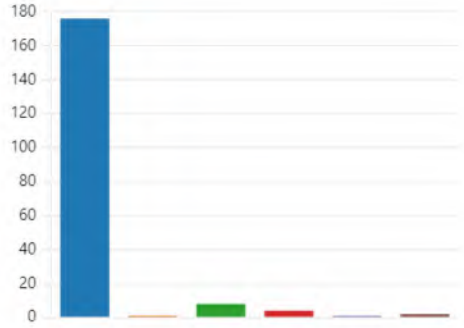
Please select the community in which you live.

Belleair	3
Belleair Shore	0
Indian Shore	0
Innisbrook	1
Kenneth City	1
North Redington Beach	0
Oakhurst	0
Ozona	0
Belleair Beach	0
Belleair Bluffs	0
Clearwater	18
Dunedin	3
Gulfport	10
Indian Rocks Beach	2
Largo	6
Madeira Beach	0
Oldsmar	2
Unincorporated Pinellas County	32
Pinellas Park	8
Redington Beach	2
Redington Shores	3
Ridgecrest	0
Safety Harbor	3
Seminole	4
South Pasadena	2
St. Pete Beach	6
St. Petersburg	57
Tarpon Springs	14
Treasure Island	3
Other	12

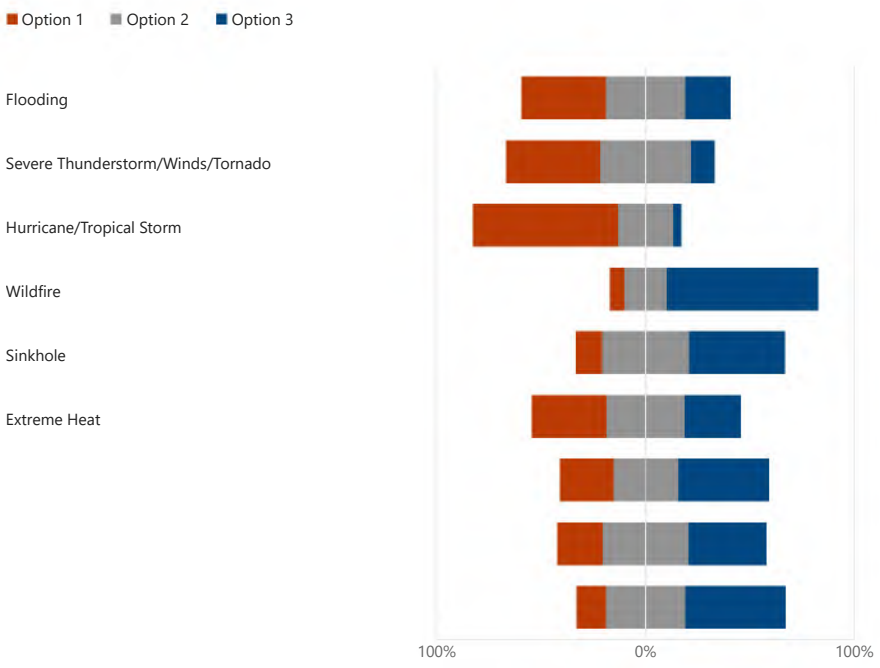


Which option below best defines your role in the community?

Resident	176
Business Owner	1
Landowner	8
Local Official	4
Institutional/Organizational part...	1
Other	2



Please rate each of the following hazards on a scale of 1 (high concern) to 3 (no concern) indicating the level of threat each presents to your neighborhood or home. *(Leave rating blank for hazards that are not applicable).*



›resent a threat to your neighborhood or home.

Latest Responses

"large unkept trees and old power lines"

"Storm drains overflow into our street"

"storm surge"

If you are a homeowner, do you have adequate basic homeowners' insurance to cover the hazards that could impact your home?



Do you carry flood insurance in addition to your homeowner/renter policy?



Did you know that most standard homeowner's insurance policies do not cover rising water (flooding) or minor subsidence (sinkhole)?

Yes	170
No	22



If you are a homeowner and a disaster substantially damaged your home, which of the following option would be the most likely option you would pursue?

Repair/rebuild in the same locat...	72
Sell my home/property and relo...	41
Not sure	63
Not applicable, I rent my curren...	15



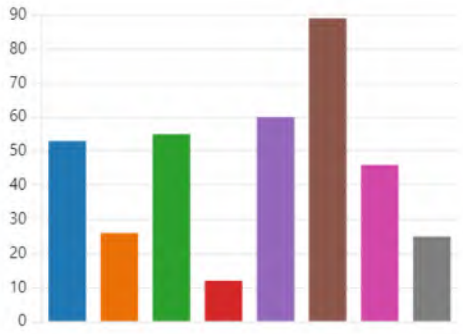
Are you aware that you would have to comply with current local/state codes, ordinances, and laws that would affect rebuilding and recovery in the wake of a disaster?

Yes	177
No	13



What are you doing to reduce the risk of damage from natural and human-caused hazards? *(Choose all that apply).*

Defensible space landscaping (cl...	53
Enhanced homeowner insuranc...	26
Optional flood insurance	55
Installed backflow prevention d...	12
Roof retrofit (fire resistant shingl...	60
Strengthened openings (Doors, ...	89
I am not currently doing anythin...	46
Other	25



Do you work in Pinellas County?

Yes	106
No	82



Is your place of work in a hazardous location? *(Select all that apply).*

High-risk flood zone	57
Evacuation zone	61
Wind-borne debris zone	30
I don't know.	22
Other	44



How vulnerable do you consider your home/business/organization to the impacts of natural or man-made hazards?

Very vulnerable	61
Moderately vulnerable	89
Only a little vulnerable	28
Not at all vulnerable	5
Don't know	6



Does your employer have a plan for disaster recovery in place?

Yes	80
No	16
Maybe	15
I don't know.	38



Does your employer have a means of getting in touch with you following a disaster?

Yes	111
No	8
Maybe	7
I don't know.	20



Please recommend any organizations, companies or local associations that should be involved in the Pinellas County hazard mitigation planning process.

63
Responses

Latest Responses

"duke energy and frontier, sewage plant on 4th st n"

"All town halls"

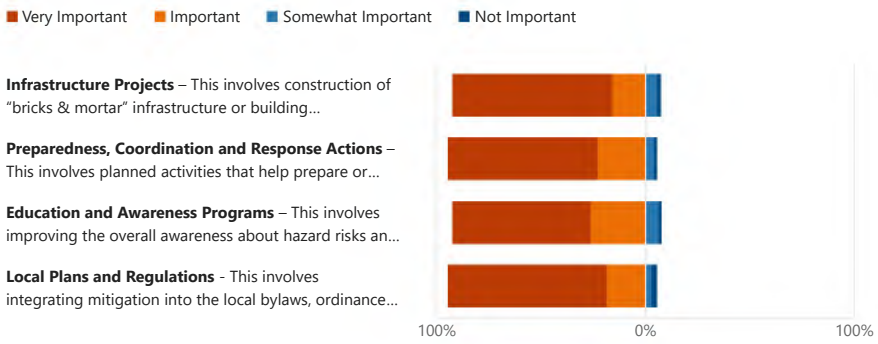
Please list any studies that you are aware of, conducted within your community or the county, regarding natural or manmade hazards.

39
Responses

Latest Responses

"none"

A number of activities can help in reducing our community's risks from natural hazards. In general, these activities fall under these categories. Please tell us how important you think it is to pursue each of these for your community.



Please specify any additional recommendations that you might have for Pinellas County to improve identification, prioritization, and implementation of hazard mitigation actions (i.e., retrofit infrastructure, upgrade building codes)?

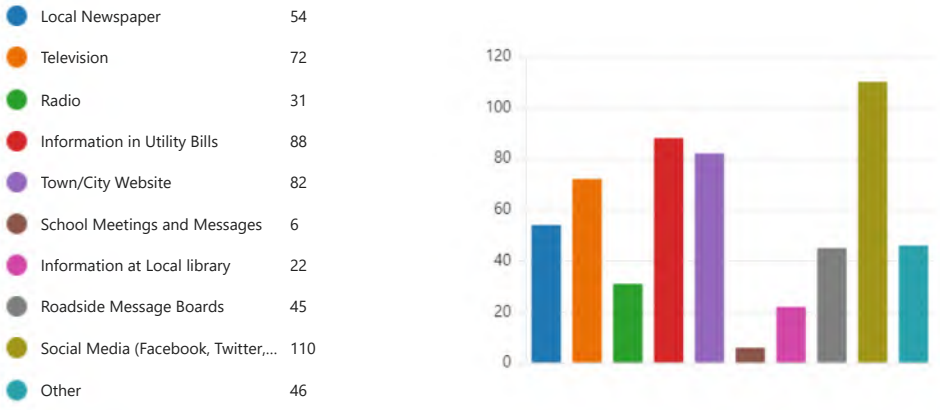
80
Responses

Latest Responses

"prioritize cleaning sewers to reduce street flooding"

"More resources for residents to elevate their homes"

What is the most effective way for you to receive information about how to make your home, business, and neighborhood more resistant to natural hazards? *(Please check all that apply.)*



Please provide us any additional comments that you have regarding hazard risks or the Pinellas County Hazard Mitigation Plan.

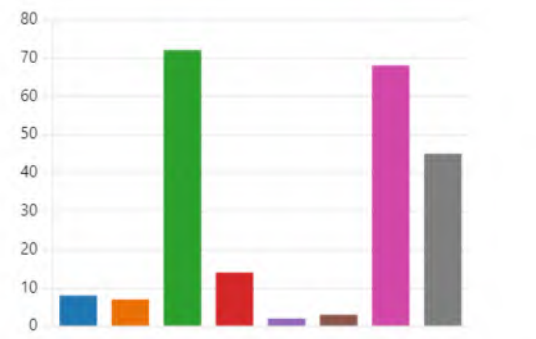
37
Responses

Latest Responses

"Our road off of 83rd Ave N (Tobay Rd N) will flood from a high tide. The storm ...

How did you hear about Pinellas County's Local Mitigation Strategy (LMS) Workshop? *(Please check all that apply.)*

Newspaper	8
Press Release	7
Social Media	72
Pinellas County LMS Website	14
Pinellas County Calendar	2
LMS Workshop Flyer	3
Email	68
Other	45



If you would like to be kept informed about the Local Mitigation Strategy plan update or its meetings, please provide your email address below.

83
Responses

Latest Responses
"*huntergrey@gmail.com*"
"*Jacob2p.j9@gmail.com*"

OUTREACH EFFORTS FOR THE LMS FIVE-YEAR UPDATE
Pinellas County

Advertising the surveys and LMS Workshop on the LMS Website.



LMS Resources

LMS Storymap

2020 LMS Plan Executive Summary

LMS Annual Report

LMS Fact Sheet

LMS Meeting Information & Documents

Contact Us

Useful Links

Pinellas County Flood Map Information Service Center

Pinellas County Flood Information

Pinellas County Emergency Management

Florida Division of Emergency Management Mitigation

FEMA Hazard Mitigation Assistance

Pinellas County Hazards Mitigation Plan

Local Mitigation Strategy Five-Year Update

As a part of the ongoing LMS Five-Year Update, we have launched a survey.

Your feedback on this survey is essential to improve the Plan and to develop appropriate actions that reduce our risks. It will significantly improve our understanding of the local hazard risks. We would appreciate if you could complete the survey and also share it with others who might be interested. Thank you for your help!

LMS Survey (in English) | LMS Survey (in Spanish)

April 15, 2024 – LMS Five-Year Update Public Workshop

October 17, 2024 – LMS Five-Year Update Second Public Workshop
Register for this virtual workshop

Pinellas County's 2020 Local Mitigation Strategy (LMS) Plan is currently being revised as a part of the 2025 5-Year Update. The five-year update is required by the Federal Emergency Management Agency (FEMA) and will be completed using input received from the general public, and several public and private agencies and non-profit organizations. We would appreciate your input on this very important plan update. Please reach out to us, in case you in case you have any comments or questions. Please join us at the October 17th workshop and learn about the LMS Plan Updates.

Read the 2020 LMS Plan's Executive Summary to learn more about our current mitigation efforts and let us know your comments. If you would like a full copy of the 2020 LMS or if you would like more information about the Plan or its planning process, please call Planning at (727) 464-8200 or contact us via the County Website. If you need a copy of the draft LMS Plan that is being prepared as a part of the 2025 LMS Five-Year Update, please contact the same number.

Plan Drafts advertised through the LMS Webpage.

LMS Resources

LMS Storymap

2020 LMS Plan Executive Summary

LMS Annual Report

LMS Fact Sheet

LMS Meeting Information & Documents

Contact Us

Useful Links

Pinellas County Flood Map Information Service Center

Pinellas County Flood Information

Pinellas County Emergency Management

Florida Division of Emergency Management Mitigation

LMS Meetings

Pinellas County Planning Department Office
310 Court Street, 1st Floor
Clearwater, FL 33756

(All meetings start at 1:30 PM unless otherwise announced)

For meeting agendas and minutes, please contact (727) 464-8200.

2024

January 17, 2024 - virtual meeting only

February 21, 2024 - virtual meeting only

March 20, 2024 – virtual meeting only

April 10, 2024 - virtual meeting only

April 15, 2024 – LMS Five-Year Update Public Workshop

Local Mitigation Strategy WORKSHOP

Join us at our second public workshop to discuss the 5-Year Update for the Local Mitigation Strategy (LMS).

When? **Thursday, October 17, 2024**
6:00 – 7:00 p.m.

Where? **Virtual, use the QR code to register**
https://register.gotowebinar.com/register/6070507492628168541

The Pinellas County Local Mitigation Strategy (LMS) is a detailed plan that assesses various types of hazards. It evaluates the risks our communities face from both natural and manmade disasters. The LMS helps numerous jurisdictions manage projects that aim to reduce or even prevent the loss of life and property. Implementing this plan also allows local governments, businesses, non-profits and residents to qualify for federal funding.

Additionally, the LMS acts as the county's floodplain management plan. It earns credit under the Community Rating System (CRS) program, which gives residents and property owners discounts on flood insurance premiums.

The Federal Emergency Management Agency (FEMA) requires us to update the entire plan every five years. We need your help to keep this plan relevant by addressing the evolving risks that may bring harm to our communities.

This public workshop will provide information on hazards we face and seek citizen input on updating our plan to address them.

Pinellas County
Housing & Community Development

www.pinellaslms.org or (727) 464-8200

Pinellas County complies with all federal, state and local laws related to persons with disabilities. To request alternate formats of this information, contact the Office of Human Rights at (727) 464-4062 (V/TDD) or email accommodations@pinellas.gov. 10/24

OUTREACH EFFORTS FOR THE LMS FIVE-YEAR UPDATE
Pinellas County
Press Release for October 17th LMS Workshop.
Requesting comments on the Draft LMS Plan.



Topics

Community Planning
- Planning and Zoning

Safety & Emergencies
- Flooding and Stormwater

This event has passed.

Local Mitigation Strategy Virtual Public Workshop

October 17, 2024, 6:00 pm - 7:00 pm

Register here: https://tinyurl.com/Pinellas-LMS-Virtual-Workshop

This workshop is being held as a part of our ongoing 2025 Local Mitigation Strategy (LMS) 5-year update. At this workshop, we will discuss the 5-year update of the county's LMS plan that serves as the County's all hazards plan as well as its floodplain management plan.

The LMS plan assesses the community's risk to natural and man-made hazards and identifies projects that will reduce loss of life and property. Having this plan in place, makes local governments, businesses, non-profits, and residents in the county, eligible to apply for federal hazard mitigation grant funding. As the county's floodplain management plan, it also helps earn credit under the Community Rating System (CRS) program, which provides flood insurance premium discounts to each participating jurisdiction.

This is the second public workshop being held for the LMS Five-Year Update. This workshop is an opportunity for the residents and businesses to learn about the LMS plan, review, and comment on the draft LMS Plan being prepared as a part of the five-year update and share their concerns and ask questions regarding various hazard risks.

Local Mitigation Strategy (LMS) Webpage:
https://www.pinellaslms.org/

OUTREACH EFFORTS FOR THE LMS FIVE-YEAR UPDATE
Pinellas County
Oct. 17th Workshop Recording and Other Resources Shared with Citizens

Pinellas County Local Mitigation Strategy Update - Virtual Public Meeting

Thu, Oct 17, 2024 6:00 PM - 7:00 PM EDT

Thank you again for attending the Oct. 17th Local Mitigation Strategy (LMS) workshop. This workshop was scheduled to specifically share the draft plans as a part of the LMS Plan's five-year update. Thank you for joining and sharing your comments. The comments and questions that we received, will be added to the LMS Plan and submitted to the State (Florida Division of Emergency Management).

To view the workshop recording:
https://www.youtube.com/watch?v=8sAwJRXBf_E

PINELLAS LMS FIVE-YEAR UPDATE RELATED INFO:

Draft 2025 LMS Plan
Please visit the LMS webpage for a copy of the draft Plan. We are currently working on the final draft. When the draft is ready, we will be announcing that on our LMS webpage – pinellaslms.org

DISASTER RELATED RESOURCES:

Pinellas County's Disaster Assistance page:
Disaster Assistance - Pinellas County

Disaster Unemployment Assistance:
Disaster Unemployment Assistance (DUA)

Individual Assistance:
Homeowners and renters are encouraged to apply online at DisasterAssistance.gov or by using the FEMA App. You may also apply by phone at 800-621-3362.
You can also visit our disaster recovery centers.

OUTREACH EFFORTS FOR THE LMS FIVE-YEAR UPDATE

Pinellas County

Newspaper AD for October 17th.



News Extra

Court Norington, of Chicago, never wanted to end up on her own as she grew older. But she has lived alone since 2000 when a five-year relationship ended.

Historic numbers of Americans live by themselves as they age

LEGAL NOTICE

Town of Belleair Shore, Florida
Notice of Public Hearing

LEGAL NOTICE

Town of Belleair Shore, Florida
Notice of Public Hearing

ARE storm surge, neighborhood flooding or other hazards affecting YOU?
TELL US!

PINELLAS COUNTY COMMUNITY
VIRTUAL WORKSHOP
Thursday, October 17, 2024
6:00 – 7:00 p.m.

Register to attend the virtual workshop
https://registergotowebinar.com/register/6070507492628168541

LOCAL MITIGATION STRATEGY
2024-2025 Five-Year Update
Second Workshop

- Learn more about the LMS Plan
- Help identify risks in our community
- Learn about current Hazards
- Review draft LMS Plan

LEARN MORE
www.pinellasims.org
(727) 464-8200

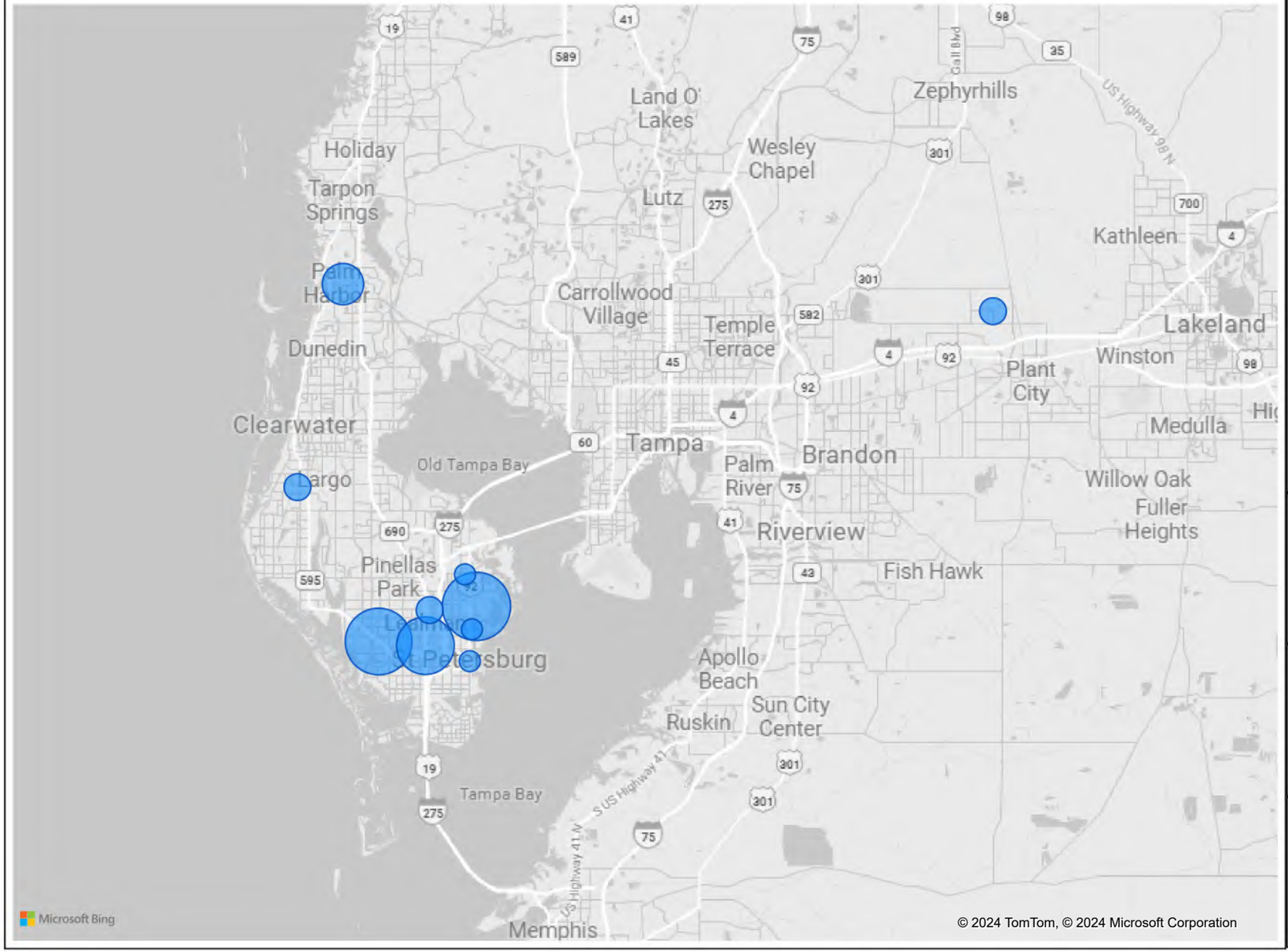
Pinellas County
Housing & Community Development

0000360421-01

Attendees by Zip Code

Bubbles represent the number of comments or questions received per Zip Code

OCT. 17TH WORKSHOP STATISTICS



Summary statistics from the Pinellas County Local Mitigation Strategy (LMS) Public Meeting

The meeting was held virtually via GoTo Webinar on 10/17/24 at 6:00PM EST. The event was scheduled from 6:00-7:00PM, but Pinellas County staff stayed until 7:20PM to answer attendee questions. Panelists from Pinellas County and AtkinsRealis presented an overview of the draft plan and planning process to solicit input from the public. During the Q&A, participants asked about mitigation opportunities, flood insurance, and disaster recovery resources from recent hurricanes impacting the community.

Attendees were also made aware of the floodplain management plan aspects of the project and encouraged to participate in the affiliated Flood Risk and Mitigation Public Information Working Group in support of Community Rating System activities.

The recording of the meeting will be made available for those unable to attend. There were 283 people pre-registered for the meeting with 92 able to attend.

Attendees

92

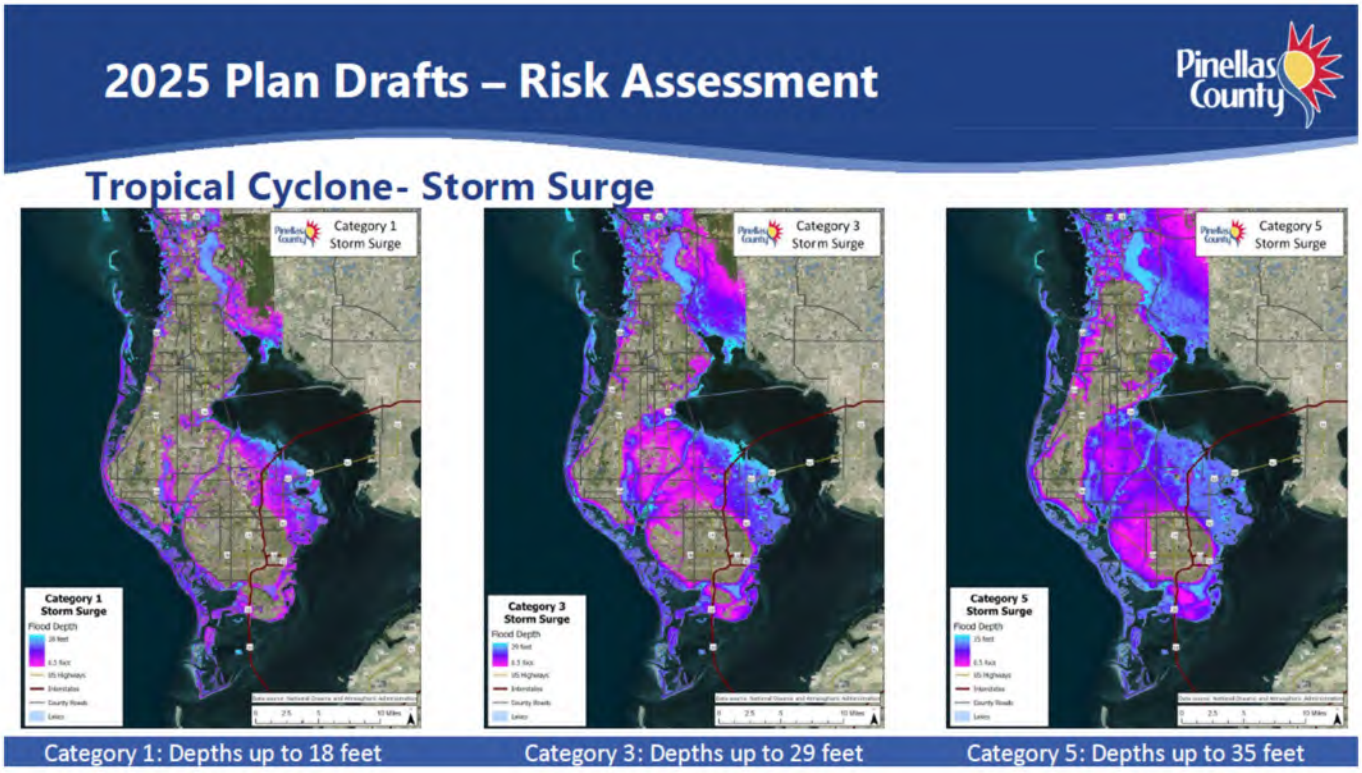
Questions/Comments Received

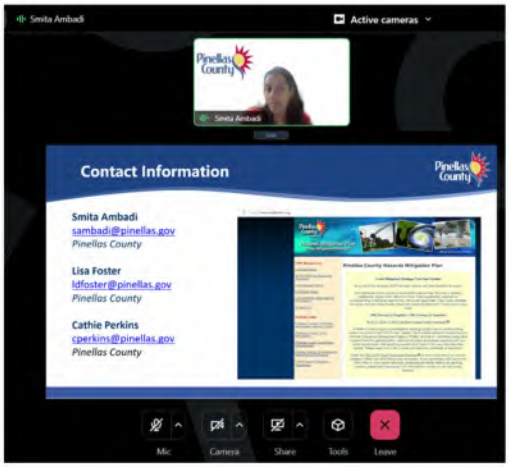
66

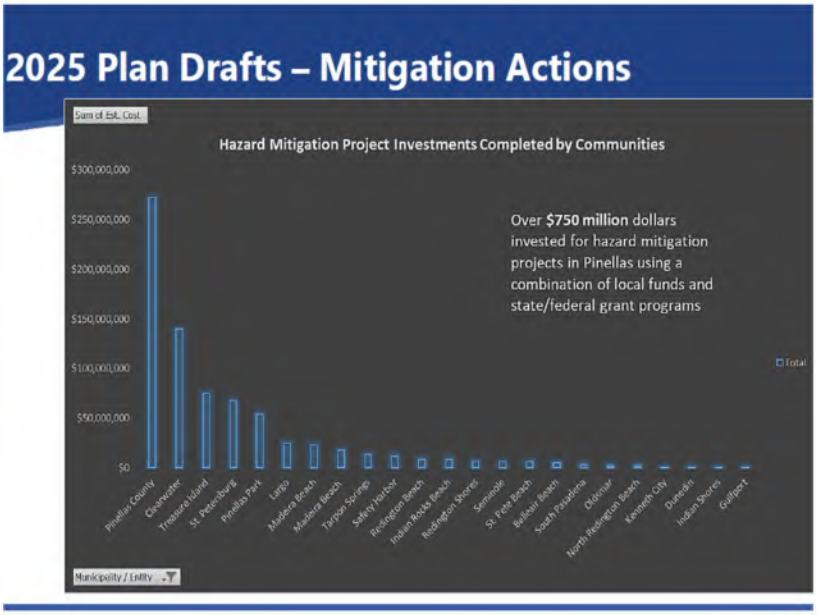
Average Interest Score of Attendees

78.28

OUTREACH EFFORTS FOR THE LMS FIVE-YEAR UPDATE
Pinellas County
Plan Drafts shared through the Oct. 17th Virtual Workshop.







LINK TO THE RECORDING

OCT. 17TH LMS FIVE-YEAR UPDATE WORKSHOP

https://www.youtube.com/watch?v=8sAwJRXBf_E

OCTOBER 17TH LMS VIRTUAL WORKSHOP - Staff Attendance Sheet

Attendee Report:

Report Generated:
10/18/2024 08:50 AM EDT

Pinellas County Local Mitigation Strategy Update - Virtual Public Meeting

Webinar ID	**252-011-443**
Actual Start Date/Time	**10/17/2024 05:30 PM EDT**
Duration	**1 hour 55 minutes**
# Registered	**282**
# Attended	**92**

Staff Details

First Name	Email Address
Jennifer Dorning	jennifer.dorning@atkinsglobal.com
Kaylee Bledsoe	kaylee.bledsoe@atkinsglobal.com
Chris Zambito	Chris.zambito@atkinsrealis.com
Ginnie Stevens	Ginnie.Stevens@atkinsrealis.com
Maxine Moore	mmoore@pinellas.gov
Smita Ambadi	sambadi@pinellas.gov

COMMENTS RECEIVED AT THE OCTOBER 17TH LMS WORKSHOP

Please add function along with names or provide introductions. I would like know who is working for County.

Hi! Smita Ambadi with the County introduced all speakers at the beginning of the meeting. Chris Zambito and other speakers are with Akins Realis, who is contracted by the County to assist with drafting this plan.

Does the plan have detailed steps for dealing with removal of debris and discarded home contents ?

Hi! Debris removal from a storm event is separate from this mitigation plan. However, here is a link that discusses debris removal from the recent storm events: https://pinellas.gov/emergency-information-3/sand-and-debris-cleanup/

What´s the plan for Shore Acres Neihgborhood in special we have been having flood problems for a few years. What is the mitihgation plan with the St. Peterburgs city ?

Any programs to support investing in better windows or doors for my home?

Is there a good resource to discuss insurance needs and support for claims?

Are there any new programs that could provide immediate help elevate homes that are now designated as Repetitive Loss Structure due to the multiple storms that have hit our area in the past few years?

Elevation of a home is typically done using Flood Mitigation Assistance (FMA). The local jurisdiction where a home is located, can apply for FMA on behalf of the homeowner. Please reach out to Smita (sambadi@pinellas.gov). She can get you in touch with the floodplain team for your jurisdiction. Please reach out to your jurisdiction to learn more about FMA and to understand your eligibility etc.

Does this program strengthen and enhance the power grid to mitigate outages from storms and other emergencies?

Will this be updated with Hurricane Helene and Milton impacts?

Yes, this plan is fully updated every five years and reviewed on an annual basis. During the annual review and the five year update, municipalities assess any mitigation needs from storm events, including Helene and Milton, to determine projects they wish to apply for funding assistance on.

Are unincorporated areas of Pinellas County fully represented in the plan?

Improvement costs are needed for busted St petersburg sewer lines.

Can we access these graphics after the presentation?

Is St Petersburg planning to update their drainage system to reduce flooding from rain?

The drainage systems risks are identified in this plan; however, the municipality would need to determine the projects they are including in the plan. You can reach out to the city to request a list of mitigation projects they have planned or you can reach out to Smita via email and she can send you the list of mitigation projects that the city has identified in the plan.

That is good news! IE St. Pete installing back flow valves!

When does application period for FMA open? And how does one apply?

Flood from lack of city upkeep of sewage pipe system and retention pond/lake.

COMMENTS RECEIVED Continued

Thank you for this comment. We will look into this concern and add it to the planning process.

Sorry I was late, but I wanted to make sure to comment about specifically St. Petersburg's water retention infrastructure. The existing retainage ponds will need to be expanded to hold higher capacity, and cleaned out of vegetation and maintained annually. Our retention ponds are quickly being maxed out during standard summer storms. During a rain event BEFORE Helene, neighborhoods flooded and rention pond water was bubbling into streets. Retention ponds are not being regularly drained.

What efforts are being made to deduce hard, impermeable surfaces and restore natural habitats that help to mitigate storms such as beach dunes, mangrove buffers, and wetlands that can help to absorb water.

Let's be clear, we don't do plans to "meet fed requirement" ... the stick - funding - is used to ensure we do it.

1) Why were text message not being sent via Alert Pinellas on how to get I and R shortly after the event?

2) Why wasn't 211 active and/or roll over calls to the Citizens Information Center

3) Why did staff at the CIC, when notified, not report this to EOC and/or act

Text messages have the highest probability of going through as EM folks know. Then folks can go outside of a dwelling and bang onto their cell until they get through. This is EM 101.

Need to update Building Code to ensure housing stock so that they better withstand

Is there going to be any information about immediate or short-term assistance in this meeting or is this meeting to educate the public about the overall plan?

When and how will the data and lessons learned from the recent storms be integrated into the next 5-year update?

Will you share the slide deck with the participants of this meeting?

What about the canal drainage systems/retention ponds, that have failed and flooded many neighborhoods once or twice this month. Are the risks being assessed for these areas? And are mitigation efforts in areas place for these areas too?

Hi Kelly! The risks and mitigation options regarding failures of canals and drainage systems do get assessed for improvements in this plan. We will make sure these concerns are included in the planning process for future mitigation projects.

(Sorry for bad grammar!)

LMS map of Pinellas which actually shows specific highly detailed areas outlined. That needs to be worked on. Which wasn't shown in the slides so far.

Thank you for your time this evening and staying late to address questions and comments

Thank you for inviting us to join this update!

Aren't the SBA loans 100% exhausted unless congress returns before the election and adds more money to the program?

Going back to storm clean-up, which this meeting is not meant for. It is my understanding that the county has 90 days to complete clean-up to receive 100% FEMA reimbursement. Are unincorporated areas incuded in this?

Do I need to elevate my home when I live in highest elevation in Pinellas.???

COMMENTS RECEIVED Continued

How about an actual investigation in my flooded neighborhood.
This was in previous planning. I know because I helped write some of them. Institutional Kowledge is paramount, so info stay with org and not lost with staff churn.

Who is supporting LTRO?

TY Smita! I am in Live Oaks and many of my neighbors in Flood Zone D flooded 2x this month.

Yes we flooded after Milton but also after Labor Day during the extreme 'rain event'. But TY so much for putting us on your radar as an unusual flooded area.

Flawed alleyway sewage main pipe that been. Multiple attempts to fix which led to higher alleyway. That makes water drainage into adjacent yards.

So there's no money for this program.

County is required to solicit public input. Just say it.

Is the county going to stop with growing. By not adding new buildings and parking lots. Fix the infrastructure that's we already have here??

Does the new plan include significantly more backflow preventers and pumping stations?

Does Pinellas County have any plans for walls to mitigate sea level rise inundation of low-lying communities

Are there any projects for hardening mobile home park club houses for support centers/shelters -access to shelter/power, etc? Very vulnerable house stock, vulnerable population, and still a big part of housing stock in Pinellas

Mobile Home Parks are typically privately owned and tend to provide a However, vulnerable populations and vulnerable housing is assessed in the plan and project opportunities.

ETA was in 2020, have you planned for lifting funding since then? How many homes have you planned for?

These questions are starting to sound like pre written. For your own benefit.

Hi Robert! We would really appreciate the flooding information that you have from these recent events. If you could email us any information and pictures of the flooding in your neighborhood, we can use that data to integrate in our planning process.

3822 15th ave n was flooded and 3 blocks worth or more.

When is the mayor coming to shore acres to see our damage? You brought the president to the beaches but ignored the bay side of the county. Why was our community broadcasted across the new networks… until we had to flood 40-50 inches in our homes…. and now it's radio silence. Shore acres has been blatantly disrespected and disregarded by our local officials and representatives. Thank god our governor broke down the fence for our debris removal, but still all of our yards are filled with debris…. Still no one has come to help. Unbelievable.

Nope seen no one

Who received flood insurance discounts? Shore Acres didn't.

COMMENTS RECEIVED Continued

What you just read on air was my response after you said NFIP offers a discount, when IN FACT, our premiums have become higher as our property taxes have as well. Please answer the question with your response.

My NFIP is FEMA and has been since 6/12/2020 to present.

Hi! 22 out of the 24 municipalities in Pinellas County participate in the NFIP Community Rating System which provides a flood insurance discount. Shore Acres is within the City of St. Pete, who does participate in the CRS. If you are not seeing a CRS discount on your NFIP flood insurance declaration page, then I suggest reaching out to your insurance agent to determine why you are not receiving the discount.

4 flooding events since Eta in 2020 and no additional planning for lifting assistance until now . Lifting homes.

Correct

But since 2020 VERY few have gotten approved

Pinellas Hope is one of largest homeless shelter-in 100 year flood plain-seeing now how vulnerable they are-closed for almost 3 weeks with 2 storms. Could something be added to LMS to either harden that site or relocate out of the floodplain?

Thank you for providing this! I have documented the locations and will look into it.

Thank you for your work!

Thank you for your participation. Please reach out to your municipality to participate as a stakeholder in the outreach working group. We value community and resident thoughts.

i have an statement

Good evening! You may submit your statement via this questions pane. Thank you in advance for your comment.

I just wanted to say Thank you for all your work!

Please email me regarding communications issues.

BCC then.

Your hard work is appreciated!

Thank you all so much for your time and expertise.

Much tanks!

thanks!



LOCAL MITIGATION STRATEGY

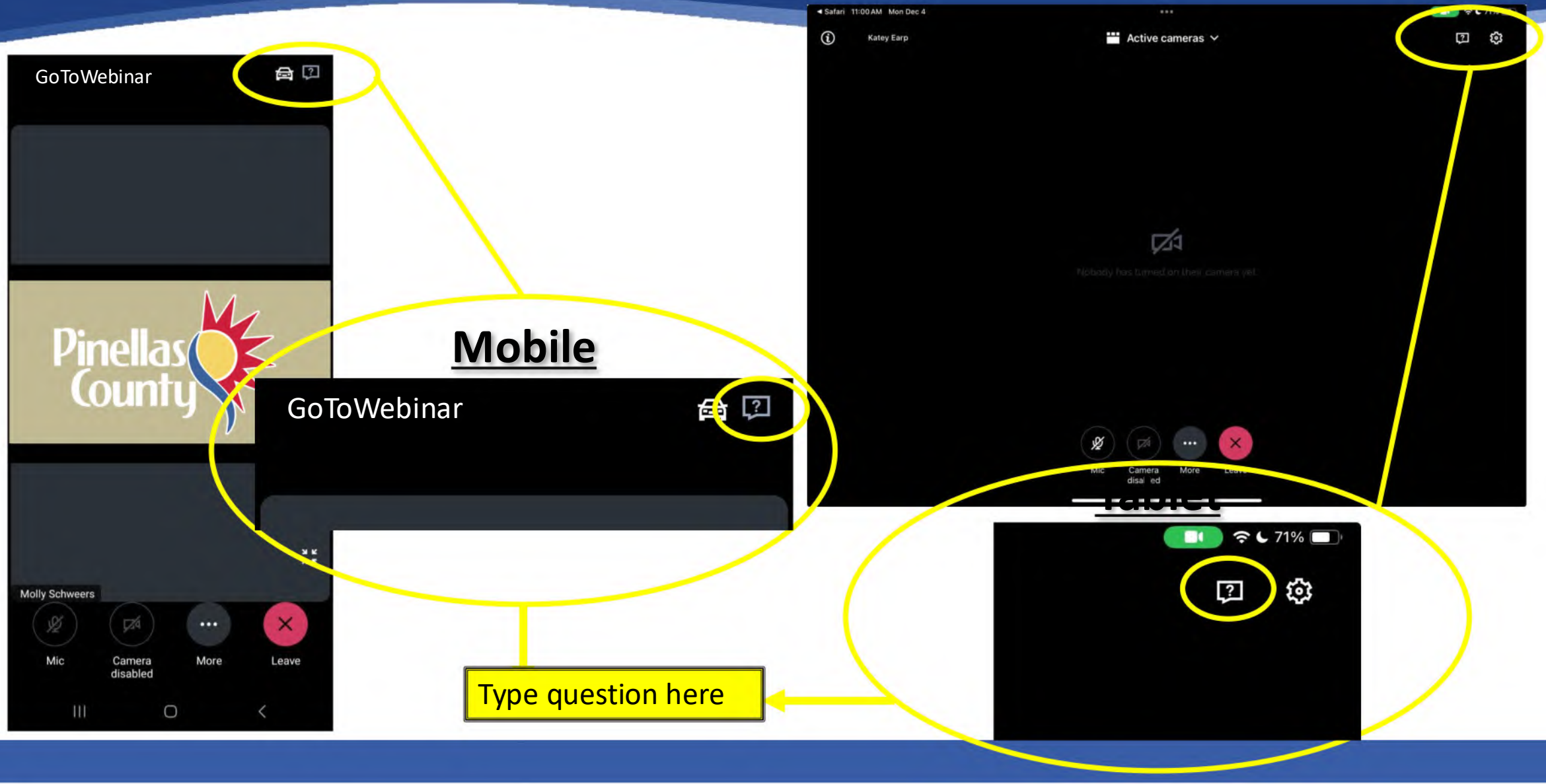
2024-2025 Five-Year Update.
October 17, 2024

Housing and Community Development Department, Emergency Management Department and Public Works

Welcome and Introductions


File Edit View Call Window Help
GoTo
Active cameras
34:46
Record
React
Mic
Camera
Share
Leave
Pop out
GoTo
Active cameras
34:04
Questions
No questions yet
Questions you send and answers from the staff will appear here
Type question here
Enter your question
Your question will be sent to staff
Send
Share
Leave
Pop out

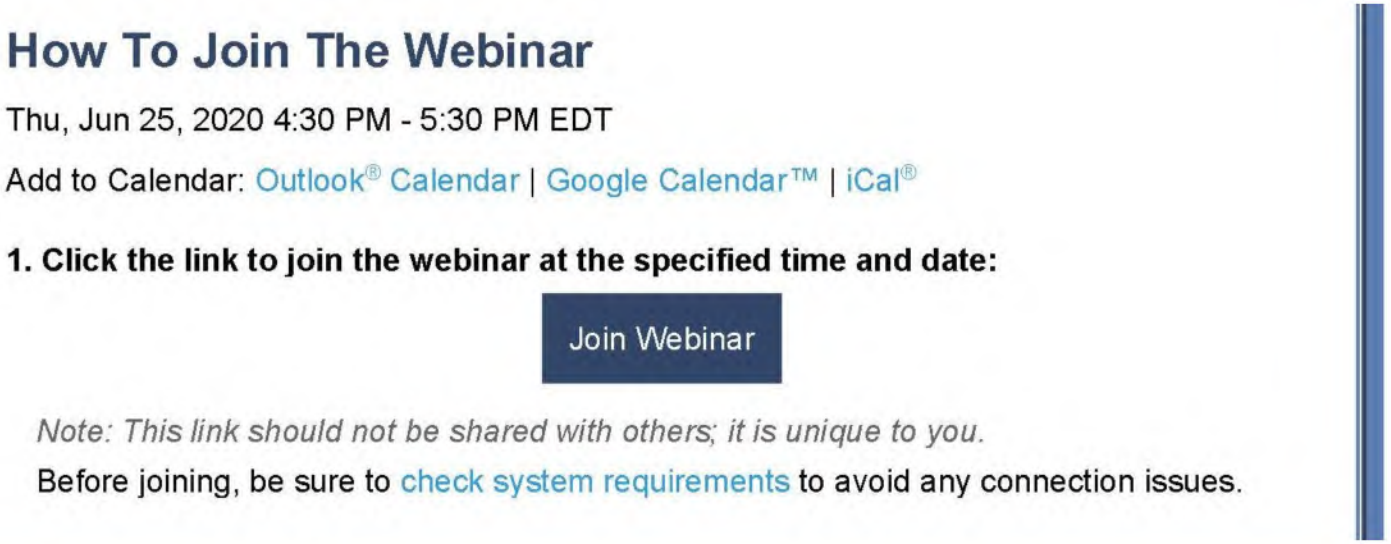
CONTROL PANEL – Mobile/Tablet



For technical issues, visit GoToWebinar online at:

Support.goto.com

Or through your confirmation email, click on check system requirements (below):



How To Join The Webinar

Thu, Jun 25, 2020 4:30 PM - 5:30 PM EDT

Add to Calendar: Outlook® Calendar | Google Calendar™ | iCal®

1. Click the link to join the webinar at the specified time and date:

Join Webinar

Note: This link should not be shared with others; it is unique to you.

Before joining, be sure to check system requirements to avoid any connection issues.

Pinellas Local Mitigation Strategy (LMS)

What is LMS?

An LMS is a document that helps local governments identify and mitigate potential hazards that could affect their jurisdiction.

Hazards

LMS is an All-Hazard Plan.

Natural Hazards
Hurricanes, flooding, sink holes etc.

Man-made Hazards
Hazardous waste spills, cyber security, etc.

State and FEMA Requirements

Stafford Act

Section 322 of the Robert T. Stafford Disaster Relief and Emergency Assistance Act (Stafford Act) enacted under the Disaster Mitigation Act of 2000.

Phases of Emergency Management

Four primary phases of emergency management:

1. Preparedness
2. Response
3. Recovery

4. MITIGATION

Reducing or eliminating the risks

Maintaining the LMS

Annual Update

Currently working on the 2024-25 Annual Update.

State Requirements

Five-Year Update

Currently working on the 2025 Five-Year Update.

FEMA Requirements
State Requirements

Why do we maintain the LMS Plan?

Hazard Mitigation Plan

Eligibility for Hazard Mitigation funding

Floodplain Management Plan

Flood Insurance Discounts for our residents

Hazard Mitigation Funding

PRE-DISASTER FUNDING

- **Flood Mitigation Assistance FMA**
- **Building Resilient Infrastructure and Communities BRIC**

POST-DISASTER FUNDING

- **Hazard Mitigation Grant Program**
- **HMGP**

Current Five-Year Update Efforts

2024-2025 LMS Five-Year Update

- **Reviewing the current plan.**
- **Updating our LMS goals and objectives**
- **Updating our processes.**

Started Jan. 2024 → **Plan due to the State – Nov. 6, 2024**

- First workshop – April 15th
- Survey – March 2024

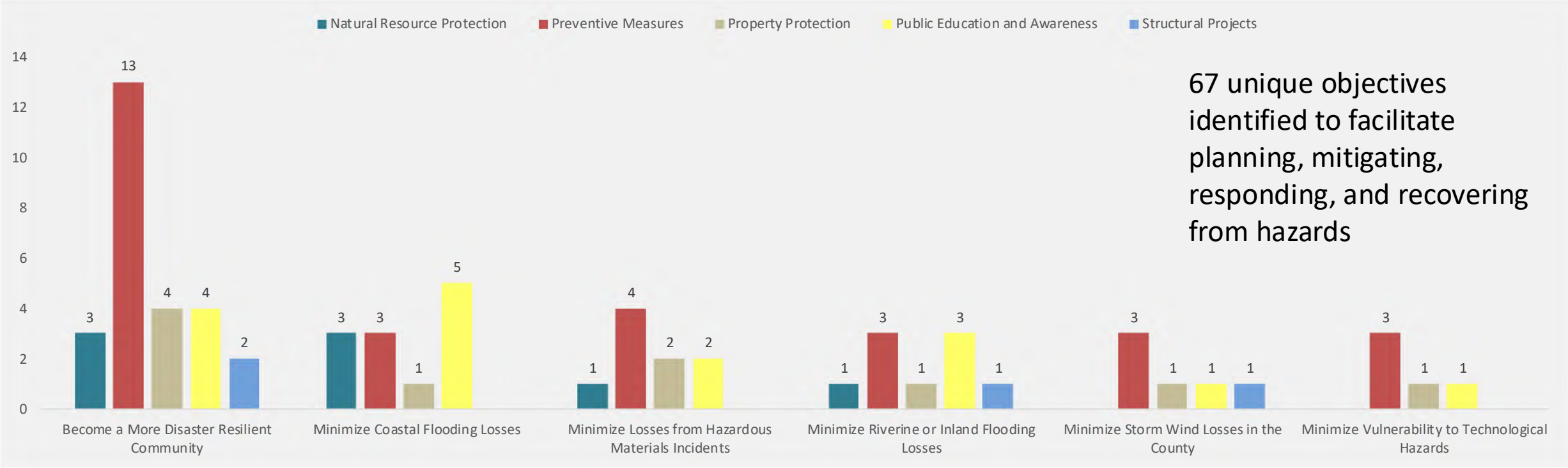
2025 Plan Drafts

LMS Plan Goals and Objectives

- Become a More Disaster Resilient Community
- Minimize Coastal Flooding Losses
- Minimize Losses from Hazardous Materials Incidents
- Minimize Riverine or Inland Flooding Losses
- Minimize Storm Wind Losses in the County
- Minimize Vulnerability to Technological Hazards

2025 Plan Drafts

LMS Plan Goals and Objectives



67 unique objectives identified to facilitate planning, mitigating, responding, and recovering from hazards

Count of objectives per goal, by protection type (Helps with CRS program and flood insurance discounts)

LMS Plan Goals and Objectives

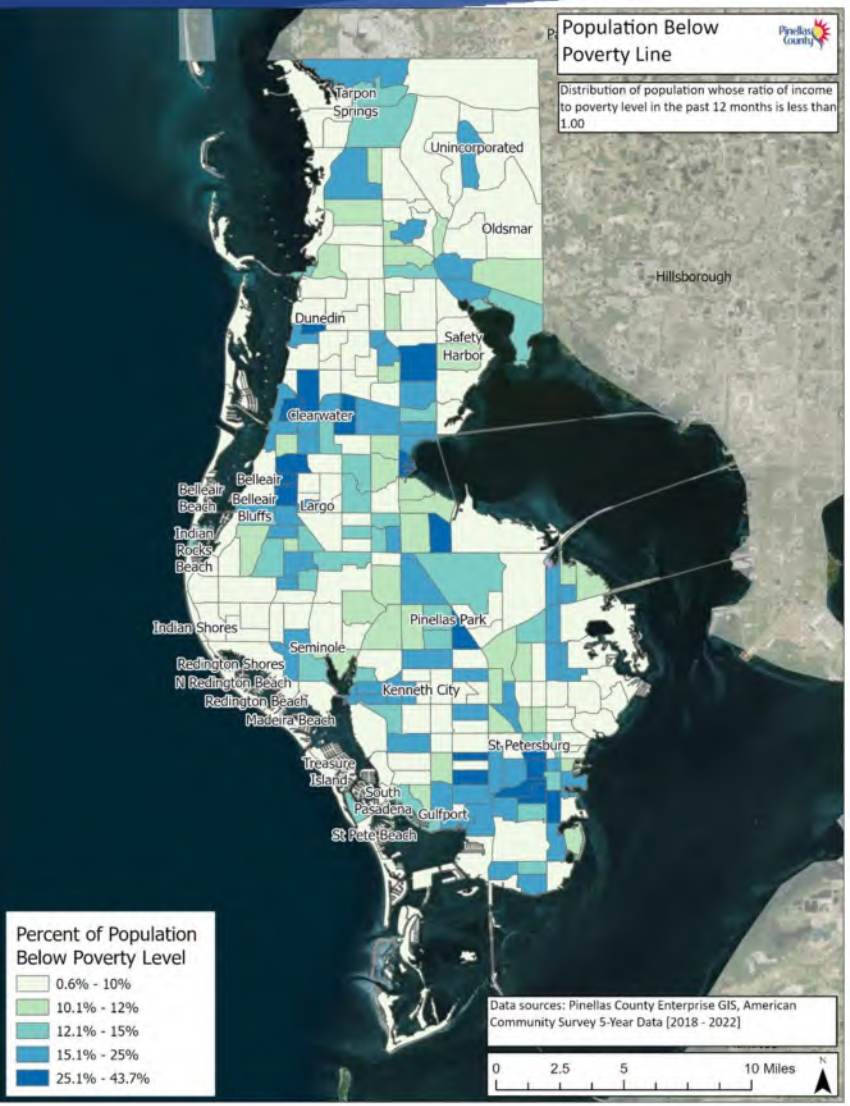
Objectives Added

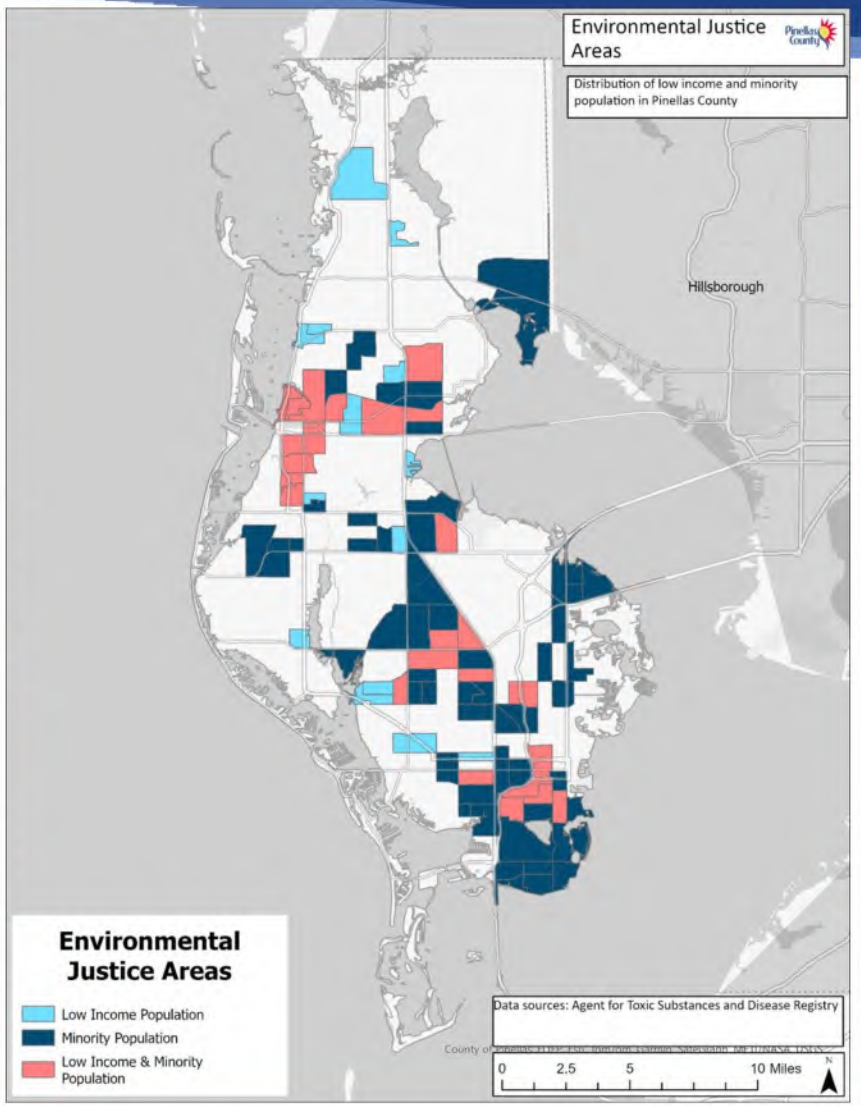
- 3 in Goal 1 – Become a more Disaster Resilient Community
- 4 in Goal 2 – Minimize Coastal Flooding Losses

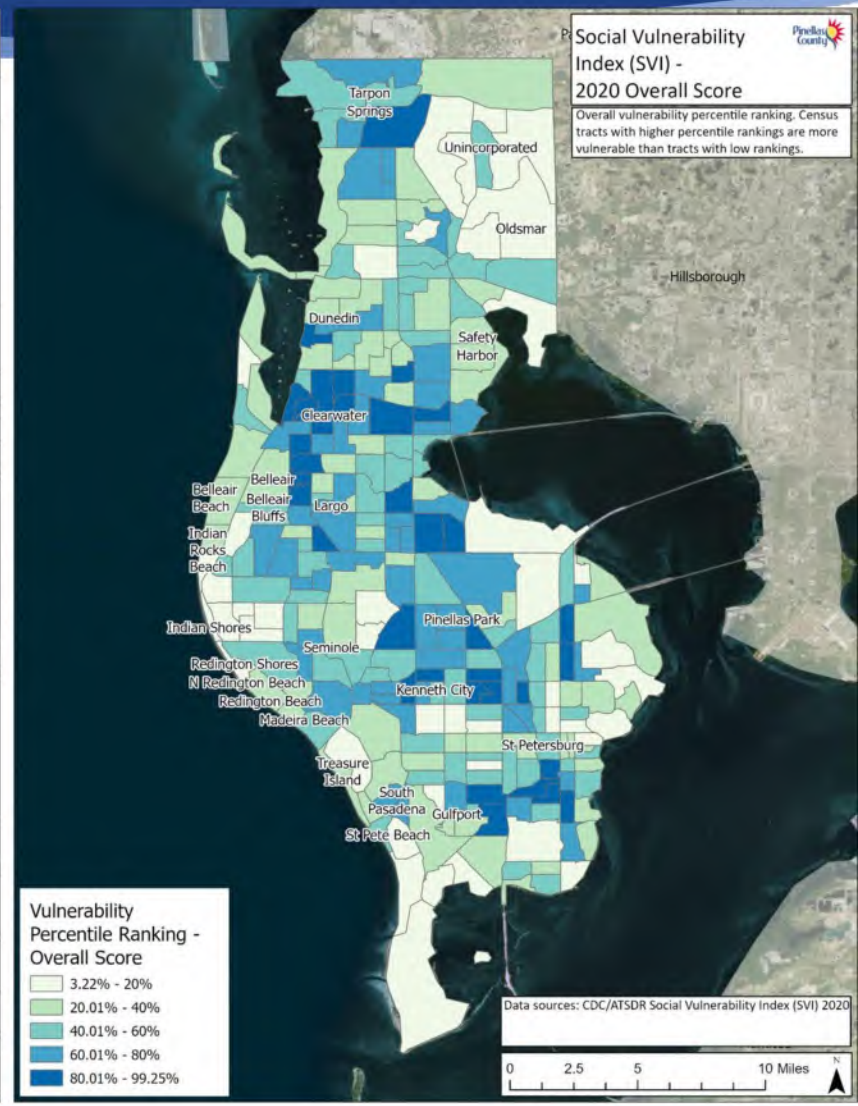
Added and modified objectives encourage

- Countywide consistency in approach to hazard planning and higher standards
- Address social vulnerability
- Plan for future conditions of hazards
- Better protection/resilience for energy infrastructure
- Flexibility for multi-hazard approaches
- Include existing actions

2025 Plan Drafts – Social Vulnerability







2025 Plan Drafts

Risk Assessment

Pinellas County Recent Events

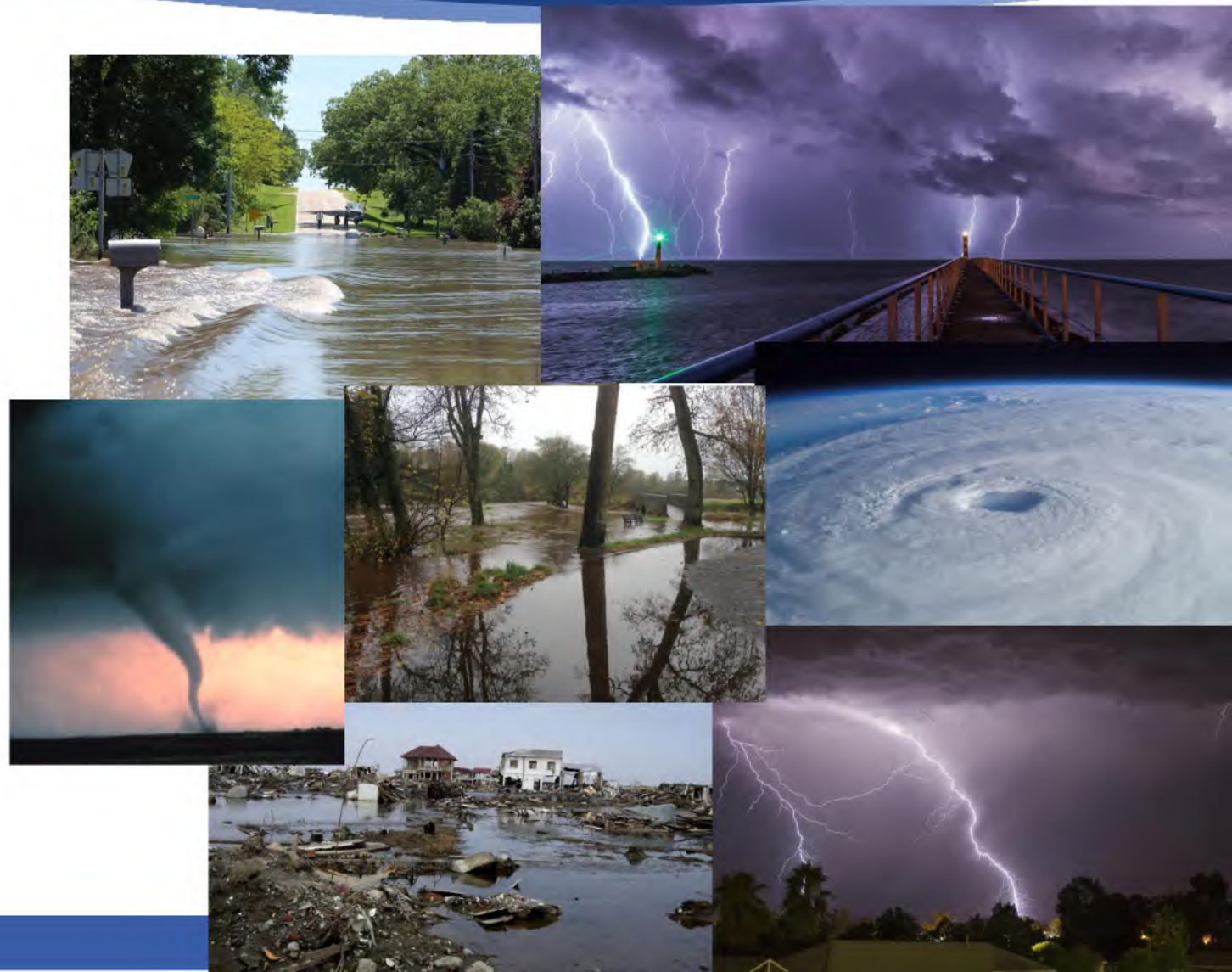
2020
- Severe Weather
- Hurricanes Isaias, Laura, Sally, Eta

2021
- Tornado
- Red Tide
- Tropical Storms Elsa, Fred, Grace

2022
- Hurricanes Ian, Nicole

2023
- Hurricane Idalia
- Tornado
- Severe Weather

2024
- Severe Weather and Coastal Flooding
- Heavy Rainfall
- Hurricane Debby



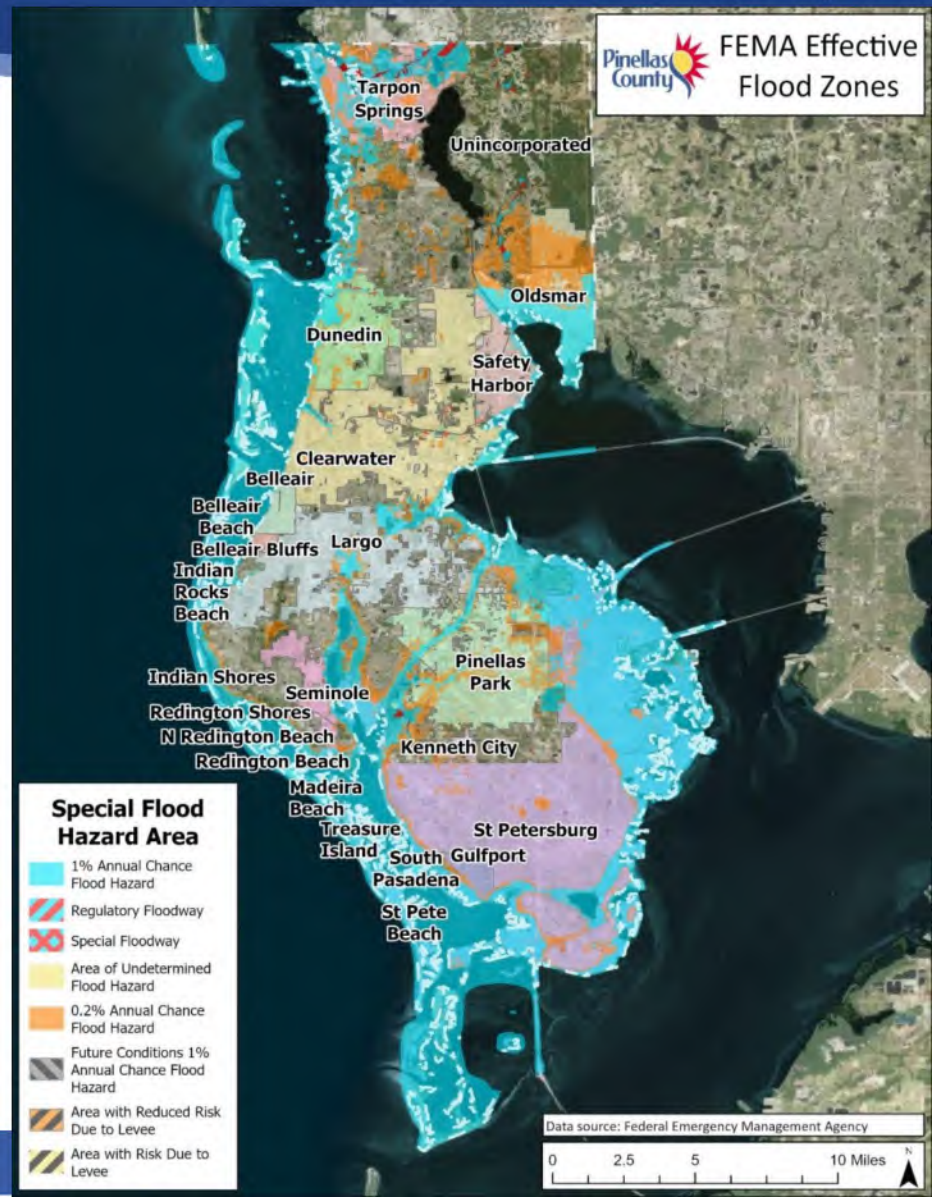
2025 Plan Drafts – Risk Assessment

Flood

Probability: **Highly Likely**

Impact: **Critical**

Over 166,745 parcels and 81,377 structures located in the effective 100-year flood zone at estimated value of more than $107.7 billion



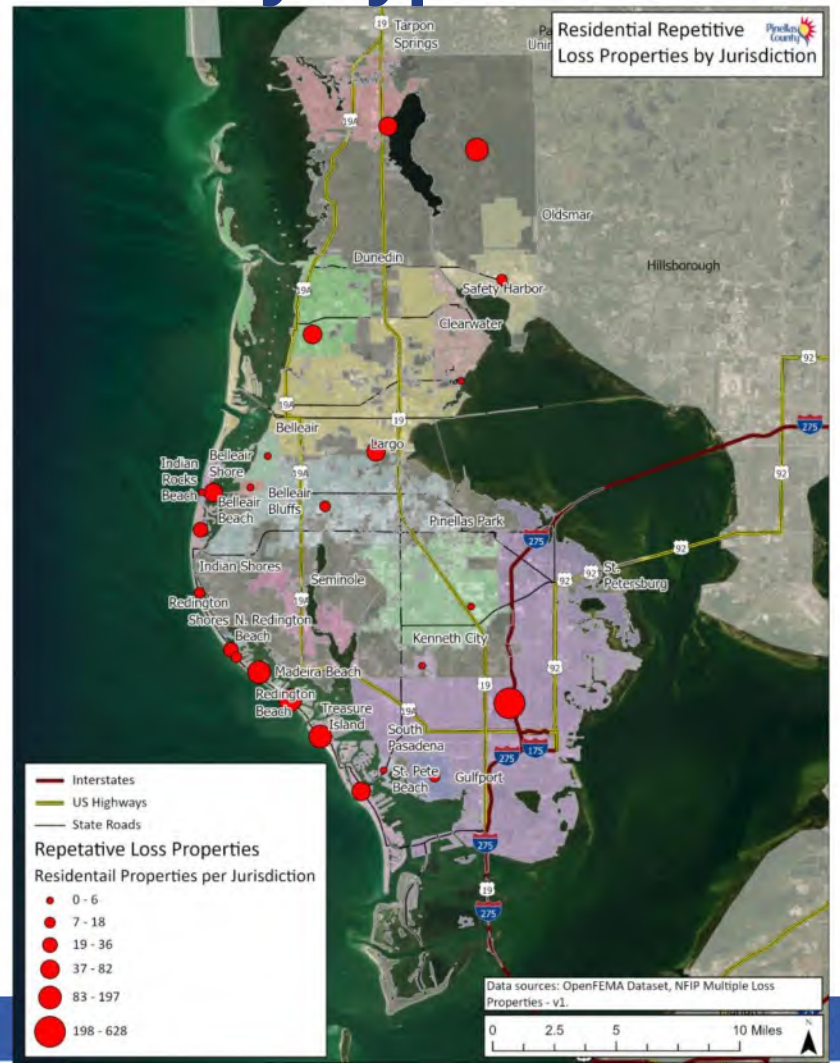
Flood Loss Claims for NFIP Policies

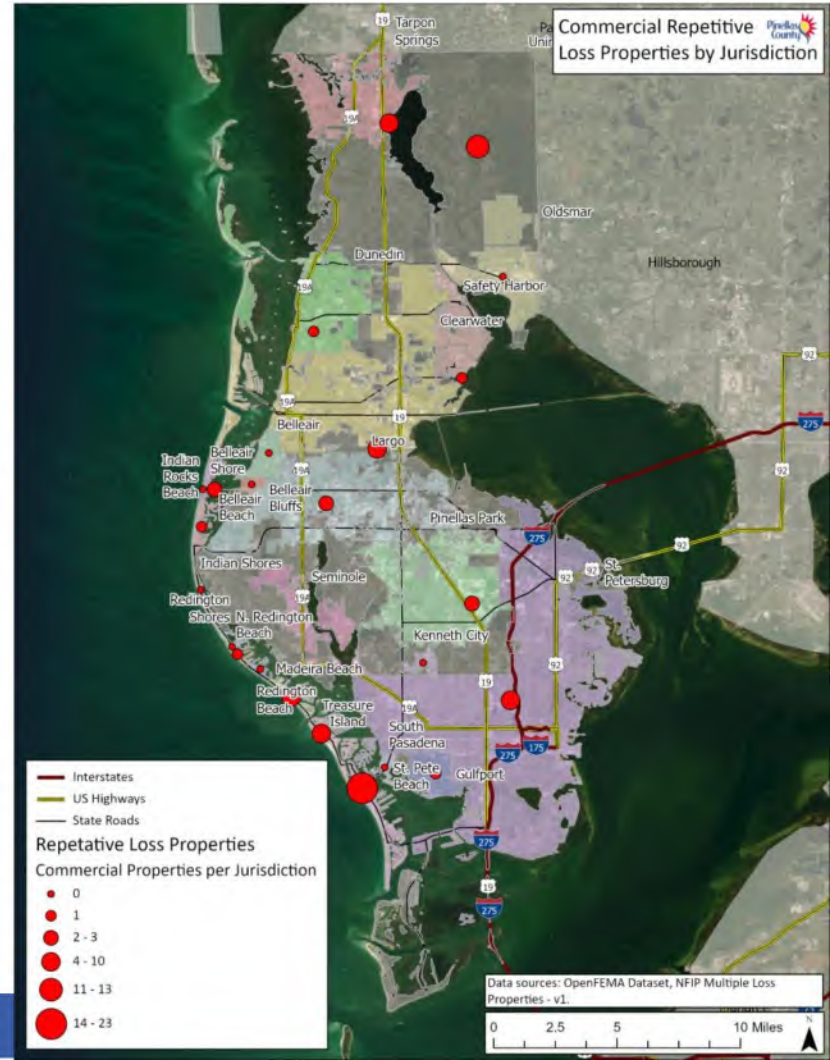
- 129,698 total policies in Pinellas County
- 25,600 total claims (1978-2024)
  - $376,567,885 in total payments in Pinellas County (building and contents, 1978-2024; *does not include recent hurricanes*)
  - Average claim amount $14,709.68

2025 Plan Drafts – Risk Assessment

Repetitive Loss Properties By Type

Jurisdiction	Residential	Commercial	Total
Belleair	6	0	**6**
Belleair Beach	59	3	**62**
Belleair Bluffs	0	0	**0**
Belleair Shore	3	0	**3**
Clearwater	81	9	**90**
Dunedin	82	1	**83**
Gulfport	11	1	**12**
Indian Rocks Beach	36	1	**37**
Indian Shores	18	0	**18**
Kenneth City	0	0	**0**
Largo	13	2	**15**
Madeira Beach	197	8	**205**
North Redington Beach	9	1	**10**
Oldsmar	8	0	**8**
Pinellas Park	4	3	**7**
Redington Beach	129	0	**129**
Redington Shores	29	0	**29**
Safety Harbor	2	1	**3**
St. Petersburg	628	10	**638**
St. Pete Beach	69	23	**92**
Seminole	0	0	**0**
South Pasadena	5	0	**5**
Tarpon Springs	71	9	**80**
Treasure Island	133	7	**140**
Unincorporated	117	13	**130**
PINELLAS COUNTY TOTAL	**1,710**	**92**	**1,802**





2025 Plan Drafts – Risk Assessment

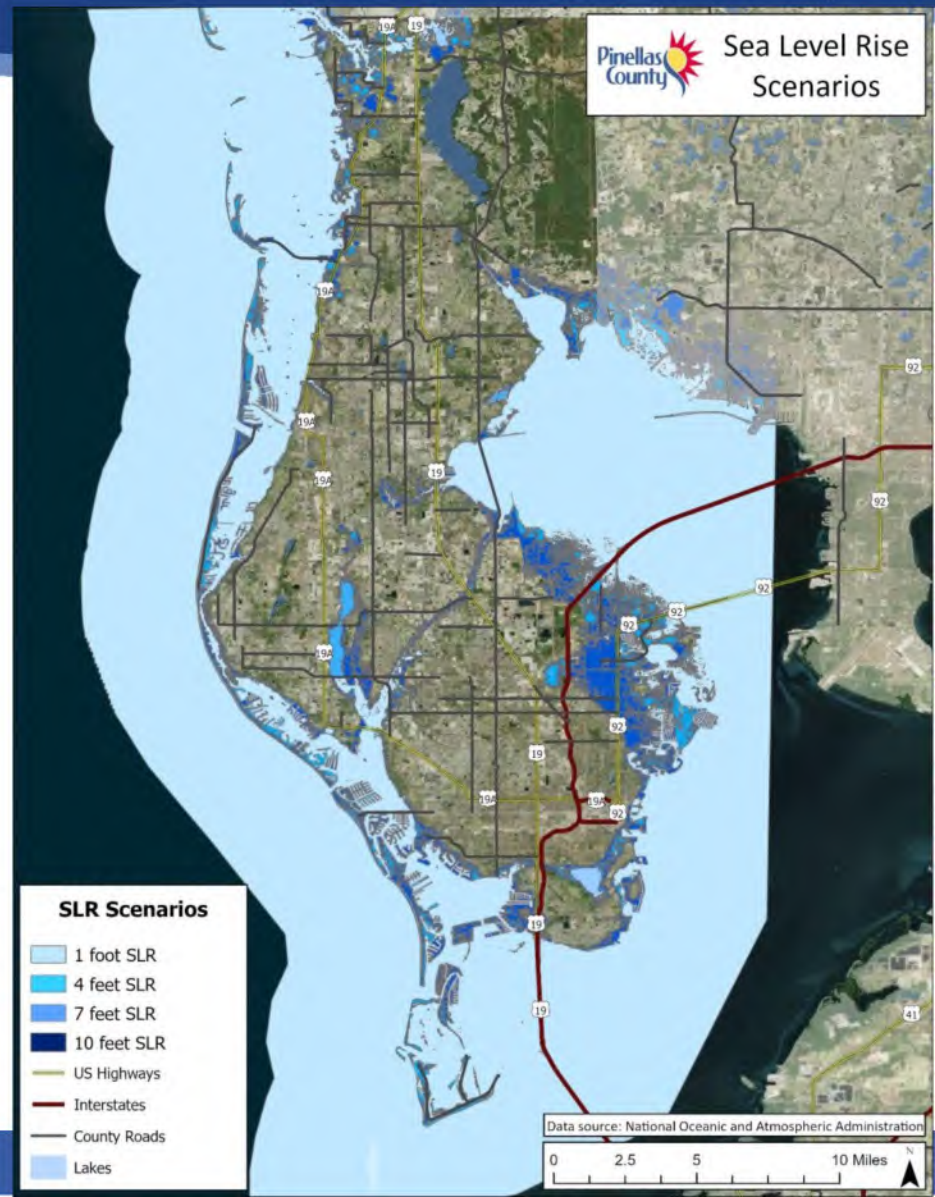
Sea Level Rise

Probability: **Highly Likely**

Impact: **Critical**

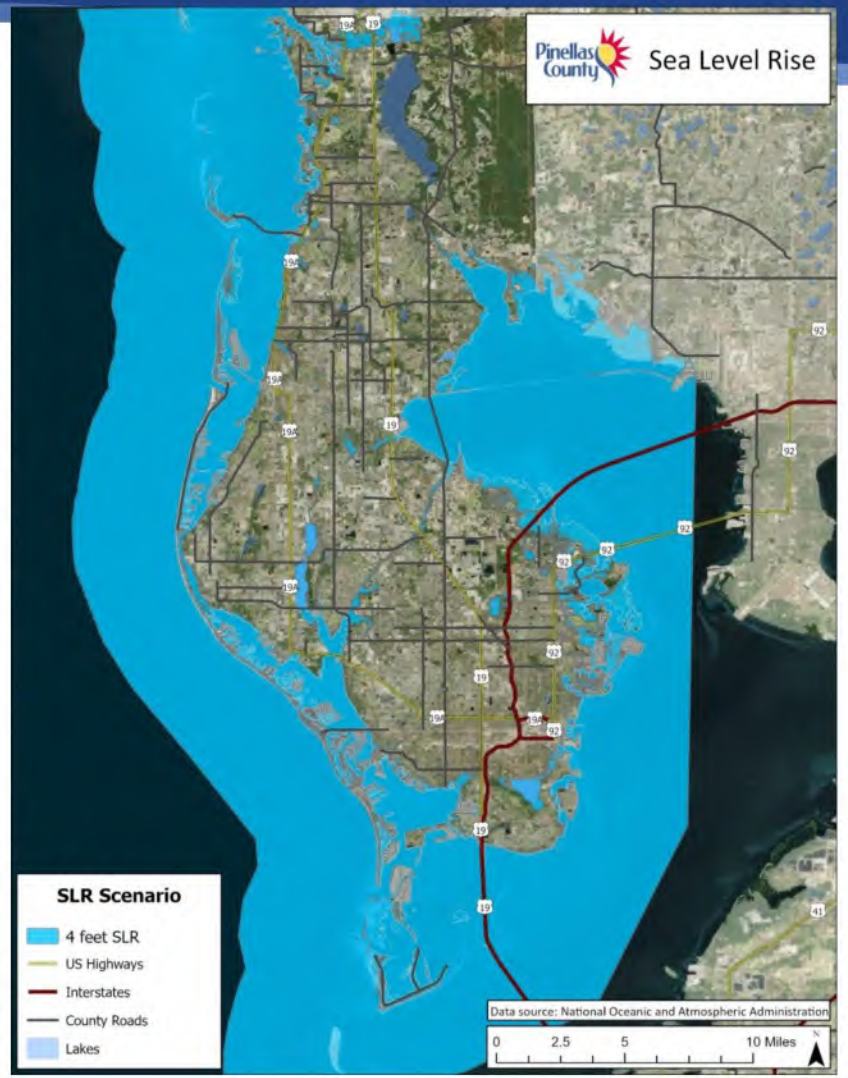
Intervals of sea level rise were analyzed at 1 foot, 4 feet, 7 feet and 10 feet.

Sea level rise could affect coastal infrastructure and impact economy and environment.



2025 Plan Drafts – Risk Assessment







1 ft of Sea Level Rise | 4 ft of Sea Level Rise | 7 ft of Sea Level Rise

2025 Plan Drafts – Risk Assessment

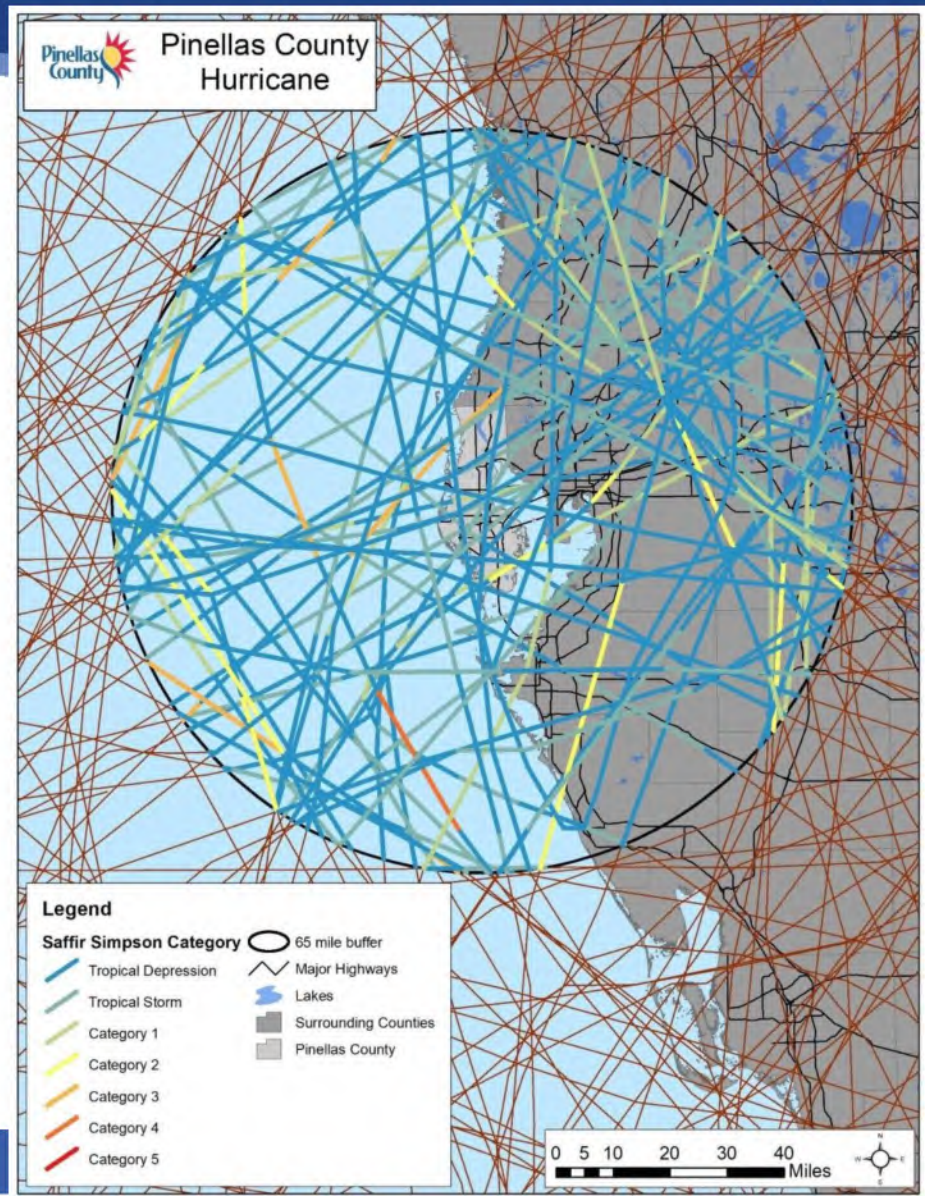
Tropical Cyclone

Probability: **Likely**

Impact: **Catastrophic**

13 federal disaster declarations related to hurricanes/tropical storms

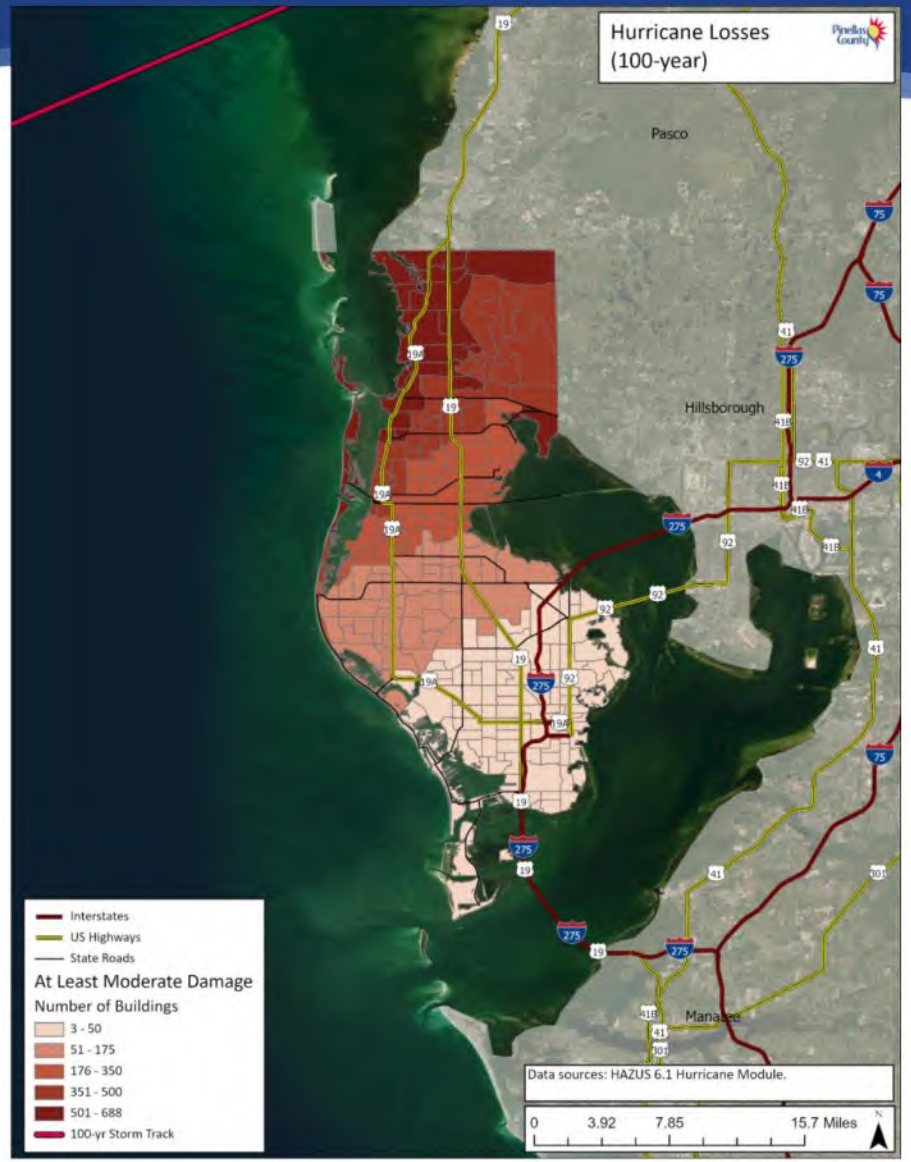
Looked at damage from both with and storm surge



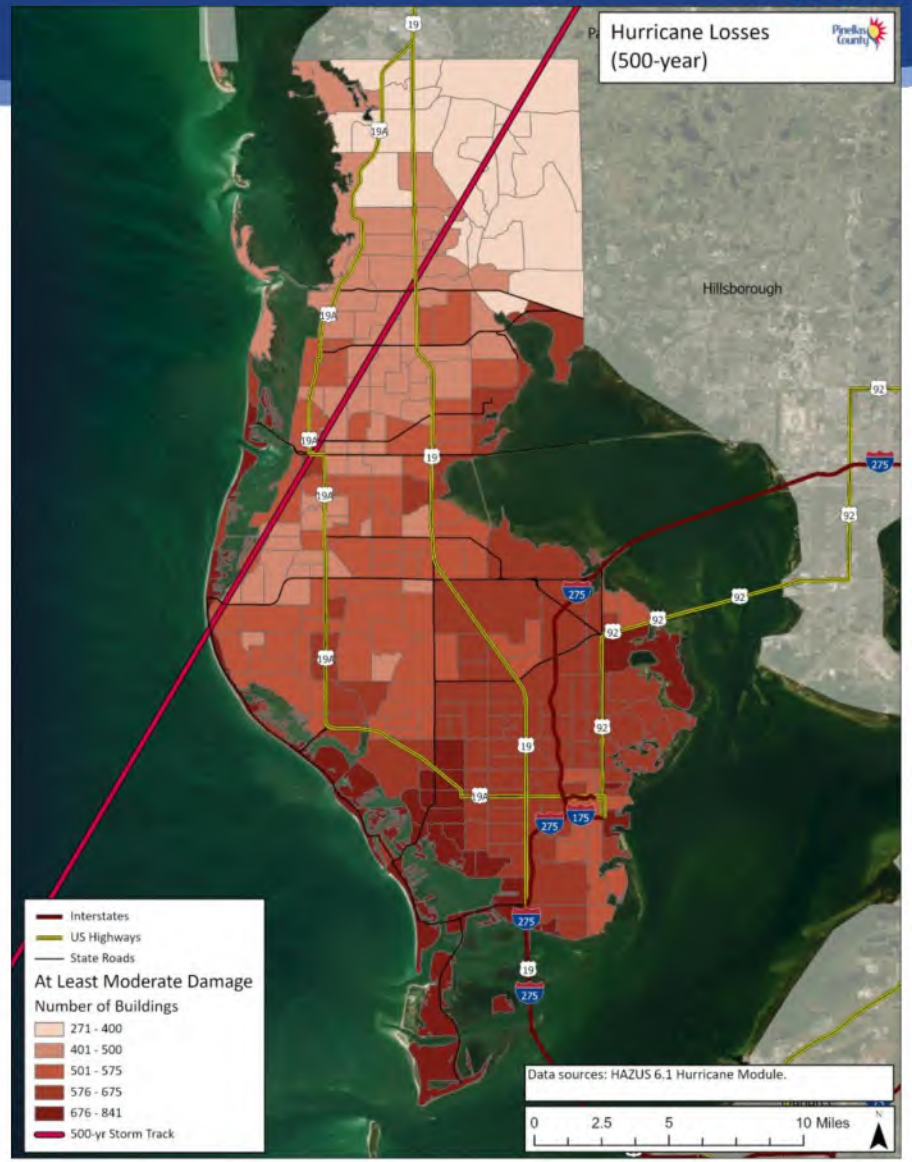
2025 Plan Drafts – Risk Assessment

Tropical Cyclone-Wind

Hazus Results



100 year event buildings damaged



500 year event buildings damaged

2025 Plan Drafts – Risk Assessment

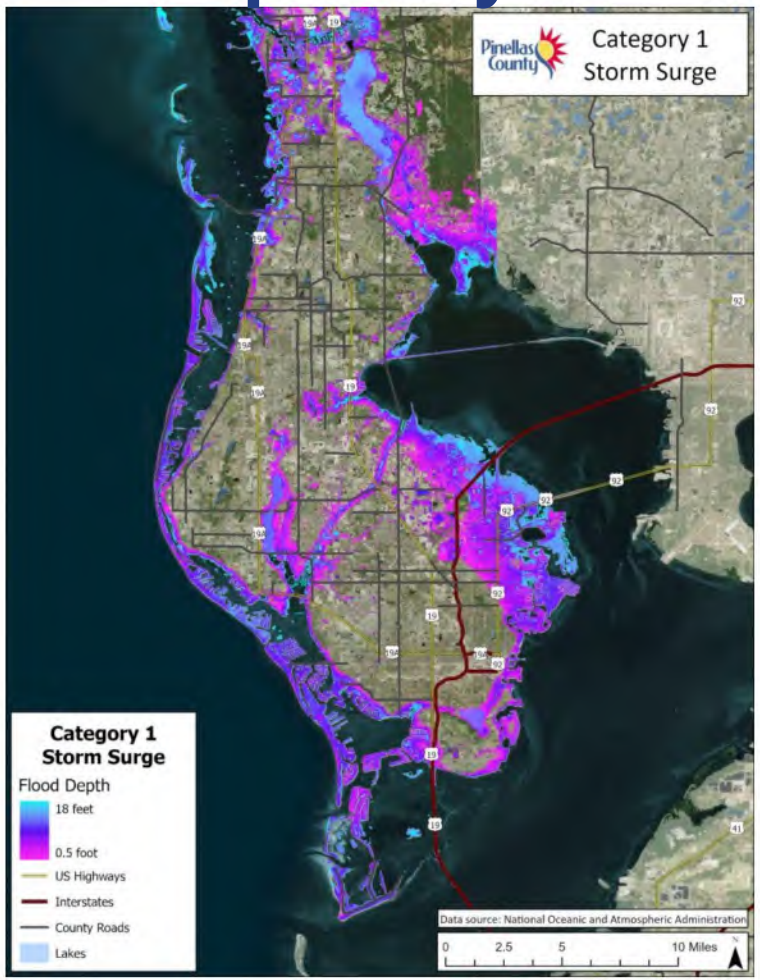
Tropical Cyclone- Wind

Hazus Data – estimation of damage to building stock

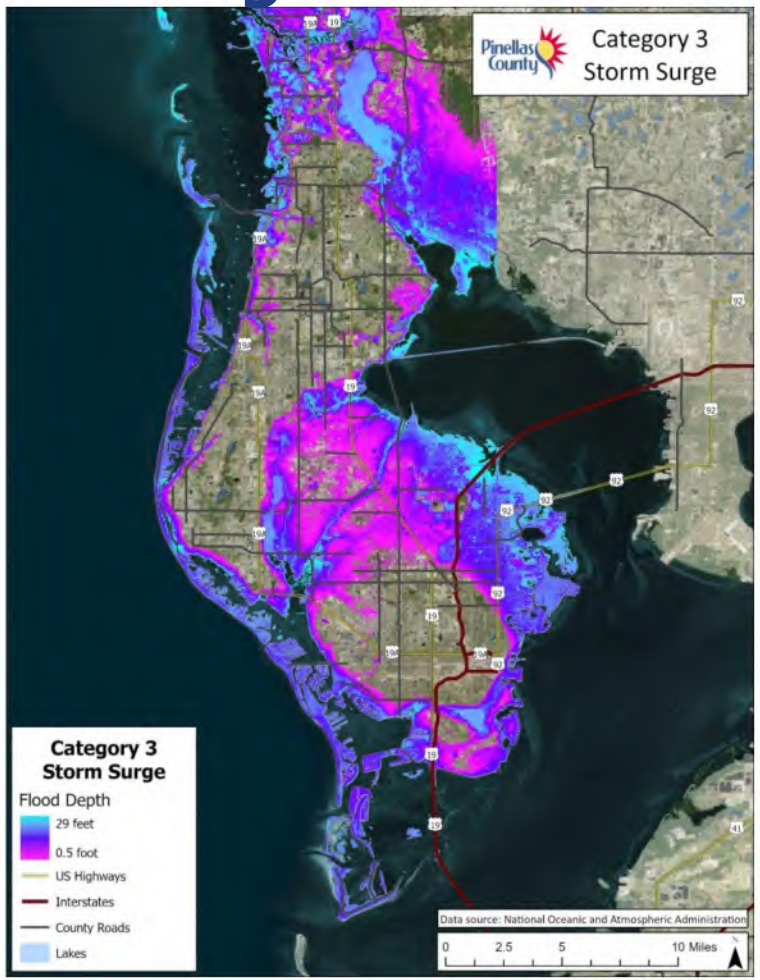
	100-year Hurricane Event		500-year Hurricane Event	
	Number of Damaged Buildings	Percent of Total Building Stock	Number of Damaged Buildings	Percent of Total Building Stock
No Damage	187,784	69%	66,119	**24%**
Minor Damage	35,854	13%	55,244	**20%**
Moderate Damage	33,513	12%	82,304	**30%**
Severe Damage	14,666	5%	63,352	**23%**
Complete Damage	1,180	1%	5,978	**2%**
Total Building Count	**272,997**	--	**272,997**	--

2025 Plan Drafts – Risk Assessment

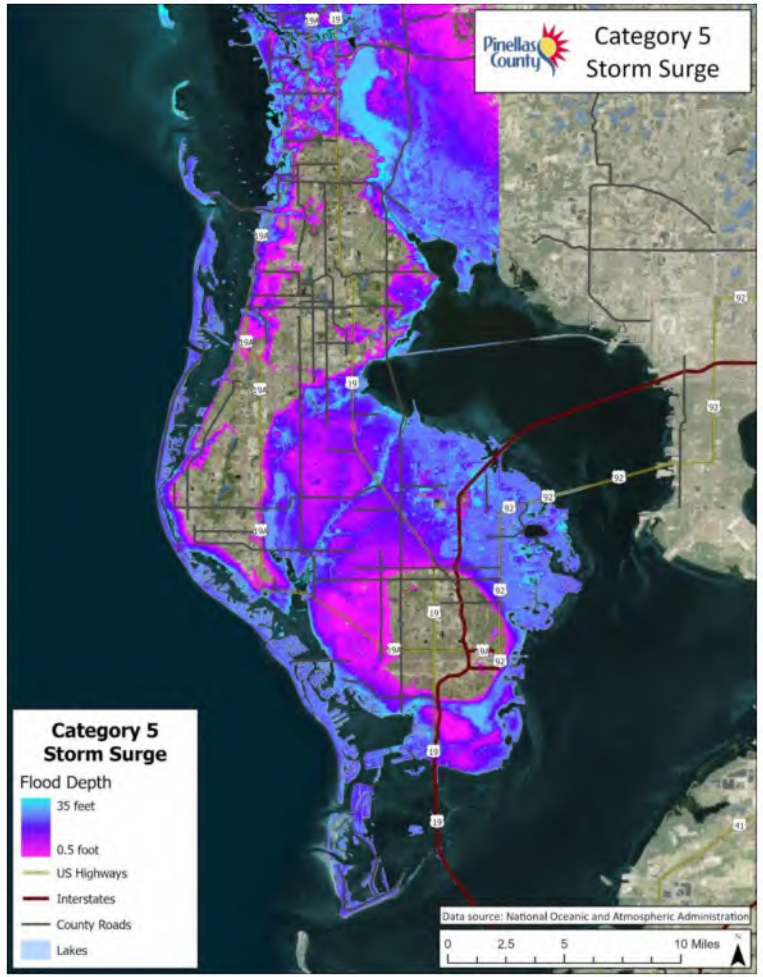
Tropical Cyclone- Storm Surge



Category 1: Depths up to 18 feet



Category 3: Depths up to 29 feet

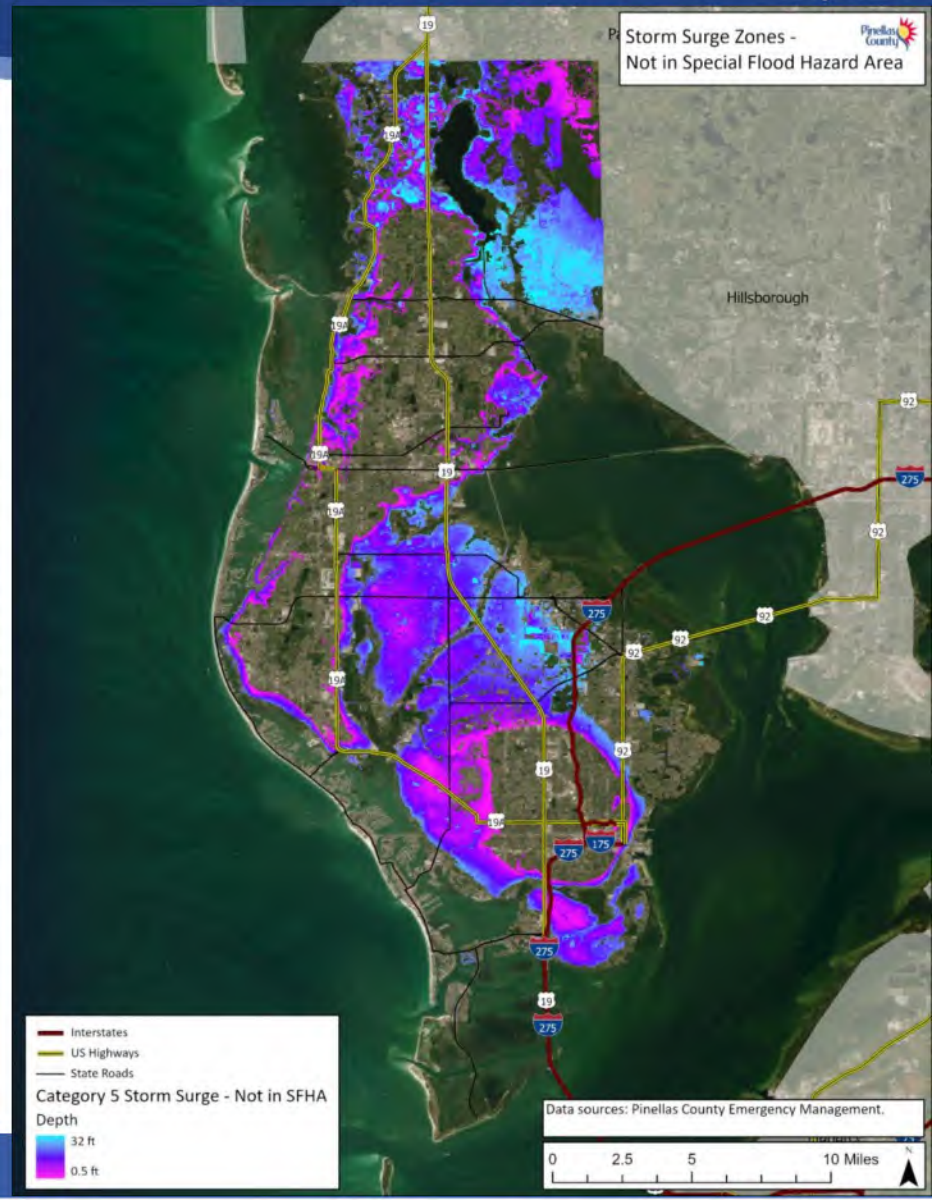


Category 5: Depths up to 35 feet

2025 Plan Drafts – Risk Assessment

Storm Surge Areas Not in Effective Flood Zones

Location	Buildings and Parcels in Hurricane Risk Area Category 5 Storm Surge Zones Not in Effective Floodplain		
	No. of Parcels	No. of Buildings	Improved Value
Belleair	1,763	1,253	$1,435,825,710.00
Belleair Beach			
Belleair Bluffs	1,135	707	$470,783,404.00
Belleair Shore			
Clearwater	47,366	39,790	$18,424,950,779.00
Dunedin	11,883	11,108	$5,188,892,411.00
Gulfport	3,349	3,381	$1,170,858,949.00
Indian Rocks Beach			
Indian Shores			
Kenneth City	716	783	$275,492,039.00
Largo	31,236	34,093	$12,053,475,457.00
Madeira Beach			
North Redington Beach			
Oldsmar	254	621	$114,451,559.00
Pinellas Park	9,061	10,157	$3,602,718,973.00
Redington Beach			
Redington Shores			
Safety Harbor	6,731	6,350	$3,363,287,921.00
St. Petersburg	67,452	66,008	$30,181,040,953.00
St. Pete Beach			
Seminole	20,410	17,097	$7,577,448,526.00
South Pasadena			
Tarpon Springs	6,208	7,190	$2,709,696,331.00
Treasure Island			
Unincorporated	22,016	27,032	$9,639,721,787.00
PINELLAS COUNTY TOTAL	229,580	225,570	$96,208,644,799.00



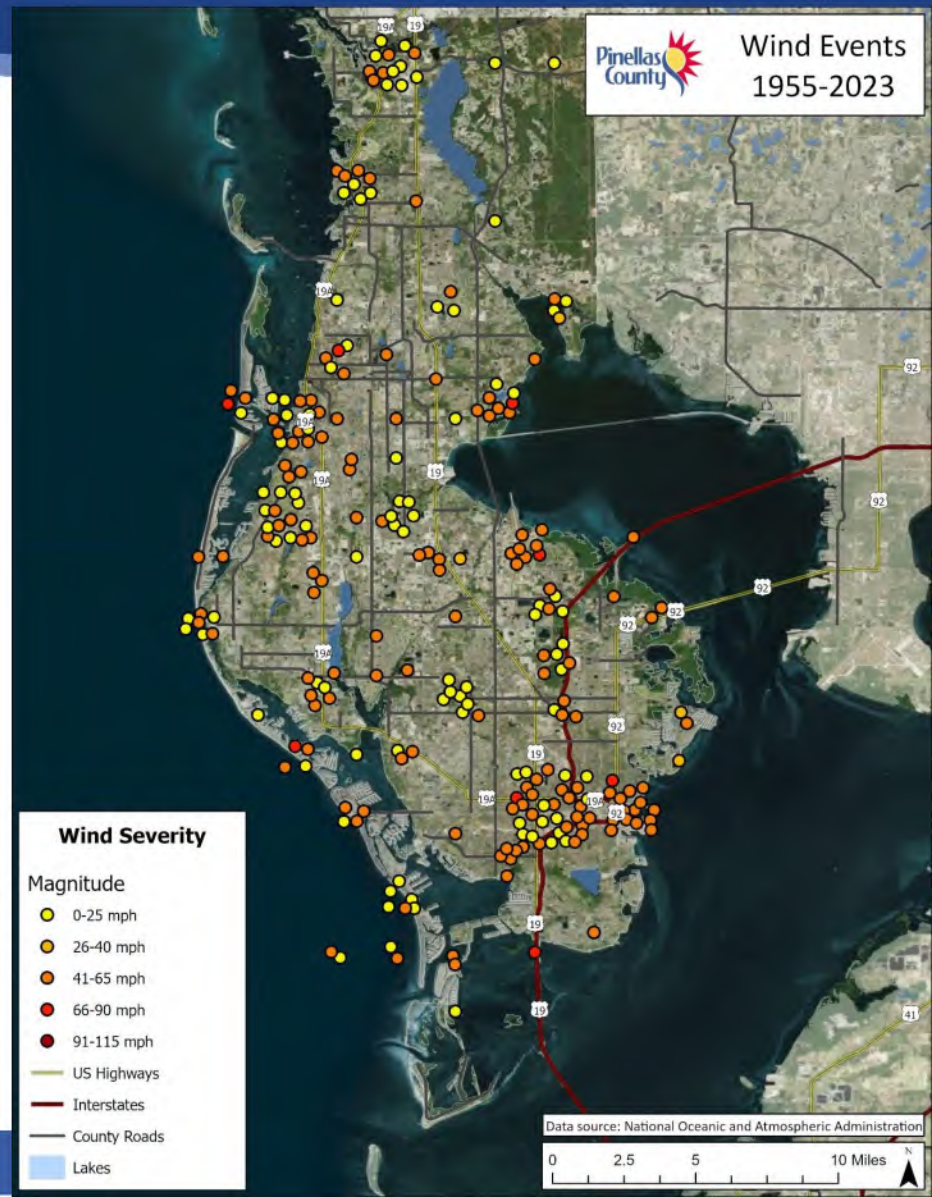
2025 Plan Drafts – Risk Assessment

Severe Storm

Probability: **Highly Likely**

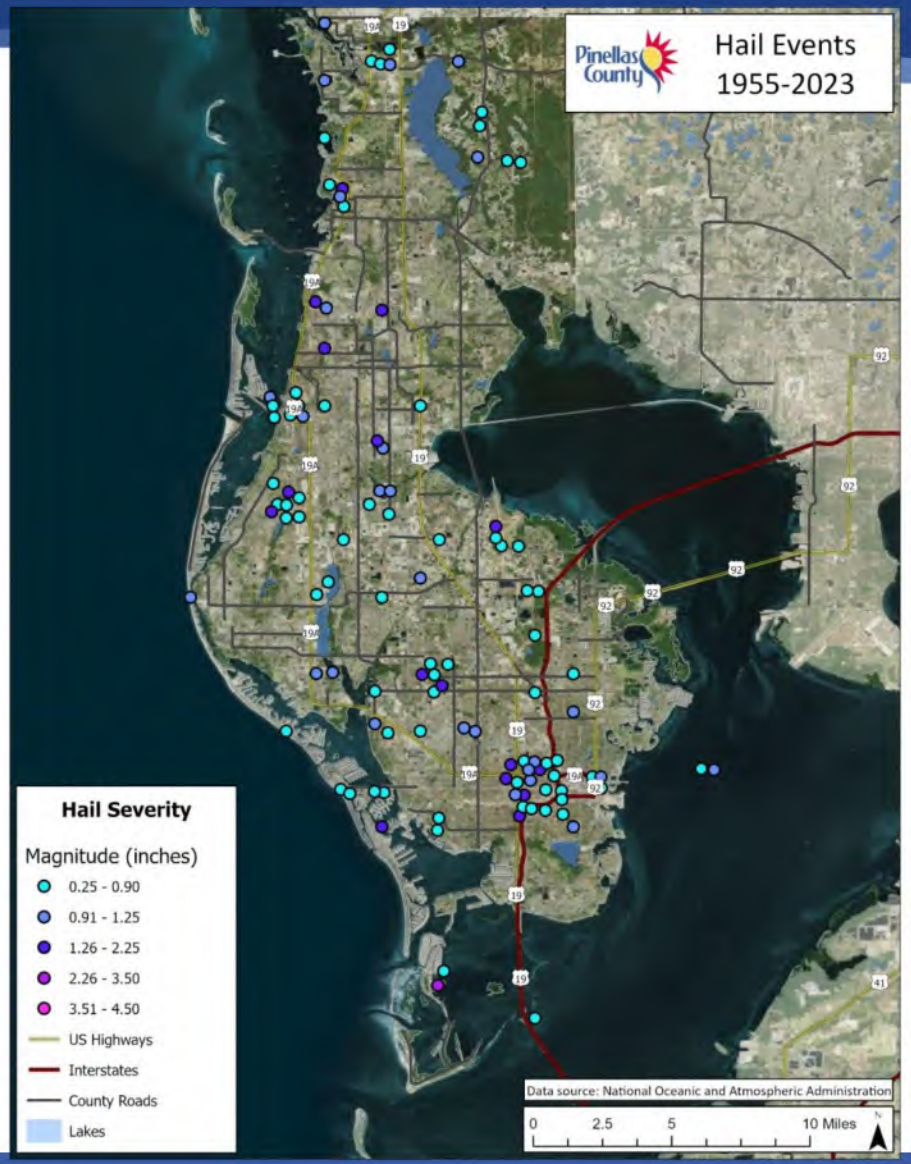
Impact: **Critical**

Event types include the following: Lightning, hail, straight-line winds, and tornadoes

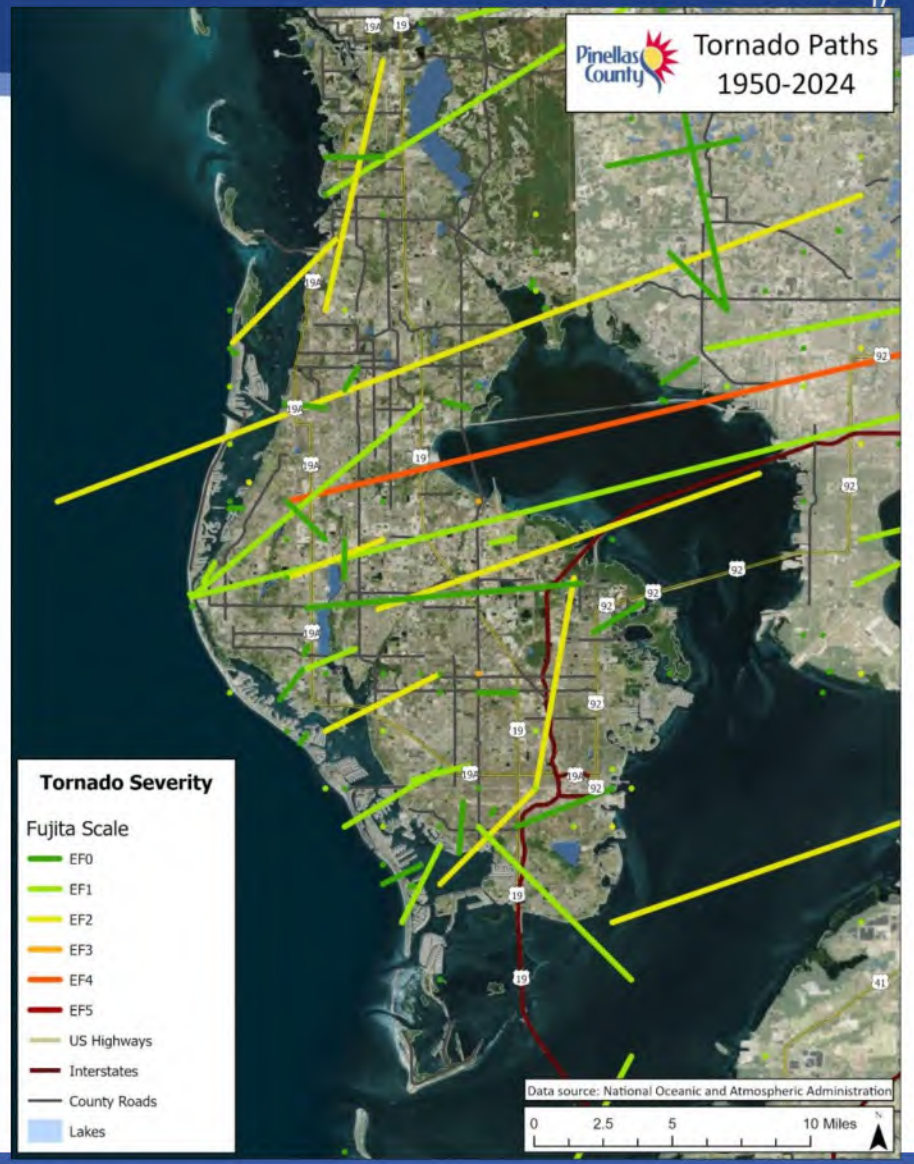


2025 Plan Drafts – Risk Assessment

Severe Storm



Hail events



Tornado events

2025 Plan Drafts – Risk Assessment

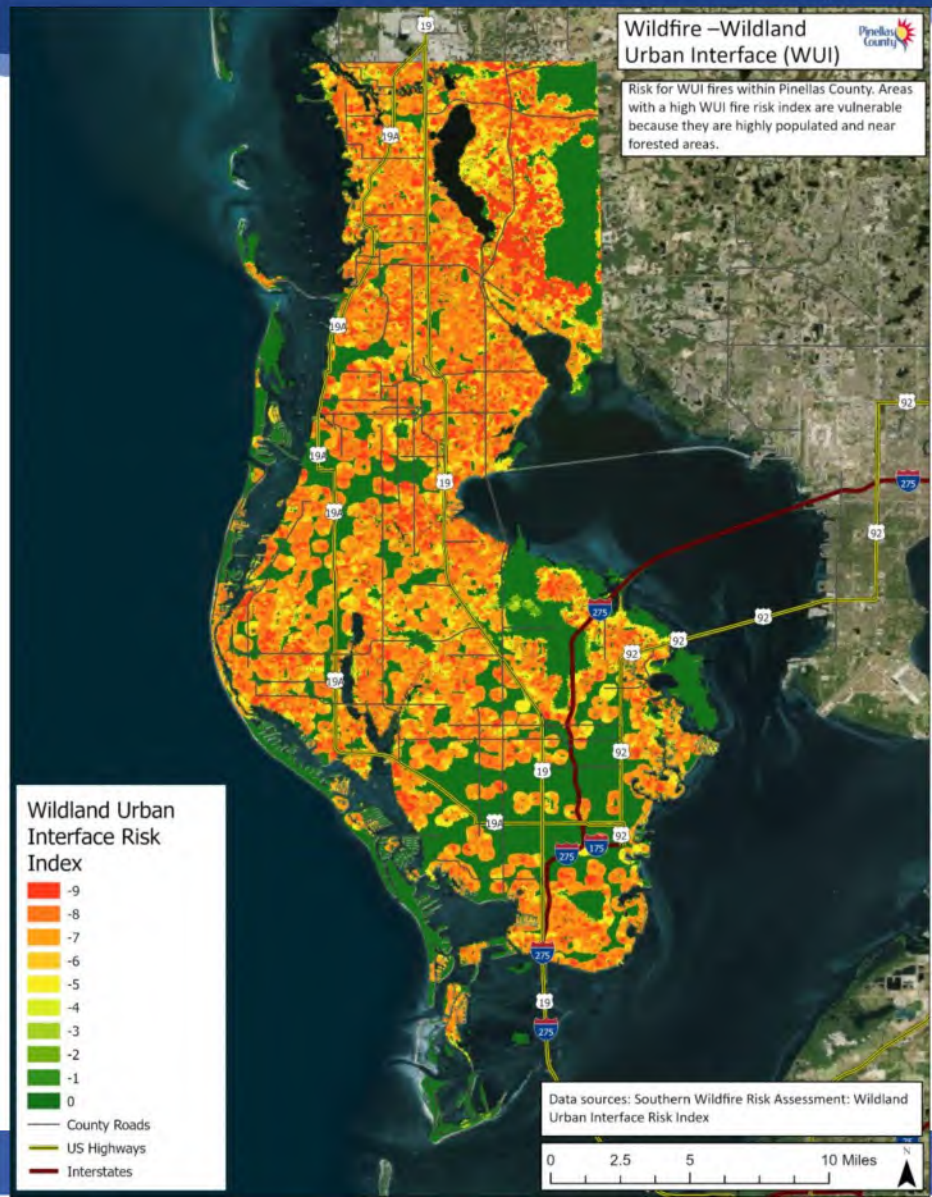
Wildfire

Probability: **Possible**

Impact: **Limited**

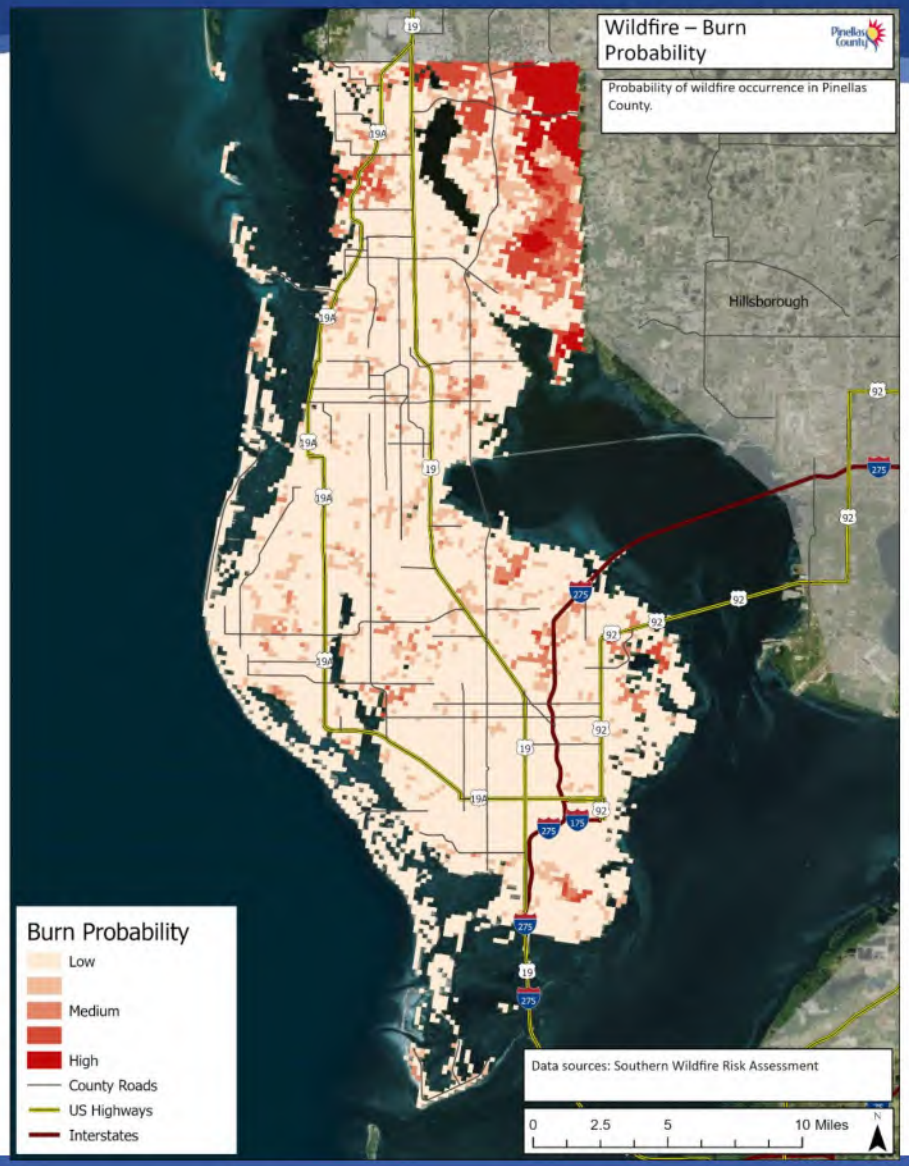
Multiple datasets from Southeast Wildfire Risk Assessment

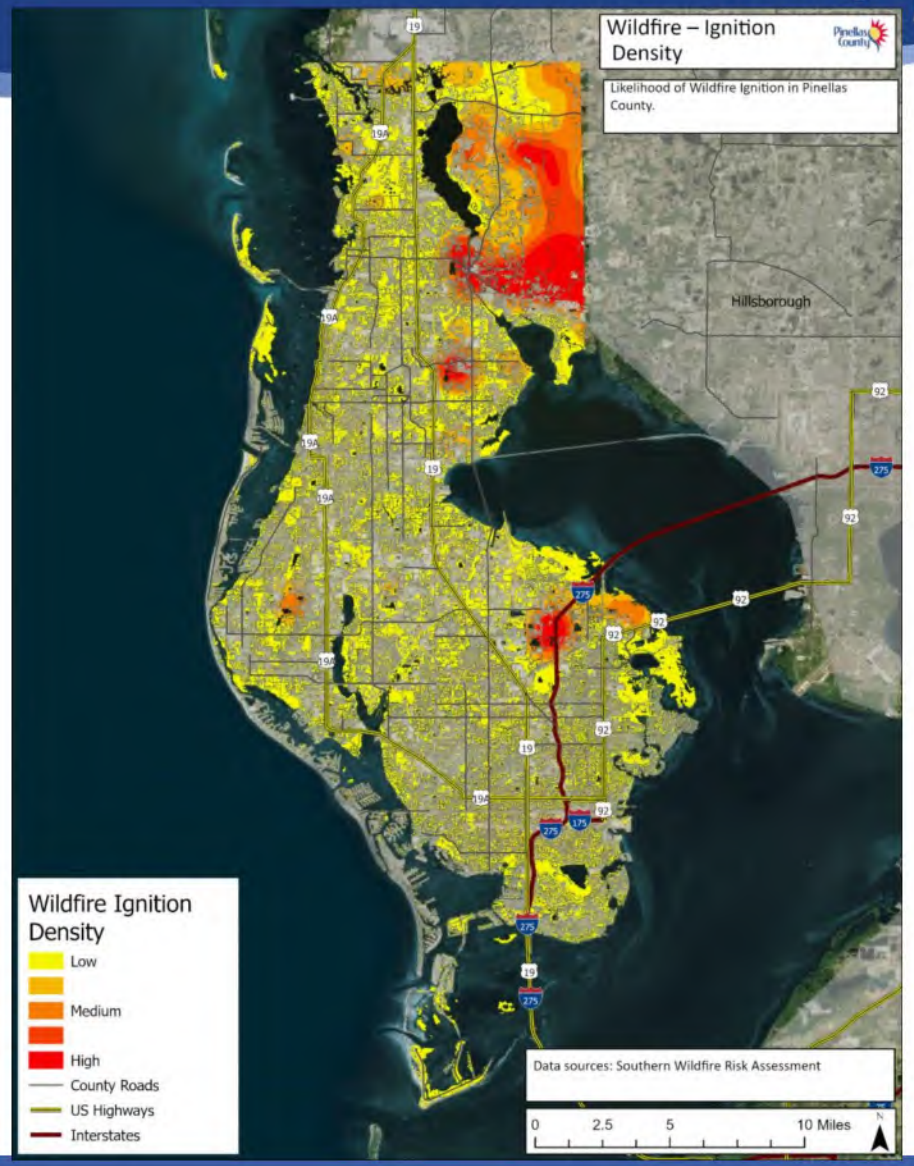
Highest vulnerability in northeast part of the county where less urbanization is present



2025 Plan Drafts – Risk Assessment

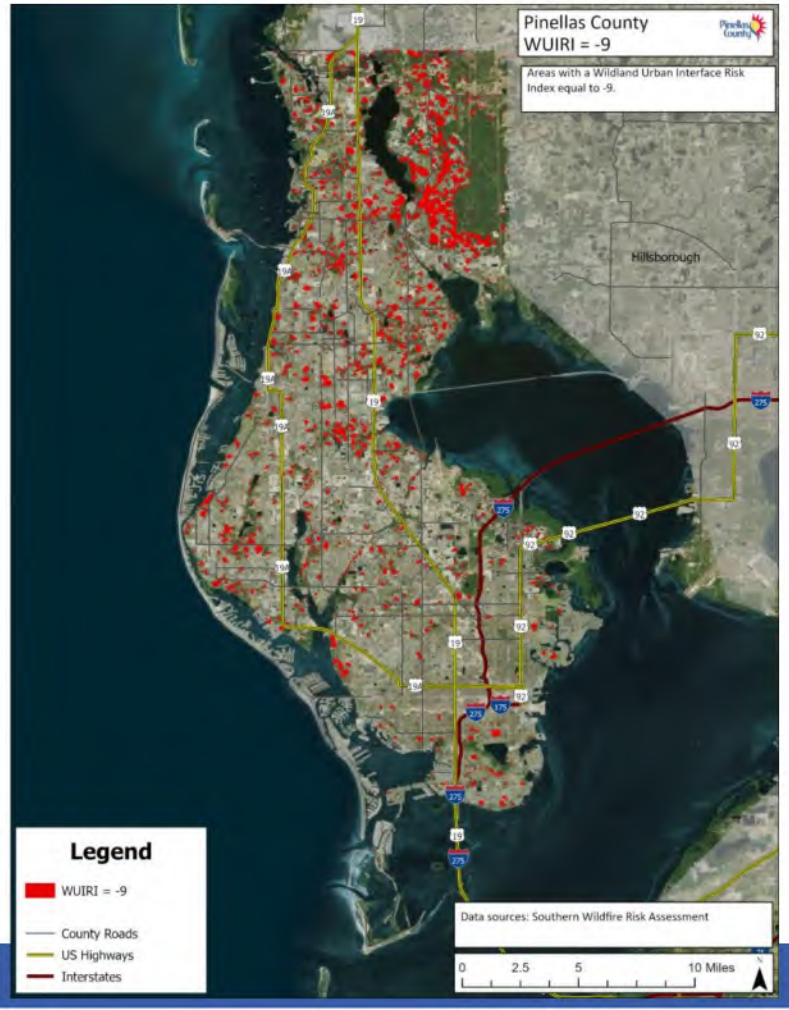
Wildfire





2025 Plan Drafts – Risk Assessment

Wildfire



Location	Buildings and Parcels in High Wildfire Risk Area					
	WUI Risk Index < -6			WUI Risk Index < -9		
	No. of Parcels	No. of Buildings	Improved Value	No. of Parcels	No. of Buildings	Improved Value
Belleair	292	99	$225,225,249	284	102	$292,396,140
Belleair Beach	161	31	$121,269,975	-	-	$-
Belleair Bluffs	169	9	$38,641,201	179	79	$121,126,813
Belleair Shores	-	-	$-	-	-	$-
Clearwater	11,232	3,648	$6,682,657,807	12,425	4,983	$6,062,393,488
Dunedin	3,292	1,364	$1,485,359,091	2,980	1,400	$1,678,489,675
Gulfport	113	71	$50,768,453	326	148	$125,255,051
Indian Rocks Beach	736	189	$598,167,470	2	1	$2,795,420
Indian Shores	1,175	52	$842,729,003	188	12	$90,545,586
Kenneth City	321	176	$109,734,319	27	1,746	$9,950,987
Largo	10,175	4,678	$4,599,211,073	5,806	1,433	$2,891,881,119
Madeira Beach	380	206	$306,507,366	73	3,492	$26,688,151
Oldsmar	1,827	841	$924,826,059	2,884	782	$1,539,636,593
Pinellas Park	4,445	1,890	$2,248,256,495	2,946	1,553	$1,354,515,550
Redington Shores	101	80	$76,456,288	-	-	$-
Safety Harbor	604	311	$545,522,735	1,973	2,916	$1,214,774,611
Seminole	3,822	1,840	$1,997,503,956	3,028	1,896	$1,863,421,769
South Pasadena	818	51	$382,246,158	-	-	$-
St Pete Beach	28	19	$38,191,081	-	-	$-
St Petersburg	16,621	7,115	$11,092,435,337	9,047	5	$5,015,852,294
Tarpon Springs	3,264	1,068	$1,461,898,601	3,701	-	$2,116,491,008
Treasure Island	1,196	196	$684,538,310	1	-	$8,654,043
Unincorporated	6,697	3,060	$2,922,451,330	10,939	2,833	$4,852,269,649
TOTALS:	**74,143**	**28,646**	**$40,357,048,687**	**67,736**	**24,683**	**$34,119,407,596**

2025 Plan Drafts – Risk Assessment

Erosion

Probability: **Likely**

Impact: **Limited**

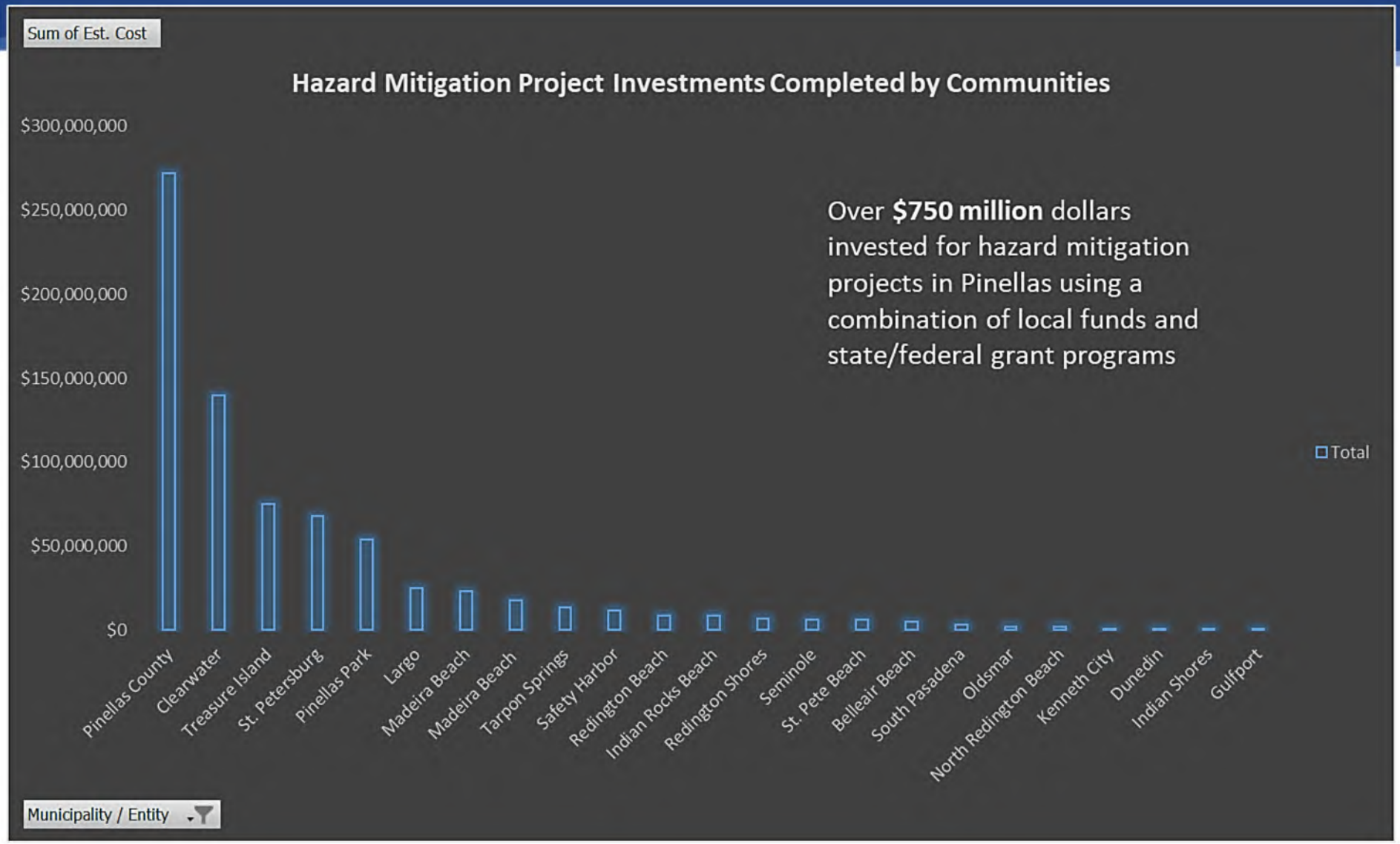
Coastal erosion threat is highest in areas identified as critical by the FDEP

Communities with properties in these risk areas include:

Belleair Beach, Belleair Shore, Clearwater, Dunedin, Indian Rocks Beach, Indian Shores, Madeira Beach, North Redington Beach, Redington Beach, Redington Shores, St. Petersburg, St. Pete Beach, and Treasure Island



2025 Plan Drafts – Mitigation Actions



Next Steps

By Nov. 6, 2024

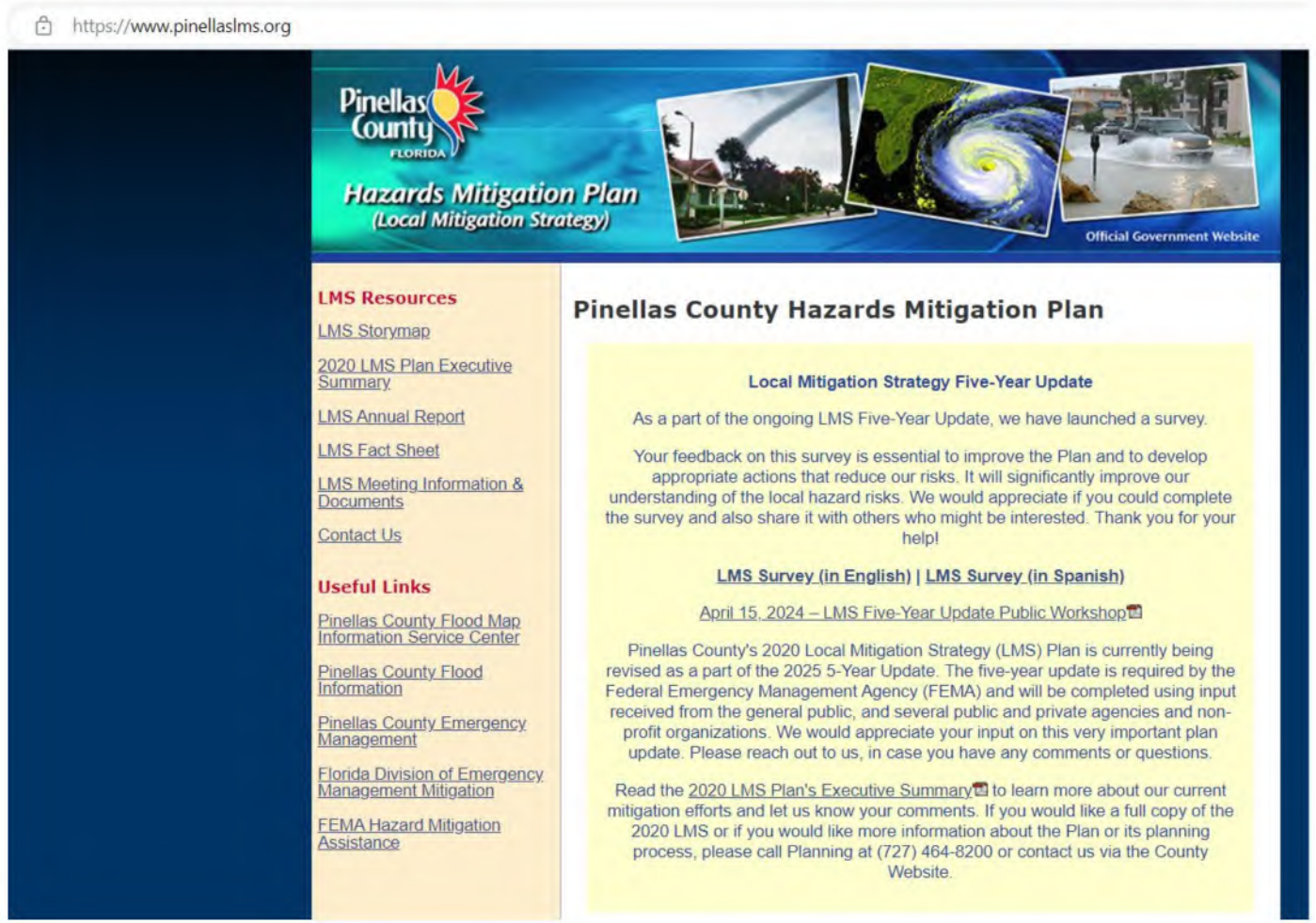
- Submit the LMS Draft Plan to FDEM (State)

By May 5, 2025

- Present resolution to the Board of County Commissioners and City Councils for approval and adoption.

Want to learn more about the project?

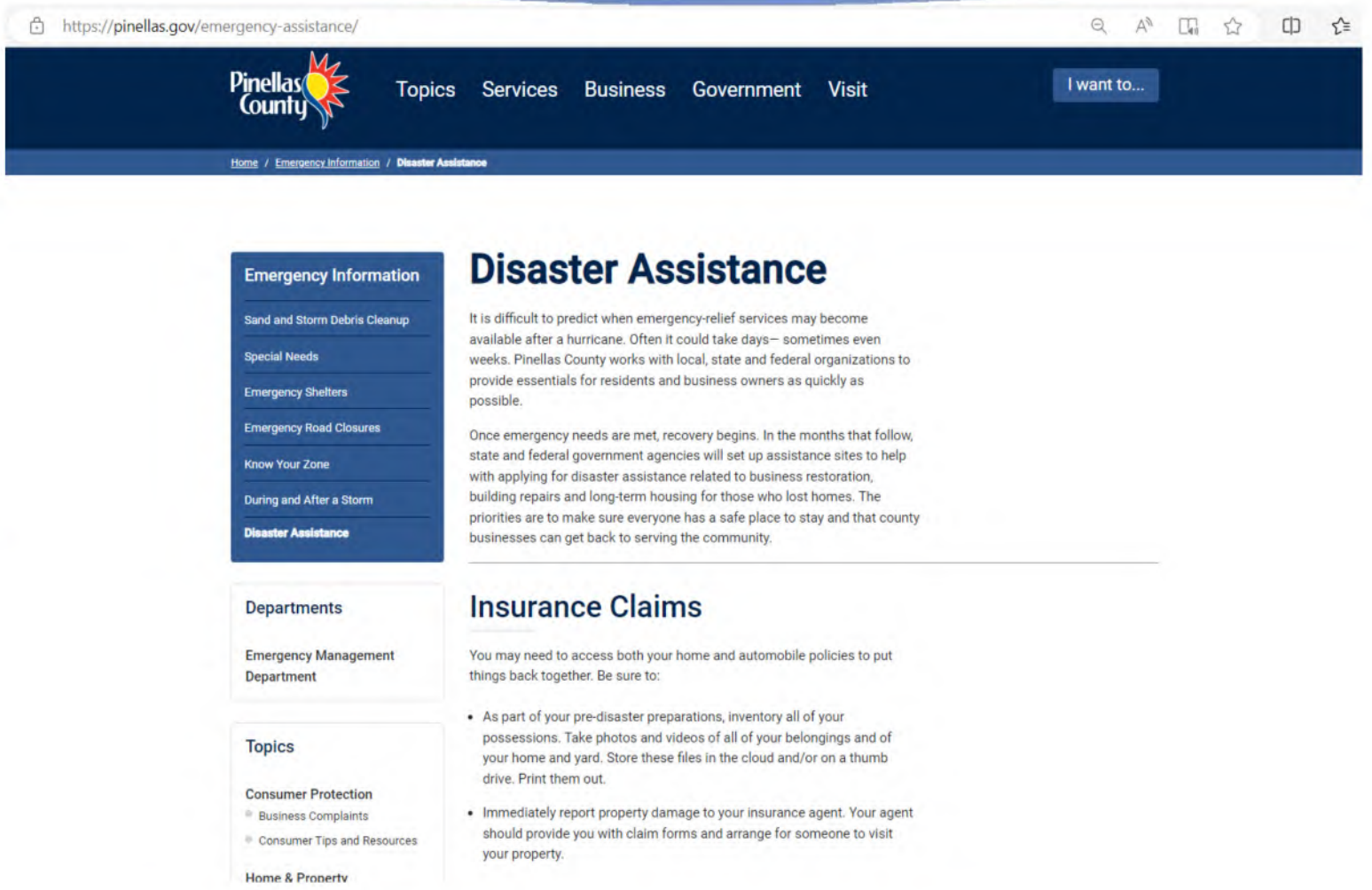
- LMS Website
  - pinellaslms.org
- Pinellas Floodplain Management
- Floodplain Protection - Pinellas County



Hurricane Helene and Hurricane Milton

RESOURCES

Pinellas County Disaster Assistance
https://pinellas.gov/emergency-assistance/



Hurricane Helene and Hurricane Milton

INDIVIDUAL ASSISTANCE

Residents can register for FEMA assistance

ONLINE www.DisasterAssistance.gov, via the FEMA app

CALL 1-800-621-FEMA (3362).

VISIT A DRC.

Hurricane Helene and Hurricane Milton

DISASTER RECOVERY CENTERS

Florida Botanical Gardens
Magnolia Room, 12520 Ulmerton Road
Largo.

Open from 9 a.m. to 7 p.m. daily.

Enoch D. Davis Center
1111 18th Ave. S.,
St. Petersburg

Open daily from 9 a.m. to 7 p.m.

Dunedin City Hall
737 Louden Ave.
Dunedin

Open daily from 9 a.m. to 7 p.m.

Long-Term Recovery

SBA Disaster Loans

Contact us
Office of Disaster Recovery and Resilience
409 3rd St. SW, Suite 6050
Washington, DC 20416
Phone: 202-205-6734

- **Homeowners**
- **Renters**
- **Businesses**

Long-Term Recovery

Hurricane Loss Mitigation Program HLMP

Retrofits:

- Residential
- Commercial
- Mobile home properties

Wind and Flood Retrofits

Flood Mitigation Assistance FMA

Elevations:

- Residential
- Mobile homes

Hazard Mitigation Grant Program HMGP

- Stormwater Management Improvements
- Infrastructure Protection
- Acquisition or Relocation

Contact Information

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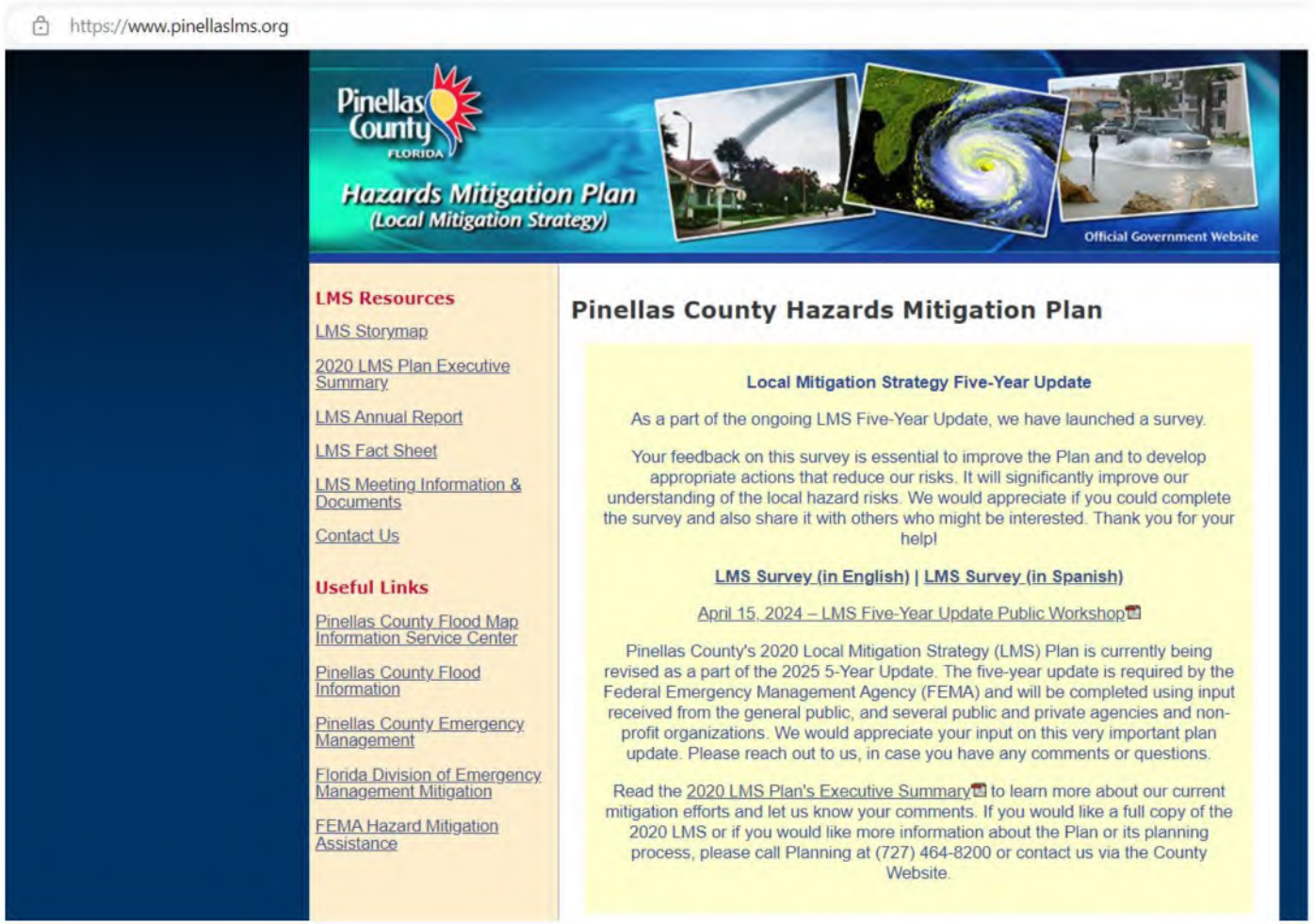
Pinellas County



Questions?

Thank you!

APPENDIX B – FLOODPLAIN MANAGEMENT

Local Hazard Mitigation Funding Sources Requirement
**S3 corresponds to FL Crosswalk tool. Item in parentheses correspond to FEMA Review.*
S3(C2-a) The plan must describe participation in the NFIP for **each participant**, as applicable, in accordance with NFIP regulatory requirements.

Pinellas County (FEMA Community #125139)

Pinellas County, Unincorporated, has been a participant in the NFIP since 6/18/1971. The community provides enforcement activities such as reviewing development proposals in the SFHA and County identifies floodplains and floodways, enforcing the current ordinance, inspecting permitted and unpermitted activities, maintaining records related to floodplain management, outreach to floodplain property owners, maintaining flood maps and corresponding GIS data, review variance applications, and implement higher regulatory standards as identified within our code. These services are supported by staff within Public Works, Building and Development Review Services, Code Enforcement departments. The community's Floodplain Management Ordinance was last updated December 19, 2024, to address the process for appeals and variances and higher standards.

Following a major flooding event, staff from Emergency Management lead the effort to direct other departments to perform preliminary damage assessments. Public Works in coordination with Building Services perform substantial damage inspections and estimates in coordination with the County, Florida Division of Emergency Management, and FEMA as appropriate for the severity and magnitude of the event. If necessary, substantial damage and substantial improvement requirements and procedures are publicized to assist in the recovery process. Further information is contained within the Substantial Damage Management Plan Annex of the Comprehensive Emergency Management Plan (CEMP).

Belleair, Town of (FEMA Community #125088)

The Town of Belleair has been a participant in the NFIP since May 14, 1971. The community provides enforcement activities such as reviewing development proposals in the SFHA, enforcing the current ordinance, inspecting permitted and unpermitted activities, maintaining records related to floodplain management, outreach to SFHA property owners, maintaining flood maps and corresponding GIS data, review variance applications, and implement higher regulatory standards as identified within our code. These services are supported by staff within the Public Works and Administration departments. The community's Floodplain Management Ordinance was last updated May 2, 2017 to address amending sections, adopt flood hazard maps, and to adopt procedures and criteria for development in flood hazard areas.

Following a major flooding event, staff from Public Works and Administration lead the effort to perform preliminary damage assessments and substantial damage estimates in coordination with the County, Florida Division of Emergency Management, and FEMA as appropriate for the severity and magnitude of the event. If necessary, substantial damage and substantial improvement requirements and procedures are publicized to assist in the recovery process.

Belleair Beach, City of (FEMA Community #125089)

The City of Belleair Beach has been a participant in the NFIP since May 14, 1971. The community provides enforcement activities such as reviewing development proposals in the SFHA, enforcing the current ordinance, inspecting permitted and unpermitted activities, maintaining records related to floodplain management, outreach to SFHA property owners, maintaining flood maps and corresponding GIS data, review variance applications, and implement higher regulatory standards as identified within our code. These services are supported by staff within the City Manager and Public Works departments. The community's Floodplain Management Ordinance was last updated June 3, 2013 to address updated standards with the state model ordinance.

Following a major flooding event, staff from the City Manager and Public Works lead the effort to perform preliminary damage assessments and substantial damage estimates in coordination with the County, Florida Division of Emergency Management, and FEMA as appropriate for the severity and magnitude of the event. If necessary, substantial damage and substantial improvement requirements and procedures are publicized to assist in the recovery process.

Belleair Bluffs, City of (FEMA Community #120239)

The City of Belleair Bluffs has participated in the NFIP since August 15th, 1977. The community provides enforcement activities including but not limited to reviewing development proposals in the SFHA, enforcing the current floodplain ordinance, inspecting permitted and unpermitted activities, maintaining records related to floodplain management, outreach to SFHA property owners, maintaining flood maps and corresponding GIS data, reviewing variance applications, and to implement higher regulatory standards as identified within our municipal code. These services are supported by staff within the Administration and Public Works Departments as well as Pinellas County Building Department. The City of Belleair Bluffs has an interlocal agreement with Pinellas County Building Department to act as the building official. The community's Floodplain Management Ordinance was last amended and adopted on May 17, 2021, by Ord. No. 2021-01of Chapter 102- Land Development Code adopting amendments to address Title 44 Code of Federal Regulations.

- To provide criteria for accessory structures in flood hazard areas.
- To provide technical amendments of higher standards such as base flood elevation plus 2 feet.
- To delete definitions and references relating to manufactured homes.
- To revise the definition of market value.
- To include previously adopted amendments to the Florida Building Code.
- To adopt the updated FEMA Flood Maps and Flood Insurance Study for Pinellas County dated August 24, 2021.

Following a major flooding event, staff from the Public Works Dept, leads the effort to perform preliminary damage assessments which are reported to Pinellas County Building Department. In addition, substantial damage estimates are conducted by Pinellas County in coordination with Florida Division of Emergency Management and FEMA as appropriate, for the severity and magnitude of the event. If necessary, substantial damage and substantial improvement requirements and procedures are publicized to assist in the recovery process.

Belleair Shore, Town of (FEMA Community #125090)

The Town of Belleair Shore has been a participant in the NFIP since May 15, 1971. The community provides enforcement activities such as reviewing development proposals in the SFHA, enforcing the current ordinance, inspecting permitted and unpermitted activities, maintaining records related to floodplain management, outreach to SFHA property owners, maintaining flood maps and corresponding GIS data, review variance applications, and implement higher regulatory standards as identified within our code. These services are supported by staff within Building and Zoning departments. The community's Floodplain Management Ordinance was last updated August 2021 to adopt the updated FEMA Flood Maps and Flood Insurance Study for Pinellas County and align with Florida's model ordinance for floodplain management.

Following a major flooding event, staff from the Pinellas County Building Department lead the effort to perform preliminary damage assessments and substantial damage estimates on behalf of Belleair Shore in coordination with the Florida Division of Emergency Management and FEMA as appropriate for the severity and magnitude of the event. If necessary, substantial damage and substantial improvement requirements and procedures are publicized to assist in the recovery process.

Clearwater, City of (FEMA Community #125096)

The City of Clearwater has been a participant in the NFIP since 1971. The most recent effective FIRM is August 24, 2021. Clearwater has participated in the CRS program since 1991 and is currently a Class 5. The community provides enforcement activities such as reviewing development proposals in the SFHA; enforcing current local, state, and federal ordinances; inspecting permitting and unpermitted activities; maintaining records related to floodplain management, including Elevation Certificates and Floodproofing Certificates; outreach to SFHA area and repetitive loss area residents and property owners; maintaining FEMA flood maps, local watershed maps, and corresponding GIS data; and implementing higher regulatory standards required in our code. These services are supported by staff within the Planning and Development Department and Public Works Department.

Clearwater's Floodplain Management Ordinance was last updated in 2018 to address many higher standards in floodplain management including regulating the Coastal A Zone, increasing freeboard requirements, requiring non-conversion agreements, and using best available data to establish flood hazards. The city adopted Pinellas County's Vulnerability Assessment in 2021 and regulates to the higher base flood elevations outlined in the assessment.

With storms and hurricanes in 2024, the city was able to ensure the established process of preliminary damage assessments and substantial damage assessments was successful. The Floodplain Administrator and the Planning and Development Department led the efforts to coordinate these assessments with Pinellas County, Florida Department of Emergency Management, and FEMA. Due to the number of potentially substantially damaged structures identified during the preliminary damage assessments completed by city staff, the city hired a consultant to assist with the substantial damage assessments.

After storms, three major things occurred to provide assistance to storm damaged citizens that will be added to future storm response. (1) The city set up a remote permitting office closer to the areas of major damage than the main permitting office. The remote permitting office was staffed with three individuals: one development review technician to assist in the permitting process, one building inspector to provide assistance in how to go about repairing the property properly, and a staff member knowledgeable in floodplain management to assist with the 50% rule and anticipated substantial damage determinations. (2) The Clearwater Police Department partnered with Pinellas County Sheriff's Department and the State

to stop and arrest unlicensed contractors. These unlicensed contractors pray upon vulnerable citizens and provide incorrect information to the community. (3) The city hosted a community-wide substantial damage and flood information public meeting. With so many rumors circulating, the best process to clarify substantial damage rules and next steps was to hold a community-wide meeting and invite everyone. The meeting included representatives from FEMA and FDEM.

Dunedin, City of (FEMA Community #125103)

The City of Dunedin has been a participant in the NFIP since 1971. The community provides enforcement activities such as reviewing development proposals in the SFHA, enforcing the current ordinance, inspecting permitted and unpermitted activities, maintaining records related to floodplain management, outreach to SFHA property owners, maintaining flood maps and corresponding GIS data, review variance applications, and implement higher regulatory standards as identified within our code. These services are supported by staff within the Community Development Department. The community's Floodplain Management Ordinance was last updated on June 17, 2021**,** to address updated maps, revised definitions and higher standards.

Following a major flooding event, staff from the Community Development Department lead the effort to perform preliminary damage assessments and substantial damage estimates in coordination with the County, Florida Division of Emergency Management, and FEMA as appropriate for the severity and magnitude of the event. If necessary, substantial damage and substantial improvement requirements and procedures are publicized to assist in the recovery process.

Gulfport, City of (FEMA Community #125108)

The City of Gulfport, Florida, has been a participant in the NFIP since May 21, 1971, and in the CRS program since October 1, 1993. The community provides enforcement activities such as reviewing development proposals in the SFHA, enforcing the current ordinance, inspecting permitted and unpermitted activities, maintaining records related to floodplain management, outreach to SFHA property owners, maintaining flood maps and corresponding GIS data, review variance applications, and implement higher regulatory standards as identified within our code. These services are supported by staff within the Community Development Department. Community Development consists of the Building Division, Planning Division, and Code Enforcement. The community's Floodplain Management Ordinance was last updated June 19, 2018 to address updates, provide amendments, and enforcement of the Florida Building Code. Higher standards for properties in the SFHA and mobile home parks were included in the amendments. Amendments included the State of Florida model ordinance. The current effective FIRMs, dated August 24, 2021 were enforced at this date.

Following major flooding events created by Hurricanes Helene and Milton, staff from the Community Development Department lead the effort to perform preliminary damage assessments and substantial damage estimates in coordination with Pinellas County, Florida Division of Emergency Management, and FEMA as appropriate for the severity and magnitude of the event. If necessary, substantial damage and substantial improvement requirements and procedures are publicized by the City to assist property owners in the recovery process.

The initial step in the flood damage permitting process for the City is to provide the property owners a letter detailing the procedures per FEMA requirements for the repair of flood damaged residences and buildings in Gulfport. Properties located in a flood zone but have no damage to the residence or building by flooding will use the building permitting procedure is the same as it always has been for improvements or repairs to the residence per the 50% rule for pre-FIRM (non-elevated) residences and buildings. The

City may ask the property owner to schedule a preliminary inspection depending on location to verify that there was no flood damage.

Properties located in flood zones that have residences or buildings that are pre-FIRM (non-elevated) and damaged by flooding, must follow a specific procedure. Due to the flooding, when the initial damage assessment is completed, the City is required to record the approximate depth of flooding above the ground and above the first floor of buildings.

Gulfport uses 4 categories of flood damage:

- Affected - no flooding in living space
- Minor - flooding present but less than 18 inches in living space
- Major - flooding greater than 18 inches in living space
- Destroyed - flooding is at roofline or higher.

Residences and buildings in the minor, major and destroyed categories are required to have substantial damage estimates performed before permits to repair the structures to their pre-damaged condition can be issued.

As a result of extensive storm damage caused by 2024 Hurricanes Helene and Milton, the City of Gulfport had over 600 properties that were damaged by various degrees of flooding. The City requested assistance from Pinellas County, the state Department of Emergency Management and FEMA. Assistance has been provided and the Substantial Damage Estimate process was provided by State contractor Tidal Basin Group.

The process steps post initial damage assessments performed by Tidal Basin Group staff that include: initial substantial damage inspections, a review of the inspections, a quality control review or re-inspection, uploading of inspection results into FEMA's Substantial Damage Estimator tool and the receipt of the results by the Building Division of the Community Development Department. The City then reviews the results and requests Quality Control review if properties exhibit anomalies of flood damage.

Once the Building Division has received the SDE results, the City sends letters (Substantially Damaged and Not Substantially Damaged) to property owners. While permit applications can be submitted currently, the information included with the applications may change based on the Substantial Damage determination.

The City requires a permit to repair flood damage in residences and buildings in flood zones, even post-FIRM buildings (elevated) are required to have a permit to repair flood damage as the space below in the enclosure can only be used for parking of vehicles, limited storage and access by stairs and or elevator to the living space above. The lower area is not permitted to include living space and all finishes must comply with FEMA's Technical Bulletin 2. The failure to obtain a permit is a violation. Work done before a permit is issued will not be approved and must be removed.

If a residence or building is deemed to not be substantially damaged, a letter will be sent to the property owner that states: "Since the property is located in a regulated special flood hazard area and the preliminary determination is below the 50% (percent) threshold you must now apply for and obtain a building permit to repair the building to its pre-damaged condition, included with the permit application a completed Substantial Improvement/Substantial Damage review application including a professional itemized estimate of all costs must be provided. If the cost to repair the building to its pre-damaged condition equals or exceeds 50% of its estimated market value, it must be brought into full compliance

with the flood resistant construction requirements of the Florida Building Code and City of Gulfport ordinances that reduce exposure to future flooding. Residential buildings must be elevated at least one foot above the base flood elevation, non-residential buildings must be elevated or dry flood proofed if applicable at least one foot above the base flood elevation. You must contact the Building Department to start the permitting process within 90 days of receipt of this letter, to repair or bring your building into compliance. A permit is required, and failure to obtain a required permit is a violation. Work done before a permit is issued will not be approved and must be removed. We regret your loss and the damage you have experienced, and our entire staff will do our best to help you through the permitting process. If you disagree with the preliminary estimates of market value, you must submit additional information, including amended documentation of actual cash value (replacement cost less depreciation) from the Pinellas County Property Appraiser, an application for a Pre-Storm Building Value Reconsideration (BVR) is available on their website, or a professional appraisal prepared by a licensed Florida appraiser specifically for FEMA substantial damage (a copy of the required information to be included on the appraisal is available from the permit counter)."

If a residence or building is deemed to be substantially damaged, a letter will be sent to the property owner that states: "Since the estimated cost to repair your damaged building to its pre-damaged condition equals or exceeds 50% (percent) of its estimated market value, it appears the building was substantially damaged. Substantially damaged buildings are required to be brought into full compliance with the flood resistant construction requirements of the Florida Building Code and City of Gulfport ordinances that reduce exposure to future flooding. Residential buildings must be elevated at least one foot above the base flood elevation, non-residential buildings must be elevated or dry flood proofed if applicable at least one foot above the base flood elevation. You must contact the Building Department to start the permitting process within 90 days of receipt of this letter, to bring your building into compliance. A permit is required, and failure to obtain a required permit is a violation. Work done before a permit is issued will not be approved and must be removed. We regret your loss and the damage you have experienced, and our entire staff will do our best to help you through the permitting process. If you disagree with the preliminary estimates of projected costs or market value, you must submit additional information, including a professional itemized estimate of all costs for all of the work to return the building to its pre-damaged condition and or, amended documentation of actual cash value (replacement cost less depreciation) from the Pinellas County Property Appraiser, an application for a Pre-Storm Building Value Reconsideration (BVR) is available on their website, or a professional property appraisal prepared by a licensed Florida appraiser specifically for FEMA substantial damage (a copy of the required information to be included on the appraisal is available from the permit counter)."

Indian Rocks Beach, City of (FEMA Community #120239)

The City of Indian Rocks Beach has been a participant in the NFIP since May 7, 1971. The City provides enforcement activities such as reviewing development proposals in the SFHA, enforcing the current ordinance, inspecting permitted and unpermitted activities, maintaining records related to floodplain management, outreach to SFHA property owners, maintaining flood maps and corresponding GIS data, review variance applications, and implement higher regulatory standards as identified within our code. These services are supported by staff within the Planning and Zoning Department, Code Enforcement Department, Public Works Department, and the Pinellas County Building Department.

The City's Floodplain Management Ordinance was last updated December 14, 2021, to address:

1. Reference to Manufactured Homes was removed except stating they are not allowed.
2. Added definition and requirements of Accessory structure.

3. Redefined Market Values.
4. Removed reference to development in watercourses/floodways.

Following a major flooding event, staff from the Planning and Zoning Department, Code Enforcement, and the Pinellas County Building Department lead the effort to perform preliminary damage assessments and substantial damage estimates in coordination with Pinellas County, Florida Division of Emergency Management, and FEMA as appropriate for the severity and magnitude of the event. If necessary, substantial damage and substantial improvement requirements and procedures are publicized to assist in the recovery process.

Indian Shores, Town of (FEMA Community #120239)

The Town of Indian Shores has been a participant in the NFIP since May 21st, 1971. The community provides enforcement activities such as reviewing development proposals in the SFHA, enforcing the current ordinance, inspecting permitted and unpermitted activities, maintaining records related to floodplain management, outreach to SFHA property owners, maintaining flood maps and corresponding GIS data, reviewing variance applications, and implementing higher regulatory standards such as an additional 4 feet of freeboard as identified within our code. These services are supported by staff within the Building and Community Development Department. The community's Floodplain Management Ordinance was last updated July 13-27, 2021 to address:

- Basis for establishing flood hazard areas
- Substantial improvement and substantial damage determinations and calculations. Modifications of the strict application of the requirements of the Florida Building Code
- Buildings, structures and facilities exempt from the Florida Building Code, lowest floor inspection
- Conditions for issuance of variances
- Unlawful continuance
- Definitions
- Design and construction of buildings, structures and facilities exempt from the Florida Building Code
- Florida Building Code, Residential
- Florida Building Code, Building
- Concrete slabs used as parking pads, enclosure floors, landings, decks, walkways, patios and similar nonstructural uses in coastal high hazard areas (zone V and AE).

Following a major flooding event, staff from the Building Department lead the effort to perform preliminary damage assessments and substantial damage estimates in coordination with the County, Florida Division of Emergency Management, and FEMA as appropriate for the severity and magnitude of the event. If necessary, substantial damage and substantial improvement requirements and procedures are publicized to assist in the recovery process.

Kenneth City, Town of (FEMA Community #120245)

The Town of Kenneth City has been a participant in the NFIP since January 16, 1981. The community provides enforcement activities such as reviewing development proposals in the SFHA, enforcing the current ordinance, inspecting permitted and unpermitted activities, maintaining records related to floodplain management, outreach to SFHA property owners, maintaining flood maps and corresponding

GIS data, review variance applications, and implement higher regulatory standards as identified within our code. These services are supported by staff within the police department, code enforcement, and a planning consultant. Additionally, the Town has an interlocal agreement with Pinellas County for building permits. The community's floodplain management ordinance was last updated January 18, 2020.

Following a major flooding event, staff from the police department, code enforcement, and planning consultant (as needed) lead the effort to perform preliminary damage assessments and substantial damage estimates in coordination with the County, Florida Division of Emergency Management, and FEMA as appropriate for the severity and magnitude of the event. If necessary, substantial damage and substantial improvement requirements and procedures are publicized to assist in the recovery process.

Largo, City of (FEMA Community #125122)

The City of Largo has been a participant in the NFIP since October 1, 1992. The community provides enforcement activities such as reviewing development proposals in the SFHA, enforcing the current ordinance, inspecting permitted and unpermitted activities, maintaining records related to floodplain management, outreach to SFHA property owners, maintaining flood maps and corresponding GIS data, review variance applications, and implement higher regulatory standards as identified within our code. These services are supported by staff within Community Development, Environmental Services, Fire and Engineering departments. The community's Floodplain Management Ordinance was last updated April 6th, 2021 to address changes that need to be made to be concurrent with current standards.

Following a major flooding event, staff from Community Development lead the effort to perform preliminary damage assessments and substantial damage estimates in coordination with the County, Florida Division of Emergency Management, and FEMA as appropriate for the severity and magnitude of the event. If necessary, substantial damage and substantial improvement requirements and procedures are publicized to assist in the recovery process.

Madeira Beach, City of (FEMA Community #125127)

Madeira Beach has been a participant in the NFIP since May 7, 1971. The Building Department and Community Development Department are responsible for the administration of all development issues within the City including permitting, inspection, and review of all construction, along with the creation of and maintenance of all building permit files and administrative documents (ordinances, building guides, applications, forms, outreach materials, etc.) related to building and development. All inspections are conducted by the Building Department and the Building Department and Community Development Department review permits and floodplain requirements. The community's Floodplain Management Ordinance was last updated 2021 to address higher standards, updated maps, and state model ordinance. A new ordinance, Ordinance 2024-21, was approved in November 2024, that revised requirements around substantial damage and substantial improvement.

Following a major flooding event, staff from the Community Development Department lead the effort to perform preliminary damage assessments and substantial damage estimates in coordination with the County, Florida Division of Emergency Management, and FEMA as appropriate for the severity and magnitude of the event. If necessary, substantial damage and substantial improvement requirements and procedures are publicized to assist in the recovery process.

North Redington Beach, Town of (FEMA Community #125133)

The Town of North Redington Beach has been a participant in the NFIP since May 14, 1971. The community provides enforcement activities such as reviewing development proposals in the SFHA, enforcing the current ordinance, inspecting permitted and unpermitted activities, maintaining records related to floodplain management, outreach to SFHA property owners, maintaining flood maps and corresponding GIS data, review variance applications, and implement higher regulatory standards as identified within our code. These services are supported by staff within Town Hall and our contracted Building Department. The community's Floodplain Management Ordinance was last updated on June 10, 2021 to address accessory structures in the floodplain and the updated flood maps.

Following a major flooding event, staff from the Building Department lead the effort to perform preliminary damage assessments and substantial damage estimates in coordination with the County, Florida Division of Emergency Management, and FEMA as appropriate for the severity and magnitude of the event. If necessary, substantial damage and substantial improvement requirements and procedures are publicized to assist in the recovery process.

Oldsmar, City of (FEMA Community #120250)

City of Oldsmar has been a participant in the NFIP since May 21, 1971. The community provides enforcement activities such as reviewing development proposals in the SFHA, enforcing the current ordinance, inspecting permitted and unpermitted activities, maintaining records related to floodplain management, outreach to SFHA property owners, maintaining flood maps and corresponding GIS data, review variance applications, and implement higher regulatory standards as identified within our code. These services are supported by staff within Planning & Redevelopment, Public Works, and Communications departments. The community's Floodplain Management Ordinance was last updated June 18, 2024 to address higher standards.

Following a major flooding event, staff from Planning & Redevelopment lead the effort to perform preliminary damage assessments and substantial damage estimates in coordination with the County, Florida Division of Emergency Management, and FEMA as appropriate for the severity and magnitude of the event. If necessary, substantial damage and substantial improvement requirements and procedures are publicized to assist in the recovery process.

Pinellas Park, City of (FEMA Community #120251)

The City of Pinellas Park has been a participant in the NFIP since August 15, 1977. The community provides enforcement activities such as reviewing development proposals in the SFHA, enforcing the current ordinance, inspecting permitted and unpermitted activities, maintaining records related to floodplain management, outreach to SFHA property owners, maintaining flood maps and corresponding GIS data, review variance applications, and implement higher regulatory standards as identified within our code. These services are supported by staff within Community Development, Community Compliance, and Information Technology departments. The community's Floodplain Management Ordinance was last updated June 13, 2024, to address higher standards, updated maps, and general cleanup.

Following a major flooding event, staff from the Building Department lead the effort to perform preliminary damage assessments and substantial damage estimates in coordination with the County, Florida Division of Emergency Management, and FEMA as appropriate for the severity and magnitude of the event. If necessary, substantial damage and substantial improvement requirements and procedures are publicized to assist in the recovery process.

Redington Beach, Town of (FEMA Community #125140)

The Town of Redington Beach has been a participant in the NFIP since May 7, 1971. The community provides enforcement activities such as reviewing development proposals in the SFHA, enforcing the current ordinance, inspecting permitted and unpermitted activities, maintaining records related to floodplain management, outreach to SFHA property owners, maintaining flood maps and corresponding GIS data, reviewing variance applications, and implementing higher regulatory standards as identified within our code. These services are supported by staff within the Code Enforcement department and the Building Department. The community's Floodplain Management Ordinance was last updated December 6, 2023, to address:

- modification of the existing requirements to elevate manufactured homes to at least the base flood elevation plus 1 foot
- apply coastal high hazard area (Zone V) requirements in areas designated Coastal A Zones to increase resiliency

Following a major flooding event, staff from the Code Enforcement Department and the Building Department lead the effort to perform preliminary damage assessments and substantial damage estimates in coordination with the County, Florida Division of Emergency Management, and FEMA as appropriate for the severity and magnitude of the event. If necessary, substantial damage and substantial improvement requirements and procedures are publicized to assist in the recovery process.

Redington Shores, Town of (FEMA Community #125141)

The Town of Redington Shores has been a participant in the NFIP since May 7, 1971. The community provides enforcement activities such as reviewing development proposals in the SFHA, enforcing the current ordinance, inspecting permitted and unpermitted activities, maintaining records related to floodplain management, outreach to SFHA property owners, maintaining flood maps and corresponding GIS data, reviewing variance applications, and implementing higher regulatory standards as identified within our code. These services are supported by staff within the Administrative Department, Code Enforcement Department and the Town's Building Department. In 2019, a significant update to the Floodplain Management Ordinance was performed to address adopting requirements to:

1) require declarations of land restriction (nonconversion agreements) for enclosures below of elevated buildings;
2) clarify elevation requirements for residential and nonresidential buildings;
3) reduce the percentage in the definitions "substantial damage" and "substantial improvement;"
4) modify the definition "substantial improvement" to encourage storm and energy efficiency retrofits; and
5) regulate areas identified as subject to moderate wave action like coastal high hazard areas; for buildings and structures in flood hazard areas for the purpose of participating in the National Flood Insurance Program's Community Rating System and, pursuant to section 553.73(5), F.S., is formatting that requirement to coordinate with the Florida Building Code

The community's Floodplain Management Ordinance was last updated December 20, 2021, to address:

- the relocation of applicable floodplain management provisions within the Town Code to improve organization, ensure legal compliance, and to remove redundant, outdated or inconsistent provisions.

Following a major flooding event, staff from the Code Enforcement Department and the Building Department lead the field efforts to perform preliminary damage assessments and substantial damage

estimates in coordination with the County, the Florida Division of Emergency Management, and FEMA; as appropriate for the severity and magnitude of the event. If necessary, substantial damage and substantial improvement requirements and procedures are publicized to assist in the recovery process.

Safety Harbor, City of (FEMA Community #125143)

The City of Safety Harbor has been a participant in the NFIP since March 28, 1970. The community provides enforcement activities such as reviewing development proposals in the SFHA, enforcing the current ordinance, inspecting permitted and unpermitted activities, maintaining records related to floodplain management, outreach to SFHA property owners, maintaining flood maps and corresponding GIS data, review variance applications, and implement higher regulatory standards as identified within our code. These services are supported by staff within the Community Development and Engineering departments. The community's Floodplain Management Ordinance was last updated March 4, 2024 to address higher standards, update duties, and update definitions. Our latest effective FIRM maps date is August 24, 2021.

Following a major flooding event, staff from the Community Development and Engineering departments lead the effort to perform preliminary damage assessments and substantial damage estimates in coordination with Pinellas County, Florida Division of Emergency Management, and FEMA as appropriate for the severity and magnitude of the event. If necessary, substantial damage and substantial improvement requirements and procedures are publicized to assist in the recovery process.

Seminole, City of (FEMA Community #120257)

The City of Seminole has been a participant in the NFIP since June 1st, 1981. The Community Development Department provides enforcement activities such as reviewing applications to determine whether proposed new development will be located in flood hazard areas, interpret flood hazard area boundaries, provide available flood elevation and flood hazard information, enforcing the current ordinance, inspecting permitted and unpermitted activities, maintaining records related to floodplain management, outreach to SFHA property owners, reviewing flood maps and corresponding GIS data, review variance applications, and implement higher regulatory standards as identified within our code. These services are supported by staff within the Community Development Department, Fire Department, and Public Works Department. The community's Floodplain Management Ordinance was adopted on October 28, 2014 to adopt flood hazard maps, designate a Floodplain Administrator, and to adopt procedures and criteria for development in flood hazard areas within the City of Seminole.

Following a major flooding event, staff from Community Development Department lead the effort to perform preliminary damage assessments and substantial damage estimates in coordination with Pinellas County, Florida Division of Emergency Management, and FEMA as appropriate for the severity and magnitude of the event. If necessary, substantial damage and substantial improvement requirements and procedures are publicized to assist in the recovery process.

South Pasadena, City of (FEMA Community #125151)

The City of South Pasadena has been a participant in the NFIP since May 14, 1971. The community provides enforcement activities such as reviewing development proposals in the SFHA, enforcing the current ordinance, inspecting permitted and unpermitted activities, maintaining records related to floodplain management, outreach to SFHA property owners, maintaining flood maps and corresponding GIS data, review variance applications, and implement higher regulatory standards as identified within our code. These services are supported by staff within Community Improvement Department. The

community's Floodplain Management Ordinance was last updated 7/1/2021 to address higher standards, updated maps, state model ordinance, etc.
Following a major flooding event, staff from the Community Improvement Department lead the effort to perform preliminary damage assessments and substantial damage estimates in coordination with the County, Florida Division of Emergency Management, and FEMA as appropriate for the severity and magnitude of the event. If necessary, substantial damage and substantial improvement requirements and procedures are publicized to assist in the recovery process.

St. Pete Beach, City of (FEMA Community #125149)

St. Pete Beach has been a participant in the NFIP since May 14, 1971. The community provides enforcement activities such as reviewing development proposals in the SFHA, enforcing the current ordinance, inspecting permitted and unpermitted activities, maintaining records related to floodplain management, outreach to SFHA property owners, maintaining flood maps and corresponding GIS data, review variance applications, and implement higher regulatory standards as identified within our code. These services are supported by staff within the City Manager, Community Development, Fire, and Public Works departments. The community's Floodplain Management Ordinance was last updated December 23, 2024 to address repeal of cumulative substantial improvement requirements.

Following a major flooding event, staff from the Community Development Department lead the effort to perform preliminary damage assessments and substantial damage estimates in coordination with the County, Florida Division of Emergency Management, and FEMA as appropriate for the severity and magnitude of the event. If necessary, substantial damage and substantial improvement requirements and procedures are publicized to assist in the recovery process.

St. Petersburg, City of (FEMA Community #125148)

The City of St. Petersburg has been a participant in the NFIP since 1999. The community provides enforcement activities such as review development proposals in the SFHA, enforcing the current ordinance, inspection permitted and unpermitted activities, maintaining records related to floodplain management, outreach to SFHA property owners, maintaining flood maps and corresponding GIS data, review variance applications, and implement higher regulatory standards as identified with our code. These services are supported by staff within the Floodplain Management, Construction Services, Planning and Public Works Departments. The community's Floodplain Management Ordinance was last updated in 2021 to address higher standards, updated maps, and provide clarity regarding elevation requirements.

Following a major flooding event, staff from Floodplain Management and Construction Services lead the effort to perform preliminary damage assessments and substantial damage estimates in coordination with the County, Florida Division of Emergency Management, and FEMA as appropriate for the severity and magnitude of the event. If necessary, substantial damage and substantial improvement requirements and procedures are publicized to assist in the recovery process.

Tarpon Springs, City of (FEMA Community #120259)

The City of Tarpon Springs has participated in the NFIP since August 6, 1970. The community provides enforcement activities such as reviewing development proposals and building permit applications in the SFHA, enforcing the current ordinance and building codes, inspecting permitted and unpermitted activities in the SFHA, maintaining records related to floodplain management, outreach to SFHA property owners, maintaining flood maps and coordination retention of GIS data with our GIS Administrator, and implement higher regulatory standards as identified within our code. These services are supported by

staff within the Office of Emergency and Floodplain Management, the Building Department, Project Administration, Stormwater, Public Services, Public Works Departments, and the Finance and Procurement Departments. The community's Floodplain Management Ordinance was last updated on December 13, 2022, to address the duties and powers of the Floodplain Administrator.

Following a significant flooding event, staff from the Office of Emergency and Floodplain Management, in conjunction with the Building Department, lead the effort to perform preliminary damage assessments and substantial damage estimates in coordination with the County, Florida Division of Emergency Management, and FEMA as appropriate for the severity and magnitude of the event. If necessary, substantial damage and substantial improvement requirements and procedures are publicized to assist in the recovery process.

Treasure Island, City of (FEMA Community #125153)

The City of Treasure Island has been a participant in the NFIP since May 7, 1971. The community provides enforcement activities such as reviewing development proposals in the SFHA, enforcing the current ordinance, inspecting permitted and unpermitted activities, maintaining records related to floodplain management, outreach to SFHA property owners, maintaining flood maps and corresponding GIS data, review variance applications, and implement higher regulatory standards as identified within our code. These services are supported by staff within the Community Development Department. The community's Floodplain Management Ordinance was last updated Dec 6, 2022, to address substantial improvement and substantial damage determination market value appraisals.

Following a major flooding event, staff from the Community Development Department leads the effort to perform preliminary damage assessments and substantial damage estimates in coordination with the County, Florida Division of Emergency Management, and FEMA as appropriate for the severity and magnitude of the event. If necessary, substantial damage and substantial improvement requirements and procedures are publicized to assist in the recovery process.

APPENDIX C – CRS ACTIVITY 610: FLOOD WARNING AND RESPONSE PLAN

This appendix includes the Pinellas County Community Rating System Activity 610: Flood Warning and Response Plan for unincorporated Pinellas County

FLOOD WARNING AND RESPONSE PLAN

Pinellas County
EMERGENCY MANAGEMENT

CEMP Volume II

Hazard Specific Plan

August 2022

APPROVAL SIGNATURES

The Flood Warning and Response Plan has been approved by Pinellas County Emergency Management (PCEM) and the Pinellas County Public Works Floodplain Administrator.

Cathie Perkins
Pinellas County Emergency Management – Director

8/22/2022.
Date Approved

Lisa Foster
Pinellas County Public Works – Floodplain Administrator

8/22/2022
Date Approved

Distribution List:

The following agencies will receive an electronic version of this document when it is updated. It is the responsibility of the receiving agency to disseminate to appropriate personnel.

- Pinellas County Public Works (PCPW)
- Pinellas County Emergency Management (PCEM)
- Pinellas County Building and Development Review Services (PCBDRS)
- Pinellas County Communications (PCC)
- Pinellas County Department of Administrative Services (PCDAS)
- Pinellas County Property Appraiser (PCPAO)
- Pinellas County Sustainability and Resiliency
- Pinellas County Utilities
- Pinellas County Municipalities
  - City of Belleair Beach
  - City of Belleair Bluffs
  - City of Clearwater
  - City of Dunedin
  - City of Gulfport
  - City of Indian Rocks Beach
  - City of Largo
  - City of Madeira Beach

- City of Oldsmar
- City of Pinellas Park
- City of Safety Harbor
- City of Seminole
- City of South Pasadena
- City of St. Pete Beach
- City of St. Petersburg
- City of Tarpon Springs
- City of Treasure Island
- Town of Belleair
- Town of Belleair Shore
- Town of Indian Shores
- Town of Kenneth City
- Town of North Redington Beach
- Town of Redington Beach
- Town of Redington Shores

- Pinellas County Fire Control Districts

REVISIONS

The County Floodplain Administrator in coordination with Pinellas County Emergency Management (PCEM) and other supporting departments will review and update this plan on an annual basis or as needed due to updates or changes in processes.

This chart documents the revisions made to this plan since the last signed approved version dated June 2018.

Date	Page(s)	Change
08/22/2022	All	Updated Plan Format
08/22/2022	7-30	Updated and Reorganized Direction and Control Section
08/22/2022	30-39	Updated and Reorganized Flood Response Operations Section
08/22/2022	41	Moved EOC Organizational Structure to Appendices
08/22/2022	42-70	Moved Hazard Analysis to Appendices

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1 PURPOSE/SCOPE

A Flood Warning and Response Plan emphasizes timely identification of impending flood threats, dissemination of warnings to appropriate floodplain occupants, and coordination of flood response activities to reduce the threat and/or impacts to life and property. Activities in the plan focus on the Pinellas County's actions and related plans, and efforts coordinated across various jurisdictions and with Pinellas County Emergency Management (PCEM).

With sufficient warning of potential flooding, a community can take protective measures to mitigate potential damage. A flood threat recognition system integrated with an emergency response plan and a multi-level flood inundation map(s) enables emergency warning dissemination to the public and critical facilities for different types of flood events. This is the basis of flood warning and response and is part of the emergency management preparedness cycle.

This Flood Warning and Response Plan is included in *Pinellas County's Comprehensive Emergency Management Plan (CEMP) Volume II – Hazard Specific Plans*. The CEMP establishes a framework through which Pinellas County and its municipalities prepare for, respond to, recover from, and mitigate the impacts of a wide variety of disasters. Both this plan, as well as the CEMP, make references to the County's Local Mitigation Strategy (LMS). The LMS, adopted in 2020 and annually updated, contains a detailed vulnerability assessment of Pinellas County for natural and technological hazards. The assessment identifies the hazards that the County could face and the probabilities of occurrence.

Event specific situations may require a modification to these operations. Agencies supporting this plan should be familiar with the operations, take all necessary training as identified in the job descriptions in the Appendices and participate in any exercises to test the plan, as able.

Each entity identified herein will utilize this plan as the basis for development and maintenance of subordinate plans, response policies, and implementing procedures. The existence of this plan does not relieve response organizations or local jurisdictions from the duty of developing their own Standard Operating Procedures.

2 DIRECTION & CONTROL

Implementation of the Flood Warning and Response Plan will fall under Pinellas County Public Works (PCPW) or the local jurisdiction for small or localized events and countywide or major events will be coordinated through the Pinellas County Emergency Operations Center (EOC). PCPW, PCEM, and the local jurisdictions have established communications to convey and communicate threats and impacts of events.

Roles and Responsibilities

Pinellas County Public Works (PCPW)

- Lead agency for this plan
- Designated Pinellas County Floodplain Administrator position within agency
- Responsible for monitoring gages, clearing and notifying partners of concerns regarding flooding hot spots, and incidents or areas that are prone to flooding
- Assist with the development of Geographic Information Systems data and mapping
- Leads the Pinellas County Flood Risk and Mitigation Public Information Working Group
- Establishes areas for Substantial Damage determination inspections to be performed by PCBDRS; provides SD report to FEMA
- High water mark data collection

Pinellas County Emergency Management (PCEM)

- Support agency for this plan.
- Overall coordination of warning and response activities outlined in this plan.
- Develop and implement hazards awareness and preparedness programs in coordination with partner agencies.
- Participate in the Pinellas County Flood Risk and Mitigation Public Information Working Group.

Pinellas County Building and Development Review Services (PCBDRS)

- Conduct damage assessments in coordination with PCDAS and PCPAO by providing personnel, vehicles, and communications equipment to County Damage Assessment Teams[1].
- Substantial Damage (SD) Determinations – Building inspectors will place SD door hangers and assess certain structures located in the FEMA SFHA and/or within Pinellas County determined floodplains which may have received substantial damage. SD inspection areas are established by PCPW. PCBDRS provides SD reports to PCPW to submit to FEMA.
- Permitting - Establish an emergency permit center to make feasible the emergency repair permits process to residents and business owners. This process will help ensure that all work performed during this period is performed by licensed contractors, is performed correctly, and properly inspected.
- Code compliance - Plans reviewers will ensure code compliance, including but not limited to Substantial Improvement (SI) via the permit review and inspection processes. Code enforcement will inspect impacted areas to help ensure all repair work is properly permitted.

[1],[2,3] CEMP Appendix 1: Roles and Responsibilities

Pinellas County Communications (PCC)

- Assists with the development and dissemination of public information and alerts in multiple languages and on various platforms including social media
- Participate in the Pinellas County Flood Risk and Mitigation Public Information Working Group

Pinellas County Department of Administrative Services (PCDAS)

- Lead the EOC Damage Assessment Unit responsible for coordinating damage assessment operations across the county[2].

Pinellas County Property Appraiser (PCPAO)

- Conduct damage assessment operations in coordination with PCDAS and PCBDRS[3].

Pinellas County Sustainability and Resiliency

- Assist with the analysis and planning for sea level rise and climate change related flood issues
- Assist with integration and identification of mitigation projects into the County Capital Improvement Planning
- Lead for sustainability and resilience issues

Pinellas County Utilities

- Inspect PCU facilities and service areas for damage, downed trees, and power availability
- Coordinate Duke Energy requests and communication for power restoration and mitigation throughout the system and stations
- Monitoring, tracking and management of all things related to the quality of drinking water and wastewater including required reporting and tracking of overflow (SSO) events

Municipalities

- Support agencies for this plan
- Coordinate efforts for dissemination of public information and warning
- Assists with response and recovery efforts
- Participate in the Pinellas County Flood Risk and Mitigation Public Information Working Group

Fire Control Districts

- Support agencies for this plan
- Coordinate efforts for dissemination of warning

- Assists with response and recovery efforts
- Participate in the Pinellas County Flood Risk and Mitigation Public Information Working Group

2.1 Public Education and Outreach

The County has several outreach projects on warning and safety precautions.

Pinellas County Multi-Jurisdictional Program for Public Information (PPI)

The purpose of the PPI is to improve communication with residents, and to provide information about flood hazards, flood safety, flood insurance, and ways to protect property and natural floodplain functions to those who can benefit from it. Although this information is being effectively shared throughout the County, this program will better coordinate messages and materials, standardize the information being shared, and make it more accessible to County staff as well as the other local governments and agencies within the County[4]. The *2022 Pinellas County Multi-Jurisdictional PPI*, which is Appendix H of the LMS, outlines the current public information efforts.

Flood Risk and Mitigation Public Information Working Group (FRMPIWG)

The efforts of the PPI can affect and be affected by other related activities such as development of the Flood Warning and Response Plan, Flood Insurance Improvement Plan, and the Floodplain Management Plan, which is a component of the larger Local Mitigation Strategy (LMS). The Pinellas County Flood Risk and Mitigation Public Information Working Group represents a unique opportunity to coordinate and improve consistency in messaging countywide and avoid duplication of efforts among the various initiatives to reduce flood risk and damage. The working group will cover the basic CRS PPI requirements, but they will also be evaluating Flood Insurance Coverage, Floodplain Management, Flood Warning and Response, and providing input to the multi-jurisdictional LMS[5].

Evacuation Zone Updates

In 2022 PCEM released an updated version of our evacuation zones. This was based off of an updated National Hurricane Center's (NHC) Sea Lake Overland Surge from Hurricanes (SLOSH) Model, these are updated by the National Hurricane Center every 4-5 years. This update also utilized updated lidar data and more refined data points that have a smaller special distance and provide a more refined inundation footprint.

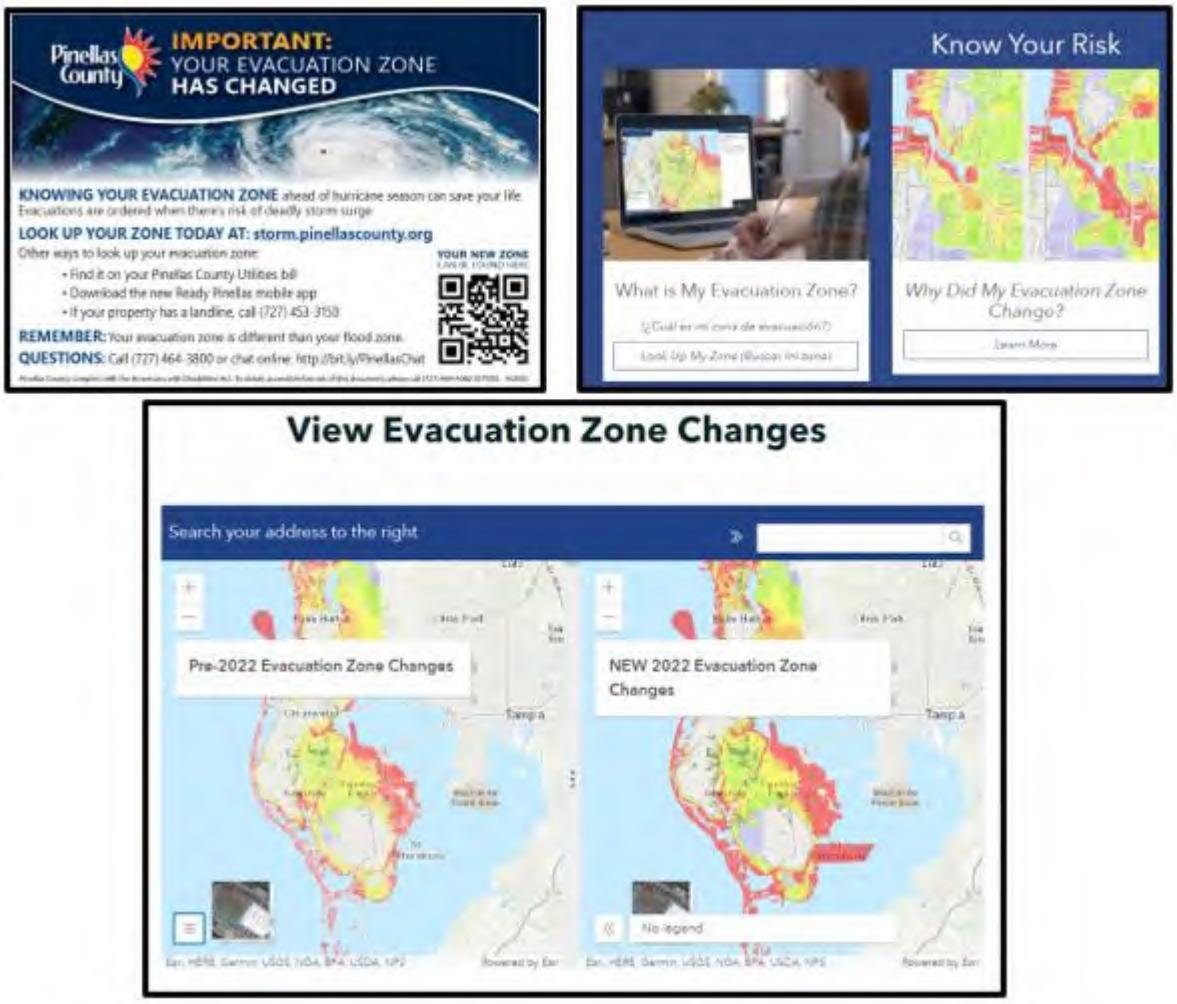
92,954 people had a change to their evacuation zone, this was about 47,747 households about 9.2% of our overall households. 6.6% had an increase in risk, meaning they went from

[4] 2022 Pinellas County Multi-Jurisdictional PPI Introduction
[5] 2022 Pinellas County Multi-Jurisdictional PPI Planning Committee

a higher evac level to a lower one and 2.6% decreased in evacuation level risk. PCEM mailed out 58,956 postcards to the address and owners of the address, if different, and embarked on a very active media campaign.

Pinellas County set up a weblink so people could either look up their new zone and see a side by side comparison and also provided a story map to explain why the evacuation zone changed. The website had 21,000 hits in the month that followed as a result of this outreach.

Figure 1: 2022 Outreach for Evacuation Zone Changes



Hurricane/All Hazards Preparedness Guide

Pinellas County develops a Hurricane/All Hazards Preparedness Guide annually. The guide contains information on severe weather and man-made hazards, and contains planning guidelines for homeowners, renters, businesses, special needs residents, and residents with pets and/or children.

Printed copies of these guides are distributed throughout the community, including through municipalities, government offices, libraries, and other locations. Guides are created in English, Spanish, and Vietnamese and large print is available upon request.

Additional information about the Hurricane/All Hazards Preparedness Guide, including the current versions of the guides, can be found at Pinellas County's website: http://pinellascounty.org/emergency/allhazardguide.htm.

Know Your Zone

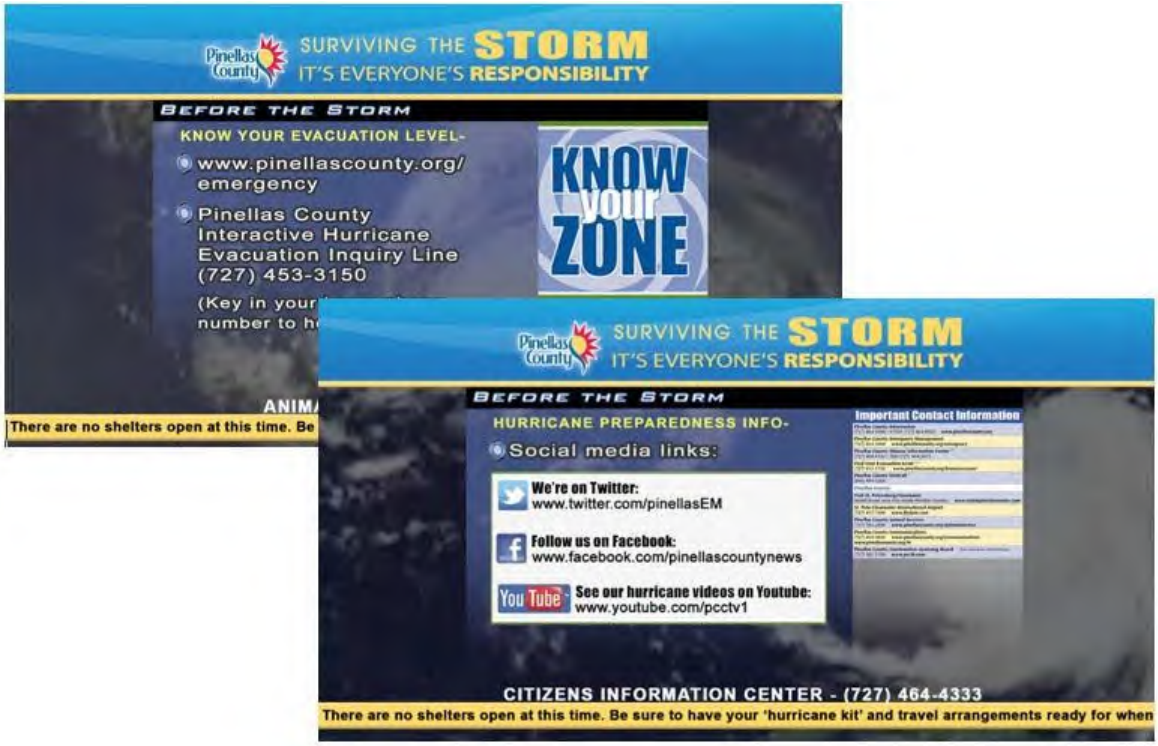
Residents are encouraged to enter their address into the Know Your Zone application to get information on their evacuation zone, as well as the closest public shelter, special needs shelter, and hotel accommodations.

Pinellas County Public Connection Television (PCC-TV)

Pinellas County, through PCC, runs a public access channel for airing both scheduled and live programming. BCC meetings are televised live and repeated during the week with closed-captioning available for the hearing impaired. When not broadcasting live presentations/meetings, informative presentations and programming is scheduled (including emergency preparedness and planning tips). During an emergency, regular programming on PCC-TV is cancelled and programming is devoted to broadcasting emergency information to county residents.

Additional information about PCC-TV, including live streaming video, can be found at Pinellas County's website: http://www.pinellascounty.org/tv/.

Figure 2: PCC-TV with scrolling alerts



Preparedness Events

PCEM and partners conduct preparedness events to include educational materials and, in some cases, some hurricane kit supplies, to the community. Events in partnership with other community agencies, such as senior centers or community feeding partners help reach at risk populations.

Public Transportation Vehicle Signage

PCEM, PCC, and PSTA partnered together to display preparedness messaging inside PSTA buses and other public transportation vehicles. These signs display information in English and Spanish to residents, such as how to find their evacuation zone, registering for Alert Pinellas, and registering for special needs evacuation assistance.

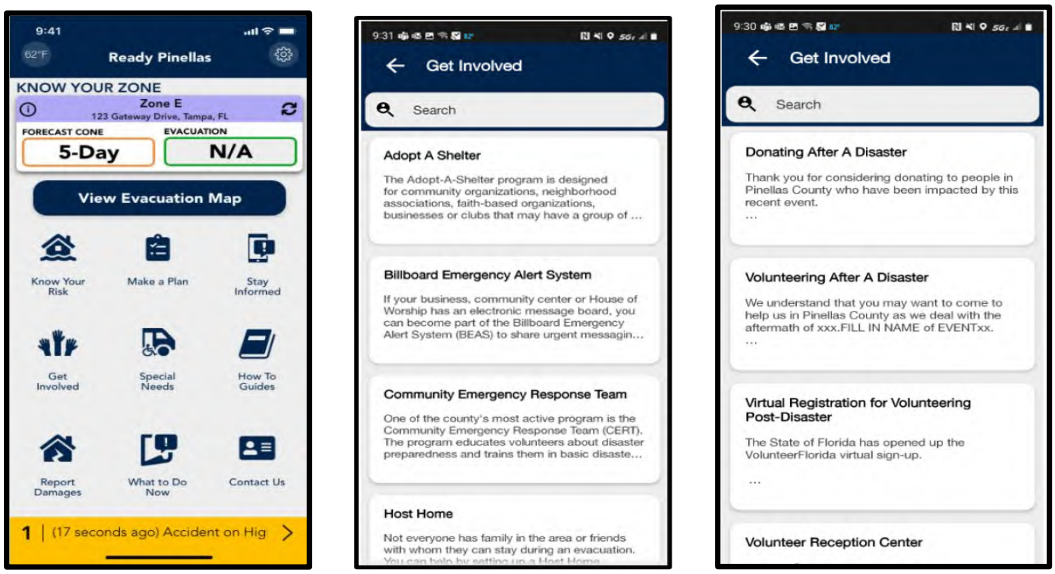
Ready Pinellas Mobile Application

Pinellas County maintains a mobile application, *Ready Pinellas*, designed to help residents prepare themselves and their families before a storm and as a storm approaches. The application connects residents to features such as readiness checklists, planning resources such as *Know Your Zone* and *Alert Pinellas*, and track storms as they approach. This application allows for real time notifications, has emergency preparedness information and tips and will feature blue and grey sky information.

Ready Pinellas will geolocate the users position to let them know what evacuation zone their current location, or a location they type in, is in and will update to let people know if that area

is under an evacuation order. Real time notifications are tied into the National Weather Service as well as Alert Pinellas to push information to people's phones. A preparedness checklist along with photos for inventory of items can also be developed in the application. This app is currently in English and is being translated into Spanish

Figure 3: Ready Pinellas Mobile Application



Additional information about *Ready Pinellas* can be found at Pinellas County's website: http://www.pinellascounty.org/readypinellas/

Severe Weather Awareness Week

Severe weather awareness week occurs in February and highlights a variety of topics. The NWS provides educational materials that are promoted by PCEM and other partners. PCEM conducts an interactive tornado drill with partners and the community every year.

Additional information on the annual Severe Weather Awareness Week, including information about the statewide tornado drill partnership, can be found on FDEM's website: https://www.floridadisaster.org/dem/directors-office/media/swaw/.

Storm Surge Signs

Pinellas County, in partnership with Pinellas County School Board and municipalities, has numerous signs depicting the potential height of storm surge from a major hurricane at various locations throughout the county. The signs provide residents a visual depiction of how high storm surge could reach in the community and reminding them to know their evacuation zone by going to the County's website.

Strategic Marketing and Outreach Plan

PCEM maintains a Strategic Marketing and Outreach Plan that is updated annually to approach outreach with the goals of engaging and empowering whole community partners, addressing at-risk populations and promoting resilient communities through innovative uses

of traditional communications tools and developing technologies. This plan outlines the strategies that will be implemented in the calendar year for marketing and outreach.

Pinellas County Website

Pinellas County maintains a website to provide an array of information to residents. The website allows residents to look up evacuation zones, evacuation routes, provides disaster planning tips, and updates on emergency situations.

Information and updates to the website can be found at: http://www.pinellascounty.org/.

Figure 4: Pinellas County Storm Risk Tools https://storm.pinellascounty.org/

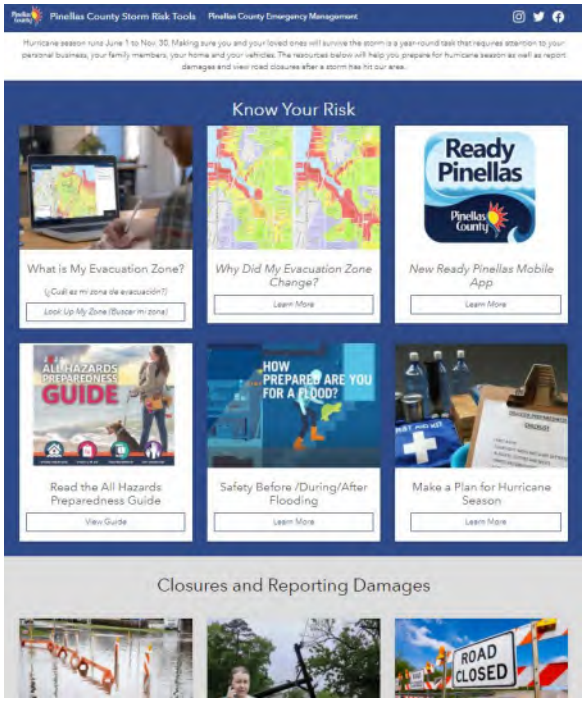


Figure 5: PCEM Emergency Bulletin page www.pinellascounty.org/emergency/bulletin.htm



2.2 Alert & Notification

PCPW Floodplain Administrator monitors for tidal impacts of flooding and gauges of critical waterways. PCEM and the Floodplain Administrator work in conjunction when a potential flood threat is received and coordinate response and notification. Pinellas County utilizes a variety of platforms to convey threats and impacts to the community. PCEM maintains a *Warning and Notification Standard Operating Guide (SOG)* along with specific job aids for the implementation of warning systems. PCC maintains the *Emergency Support Function #14 Public Information Office SOG* documenting the procedures and flow of information.

Flood Threat Recognition System (FTR)

PCEM implements a FTR through participation with the NWS alert system, a CRS Level 3 Automated flood warning system, as its primary means of notification of impending flood. Features of this automated flood warning system include:

- Capable of receiving flood warnings 24 hours a day, 7 days a week.
- Notifications are for flooding throughout the entire county, including riverine and coastal flooding.
- Alerts received through weather alert radio system, as well as email and text alerts sent to workstations and mobile devices.
- Provides forecast information.

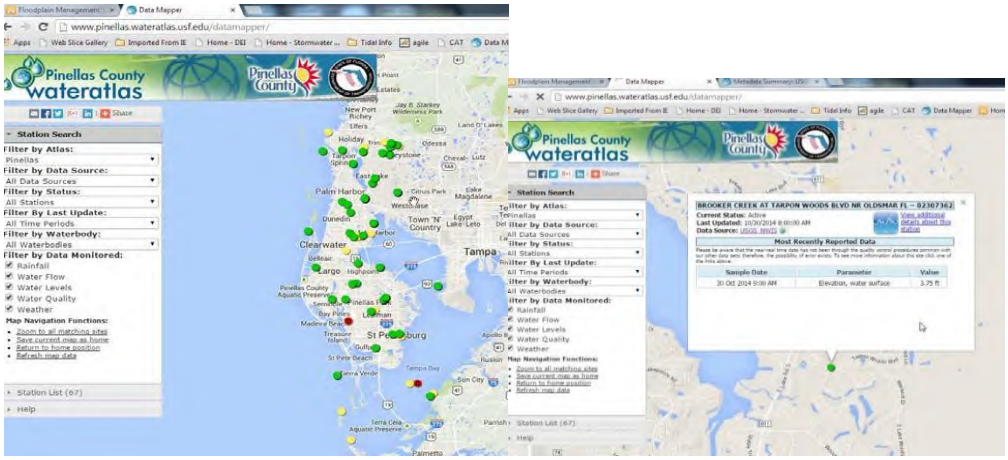
Pinellas County also has flood inundation data and maps for the entire county (floodmaps.pinellascounty.org and Section 2.4). Additionally, stream flow, stage and rainfall gages are monitored as a secondary means of forecasting flooding (*Figure 6*). These gages are the basis for a flood threat recognition system that matches gage readings to flooding potential based on modeling results. PCPW has conducted watershed management studies that cover most of the County. These management plans include detailed stormwater models that identify areas at risk for flooding. These models were used to identify a series of flooding scenarios based on gage elevations and rainfall amount. These gages cover the major waterbodies, including:

- Allen's Creek
- Alligator Creek
- Brooker Creek
- Clam Bayou
- Cross Bayou
- Curlew Creek
- Lake Tarpon
- Long Branch
- McKay Bay
- McKay Creek
- Roosevelt Canal
- Sawgrass Lake
- Seminole Lake

When a rainfall event happens, PCPW staff reviews the real-time gage elevations. For example, the gages on the County's Water Atlas system can automatically notify staff when the water level reaches a critical elevation. The activities and information are coordinated between PCEM and PCPW. When there is an impending storm, these gages are monitored and crossed referenced with known areas of risks. Staff can determine which areas are at risk because they keep records about what gage elevations will trigger a flooding event (*Figure 6*). Standard operating procedures for monitoring the gages and what activities to implement at certain gage elevations are documented in the *PCPW Emergency Response Plan*.

The gages are maintained by several agencies, including PCPW, United States Geological Survey (USGS), Southwest Florida Water Management District, Port Authority and National Oceanic and Atmospheric Administration (NOAA).

Figure 6: Pinellas County Gages



Emergency Warning Dissemination (EWD)

During an emergency, Pinellas County officials need to provide the public with life-saving information quickly. Pinellas County has a procedure to disseminate flood information to the entire county via an array of warning and notification tools that allows them to communicate with internal and core community partner agencies, as well as the general public through a self-subscription option and a reverse-911 capability[6].

Pre-Scripted Messages

Once the flood threat recognition system alerts to which areas will be flooded and when, warnings are issued to the affected populations. PCEM in coordination with PCPW and PCC issues pre-scripted messages as defined in the *Flood Warning and Response Toolkit* to reduce the time gap between when warnings are issued, and actions take place. The messages are conveyed at the appropriate times before, during and after the storm. The warning messages state when flooding is predicted to occur, its expected severity, and appropriate response actions (e.g., evacuation routes, safe shelters, protective actions).

The pre-scripted messages are disseminated through various warning and notification tools. These messages are also communicated to partner agencies to help disseminate the information to the public. *Figures 7 and 8* describes some example pre-scripted messages.

[6] *Pinellas County CEMP Section 5.7* and *PCEM Warning and Notification SOG*

Figure 7: Example EOC Pre-Scripted Messages

	Topic	Timing	FRP Message	Outcome
1	Know your flood hazard	After	[Name of roads or areas] is still experiencing flooding conditions from yesterday's storm. Stay tuned or visit website for up to date flood hazard info.	Fewer stranded people and/or pets vehicles
1	Know your flood hazard	After	Updates will continue to be posted on the Pinellas County website, and on social media using the hashtag #PinellasWx.	Informed residents will take appropriate actions
1	Know your flood hazard	After	Follow reentry orders and avoid flooded areas.	Reduced emergency response calls and injuries
3	Protect people from the hazard	After	The Citizen Information Center is open and residents can call (727) 464-4333 to report issues.	County will know where response efforts are needed
3	Protect people from the hazard	After	Pinellas County officials are urging residents to avoid driving through high water.	Fewer stranded people and/or pets vehicles
3	Protect people from the hazard	After	[Emergency shelters remain opened at [locations] for residents whose homes were flooded during the storm.]	Fewer displaced people
3	Protect people from the hazard	After	Take extra care in the prevention of mosquitoes breeding in standing water and remember the 3 Ds: Drain water when possible; Dress in light colors and cover all parts of the body; Defend with DEET, Picaridin or Oil of Lemon Eucalyptus.	Reduced mosquitoes and resulting disease
3	Protect people from the hazard	After	Stay out of standing water or structures until authorities advise it is safe.	Fewer injuries
4	Protect your property from the hazard	After	Pinellas County emergency crews are being dispatched to areas affected by the heavy rain event that occured [time].	Informed residents will take appropriate actions
4	Protect your property from the hazard	After	If your home or business has flooded, remove wet contents promptly to prevent mold. Wet carpeting, furniture, bedding and other items holding moisture can develop mold within 24 to 48 hours. Clean and disinfect everything that got wet. Mud left from floodwater can contain sewage and chemicals. Do not discard damaged carpet and contents until after the	Faster recovery and increased accuracy of flood insurance claims payments

Figure 8: Flood Response Pre-Scripted Messages

Before	During	After	All					
Citizen Information Center (CIC) Pinellas County Emergency Management *[Emergency Management Coordinator]*	**Alert Pinellas - All Call/Text** Pinellas County Emergency Management *[Emergency Management Coordinator]*	**Alert Pinellas - All Call Email** Pinellas County Emergency Management *[Emergency Management Coordinator]*	**Alert Pinellas - Opt In Text** Pinellas County Emergency Management *[Emergency Management Coordinator]*	**Alert Pinellas - Opt In Email** Pinellas County Emergency Management *[Emergency Management Coordinator]*	**Billboard Emergency Alert System (BEAS)** Pinellas County Emergency Management *[Senior Education and Outreach Coordinator]*	**Intelligent Transportation System (ITS)** Pinellas County Public Works - Traffic *[Traffic Operations Coord]*	**Press Release** Pinellas County Marketing & Communications *[Public Information Officer]*	Pinellas Coun *[Pub*
The Citizen Information Center (CIC) would activate for this incident and risk level. See CIC SOG for additional information and activation procedure.	ALERT PINELLAS: Dangerous flooding conditions are expected in coastal areas. Coastal flooding of [flooding height specifics] is expected along coastal areas of Pinellas County [timeframe]. Tune in to local media for flood watches and warnings. Prepare your property for potential flooding. For information about how to prepare visit www.pinellascounty.org/flooding	ALERT PINELLAS: Dangerous flooding conditions are expected in coastal areas. Coastal flooding of [flooding height specifics] are expected along coastal areas of Pinellas County [timeframe]. Tune in to local media for flood watches and warnings. Prepare your property for potential flooding. For information about how to prepare visit www.pinellascounty.org/flooding	ALERT PINELLAS: Prepare for potential flooding along coastal areas of Pinellas County. Avoid driving through flooded areas. BRAKE, DON'T WAKE! Wake from vehicles traveling on flooded roads causes more property damage than the rising water alone.	ALERT PINELLAS: Prepare for potential flooding along coastal areas of Pinellas County. Avoid driving through flooded areas. BRAKE, DON'T WAKE! Wake from vehicles traveling on flooded roads causes more property damage than the rising water alone.	FLOODING EXPECTED TODAY	FLOODING EXPECTED TODAY	Dangerous flooding conditions are expected in coastal areas. Coastal flooding of [flooding height specifics] is expected along coastal areas of Pinellas County [timeframe].	Press release
		Stay tuned for weather updates through weather alert radios, local media outlets, the county website and county social media accounts.	Turn Around, Don't Drown. Only 6 inches of fast-flowing water can sweep you off your feet and one foot can carry away cars.	Turn Around, Don't Drown. Only 6 inches of fast-flowing water can sweep you off your feet and one foot can carry away cars.	DO NOT DRIVE THROUGH FLOODED ROADWAYS	DO NOT DRIVE THROUGH FLOODED ROADWAYS	The Citizen Information Center is open and residents can call (727) 464-4333 to report issues or for more information.]	
		Review disaster plans for your family, business and property. Get your survival kit and important papers ready. Purchase any items you will need to complete your survival kit now to avoid long lines and limited supplies.	Stay tuned for weather updates through weather alert radios, local media outlets, the county website and county social media accounts.	Stay tuned for weather updates through weather alert radios, local media outlets, the county website and county social media accounts.			Stay connected and prepare ahead.	
		Coastal and barrier island residents are advised to prepare for potential localized flooding. Storm tides are expected to be ____ feet above normal forecast levels, with ____ foot breaking waves on the coast.	Review disaster plans for your family, business and property. Get your survival kit and important papers ready. Purchase any items you will need to complete your survival kit now to avoid long lines and limited supplies.	Review disaster plans for your family, business and property. Get your survival kit and important papers ready. Purchase any items you will need to complete your survival kit now to avoid long lines and limited supplies.			Follow local media outlets or tune in to NOAA weather radio stations 162.450 or 162.550 and follow us on Facebook, Twitter, and Nextdoor to stay informed and sign up for Alert Pinellas to receive text, phone and/or email notifications if flooding is expected in your area. Visit www.pinellascounty.org/alertpinellas for more information and to sign up.	
			Coastal and barrier island residents are advised to prepare for potential localized flooding. Storm tides are expected to be ____ feet above normal forecast levels, with ____ foot breaking waves on the coast.	Coastal and barrier island residents are advised to prepare for potential localized flooding. Storm tides are expected to be ____ feet above normal forecast levels, with ____ foot breaking waves on the coast.			Prepare your property for potential flooding. For information about how to prepare visit www.pinellascounty.org/flooding.	
							Take photos or video and inventory of your property.	

2.3 Warning and Notification Tools

Alert Pinellas (Everbridge)

The County utilizes the commercial notification system 'Everbridge' to deliver tests at the beginning of each month to core partner agencies, municipal EM Coordinators, critical facilities and citizens. The municipalities, partner agencies and critical facilities primarily rely on text messages and email notifications. The general public can be communicated with via via email, text messages, social media and reverse 911. The system is also capable of sending geo-targeted alert notifications to send messages to a specific geographic area.

Billboard Emergency Alert System (BEAS) Program

The BEAS program is a voluntary public-private partnership between PCEM and privately and publicly owned electronic billboards. The BEAS program is designed to enhance the County's existing emergency alert systems in order to display emergency information such as severe weather alerts, evacuation information, and other critical information necessary to protect the lives and property of citizens, businesses, and visitors.

Additional information about the BEAS program can be found at Pinellas County's website: http://www.pinellascounty.org/emergency/beas/.

Integrated Public Alert and Warning System (IPAWS)

IPAWS was created by FEMA in response Executive Order 13407, allowing for federal, state, and local governments to issue critical public alerts and warnings in their jurisdictions. Common examples of messages sent through IPAWS are America's Missing: Broadcasting Emergency Response (commonly known as AMBER) Alerts sent by FDLE and tornado warnings sent by NWS. Public alerting systems accessed through IPAWS includes:

- All-Hazards Emergency Message Collection System
- Emergency Alert System
- Internet Services
- Wireless Emergency Alerts

Pinellas County maintains access to IPAWS through a MOA with FEMA. Under this agreement, PCEM must demonstrate the ability to compose and send a message through IPAWS by conducting a monthly proficiency test. Pinellas County utilizes EMnet® and Everbridge® to access and send messages through IPAWS.

Additional information about IPAWS and the associated public alert systems can be found at FEMA's website: https://www.fema.gov/emergency-managers/practitioners/integrated-public-alert-warning-system.

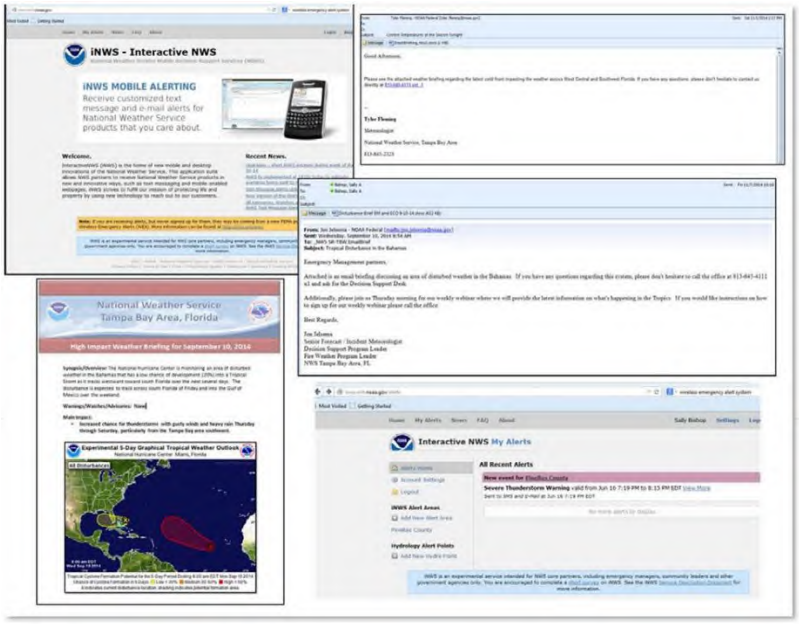
iNWS Mobile Alerting

iNWS is a service intended for emergency managers, community leaders, and other government agencies, providing text and email notifications about NWS products (such as

watches, warnings, and advisories) issued for their jurisdiction, allowing these stakeholders to take and encourage protective actions.

Additional information about iNWS, including how partner agencies can register, can be found on the NWS's website: https://inws.ncep.noaa.gov/.

Figure 9: iNWS Alerts



Roadway Dynamic Messaging Signs

Pinellas County Public Works (PCPW) utilizes a series of Dynamic Messaging Signs (DMS) as part of the County's larger Advanced Transportation Management System and Intelligent Transportation System ATMS/ITS). These DMS have the ability to display messages on digital signage across major roadways, both during non-emergency and emergency situations.

Additional information about the PCPW ATMS/ITS DMS can be found at Pinellas County's website: http://www.pinellascounty.org/publicworks/its.htm.

Street Outreach Teams

Street outreach programs for homeless individuals maintain frequent contact with unsheltered individuals during hurricane season to ensure they are aware of the status of any impending storms, can locate pick-up locations for transportation in the event of an evacuation, and can access special needs disaster shelters or pet-friendly disaster shelters, as appropriate. In addition to providing information through street outreach, this information is shared at meal sites, day programs, and similar service locations.

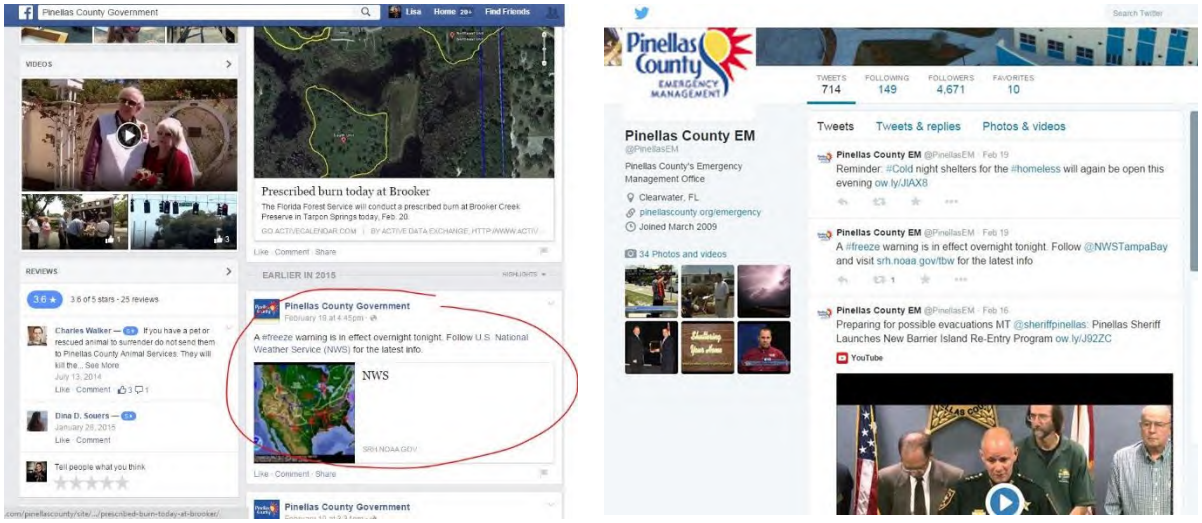
Social Media

Pinellas County and its departments operate a variety of social media accounts to share information and awareness campaign messaging to residents[7]. This includes accounts on the following social media platforms:

- LinkedIn
- NextDoor
- Flickr
- YouTube
- Instagram
- Facebook (*Figure 10*)
- Twitter (***Error! Reference source not found.****10*)

Additional information on Pinellas County's social media sites, including links to the currently active accounts, can be found at: http://www.pinellascounty.org/social-networking.htm.

Figure 10: Pinellas County Facebook News and Twitter Feeds



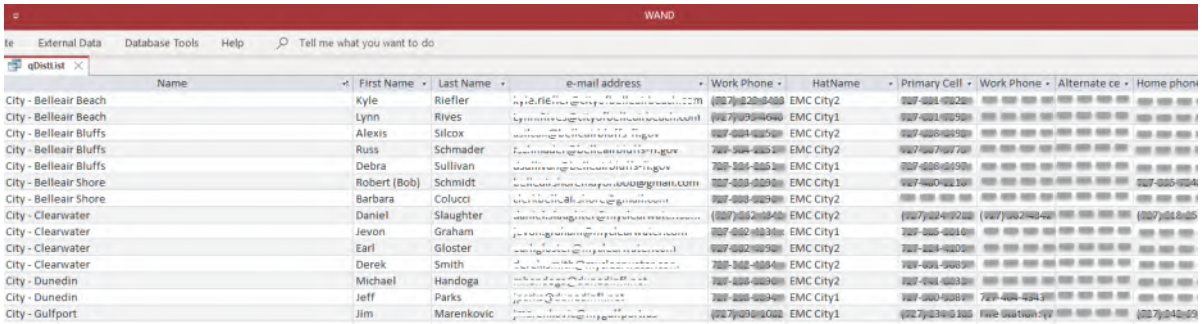
[7] Managed in accordance with Pinellas County Administrative Directive Number 3.2.

Warning and Notification Database (WAND)

PCEM maintains a database of contacts used for emergency and day to day communications with internal and external agencies. These contacts cover various critical sectors such as municipalities and special fire districts, County departments, EOC staff, hospitals, utilities/infrastructure personnel, community groups, volunteer groups, among others. The WAND can be utilized to quickly identify contact information for warning and notification purposes.

The WAND is updated by PCEM at least annually, with additional maintenance occurring based upon monthly testing and as requested/needed. An example of a report from the WAND is shown in *Figure 11*.

Figure 11: WAND Database Report Example



Name	First Name	Last Name	e-mail address	Work Phone	HatName	Primary Cell	Work Phone	Alternate ce	Home phon
City - Belleair Beach	Kyle	Riefler			EMC City2				
City - Belleair Beach	Lynn	Rives			EMC City1				
City - Belleair Bluffs	Alexis	Silcox			EMC City2				
City - Belleair Bluffs	Russ	Schmader			EMC City2				
City - Belleair Bluffs	Debra	Sullivan			EMC City1				
City - Belleair Shore	Robert (Bob)	Schmidt			EMC City1				
City - Belleair Shore	Barbara	Colucci			EMC City2				
City - Clearwater	Daniel	Slaughter			EMC City2				
City - Clearwater	Jevon	Graham			EMC City1				
City - Clearwater	Earl	Gloster			EMC City2				
City - Clearwater	Derek	Smith			EMC City2				
City - Dunedin	Michael	Handoga			EMC City2				
City - Dunedin	Jeff	Parks			EMC City1				
City - Gulfport	Jim	Marenkovic			EMC City1				

NOAA Weather Radio All Hazards (NWR)

NWR is a nationwide network of radio stations broadcasting continuous weather information directly from the nearest NWS office. NWR broadcasts official Weather Service warnings, watches, forecasts and other hazard information 24 hours a day, 7 days a week. PCEM has initiated various projects to provide NWR capable radios to partner agencies, critical facilities and at-risk populations. Most recently, in 2022, PCEM initiated a project to improve critical warning notifications to at risk populations by identifying funding and distributing 1,700 NWR capable radios to identifies at risk communities.

2.4 Planning, Threat, and Impact Analysis

To accurately determine protective measure and response activities, Pinellas County maintains datasets and maps and integrates real time information including vulnerable populations, critical facilities and at-risk areas for various events that may cause flooding.

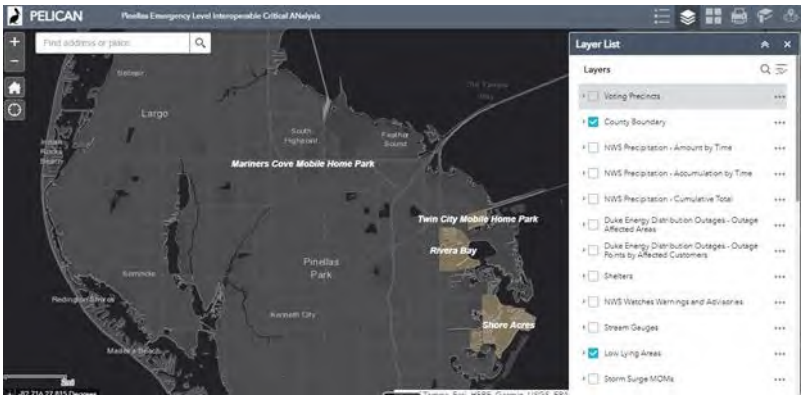
These data sets and tools can be utilized to convey threats to the community as well as provide for a way to collect data on impacts.

Pinellas Emergency Level Interoperable Critical Analysis (PELICAN)

PELICAN is an internally created GIS analysis tool managed by PCBTS, allowing PCEM to make informed data-driven decisions from a variety of datasets. These datasets can include live data (such as weather radar, traffic reports, and weather station reports) and preplanned

static data (such as shelter locations, evacuation zones, and CIKR locations) overlaid to assist in the emergency management planning and decision making process.

Figure 12: PELICAN Low Lying Areas layer



Critical Facilities Database

PCEM maintains a list of critical facilities that is updated annually to include:

- Airports
- Correctional Facilities
- Courthouses
- County and municipal buildings
- Emergency operations sites
- Faith based sites
- Fire Stations
- Law Enforcement/Police stations
- Public and Private Sector Critical Infrastructure (Structures and Systems)

Healthcare Facilities Database

Pinellas County is required to review and approve emergency plans for health care facilities designated by their licensing as: Hospitals, Nursing Homes, Assisted Living Facilities, Adult Day Care Centers, Ambulatory Surgical Centers and Intermediate Care Facilities for the Developmentally Disabled. PCEM maintains a database of the residential healthcare facilities that have their healthcare facility CEMPs that it reviews. This database can be utilized to communicate with them for incidents that may impact their operations.

Figure 13: Health Care Access Database Query Report

Health Care Facilities sorted by Evacuation Level

Facility Name	Transport	Evac Level	Address	Street	City	Phone	Cell Phon	Fax	Disaster PhoneNote	Contact	Title
Sunset Harbor Assisted Living	Own/Facility	A	522	Doric Ct.	Tarpon Springs	940-4781	437-8669	888-688-1401		Byron Richards	Exec Director
Westminster Shores	Own/ Fac vehicles	A	125	56th Ave., So.	St. Petersburg	867-2131	417-9369	mshaw@wservices.org	Fax #: 866-8454	Michael Shaw	Executive Director
Wild Flower Inn	Own/POV	A	639	Michigan Blvd., #1500	Dunedin	736-0793	404-754-	avahal@carewellglobal.com		Alka Vahal	Administrator
Palms of Pasadena Hospital	EM/EMS	A	1501	Pasadena Ave. So.	St. Petersburg	381-1000	424-7980	chuck.giorgio@hcahealthcare.com	Fax: 341-7790	Chuck Girogio	Director of Plant
Sunrise Community Inc. - St. Petersburg Cluster	Own/Facility Vans	A	1101	102nd Ave. North	St. Petersburg	576-0492	453-9136	kmason@sunrisegroup.org	(fax) 576-0970	Kym Mason	Director
Health & Rehabilitation Center At Dolphins View	EM/EMS/WC Transport	A	1820	Shore Drive So.	South Pasadena	384-9300	616-402-	683-9378	616-502-1360	Zachary Strunk	NHA
Gulfport Rehabilitation Center	Own/Fac	A	1430	Pasadena Ave. So.	St. Petersburg	344-8525	482-7059	855-887-9751		Sean O'Malley	Administrator
Shore Acres Rehabilitation & Health Center	EM/EMS	A	4500	Indianapolis St. N.E.	St. Petersburg	527-5801	813-770-	522-4178	209-4600	Suresh V. Pai	Administrator

Special Needs Database

PCEM maintains a registry for people who may need assistance with transportation or have medical conditions and may require specialized shelters or services for evacuation or be on life sustaining medical equipment that requires uninterrupted power supply. PCEM and the partner agencies prepare evacuation and sheltering planning assumptions on the current registry numbers.

Flood Mapping

PCEM maintains a catalog of GIS data layers to assess the risk of storm surge in relation to tropical cyclones and riverine and urban flooding from rainfall events. The storm surge data is from the NHC SLOSH model. This data can be run as a composite of all directions of storms by category, (*Figure **14***) which is used to create Evacuation Zones or by direction with various speeds to provide an operational analysis for risk for particular storms. Riverine and urban flood inundation maps with flood elevations are developed through the Watershed Management Plan (WMP) program (*Figure **15***). Inundation risk can be evaluated by the depth of water above ground level (AGL) or flood elevation associated with a particular storm surge or precipitation forecast and overlayed with other factors data layers to provide real time situational awareness.

Figure 14: Surge depth analysis Category 3 depicted in PELICAN

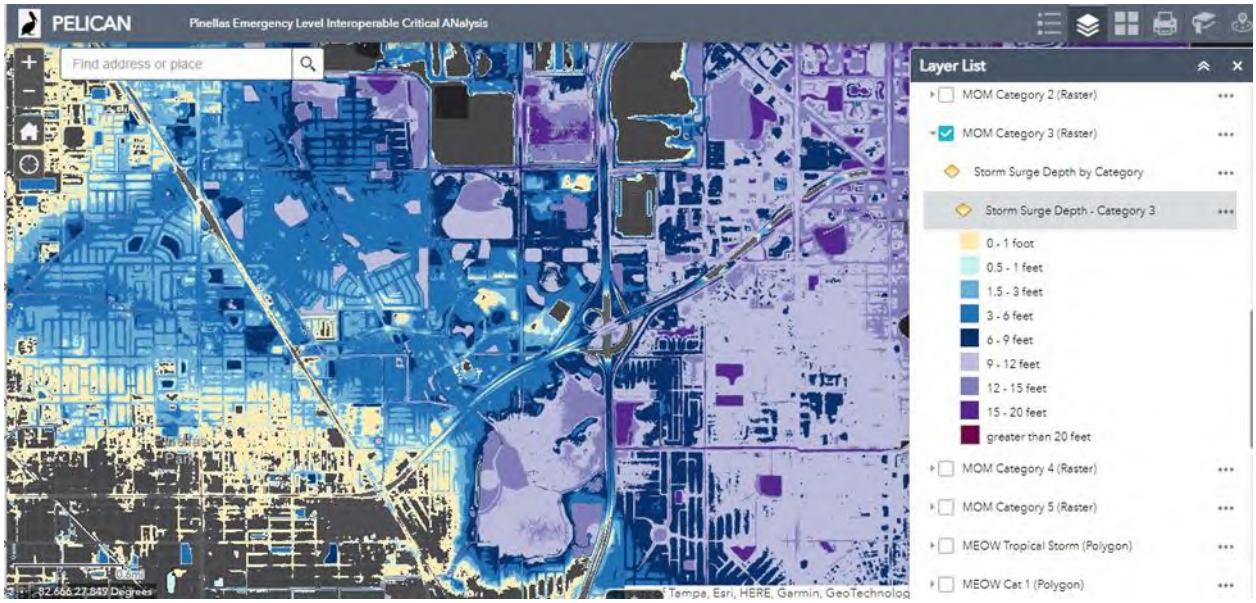
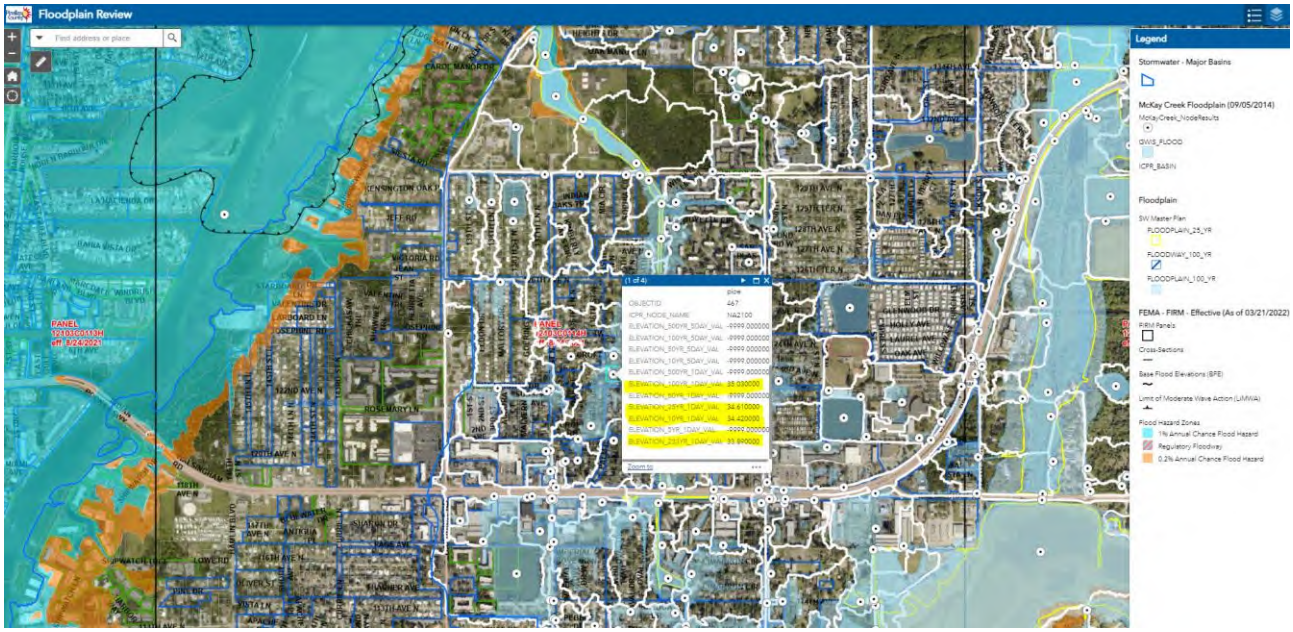


Figure 15: WMP Flood Inundation Maps with Flood Elevations



Hurricane Evacuation (HURREVAC)

HURREVAC is a storm tracking and decision support software designed for governmental emergency managers to make evacuation and other critical tropical cyclone related

decisions. HURREVAC is administered by FEMA, the Army Corps of Engineers (ACE), and the National Oceanic and Atmospheric Administration (NOAA).

Within HURREVAC, storm surge modeling with the SLOSH model can be used to estimate storm surge heights based on variables such as a hurricane's size, forward speed, and trajectory. By running the SLOSH model thousands of times with hypothetical hurricane scenarios, the Maximum Envelopes of Water (MEOWs) and the Maximum of MEOWs (MOMs) are produced. MEOWs and MOMs help determine storm surge vulnerability, forming the basis for evacuation zone development.

Additional information about the SLOSH model can be found on the NHC website: https://www.nhc.noaa.gov/surge/slosh.php, and additional information about HURREVAC can be found on the software's website: https://www.hurrevac.com/.

Damage Assessment Reporting Tools

ArcGIS Collector Application

As the result of a disaster or other incident, the ArcGIS Collector application can be used by damage assessment personnel to record information from the field, such as location, severity, and photographs of damages from a mobile device (*Figure 17).*

Figure 16: Pictures of damage assessment personnel conducting residential house-by-house assessments the morning of Wednesday, July 7. Photos courtesy of PCC.







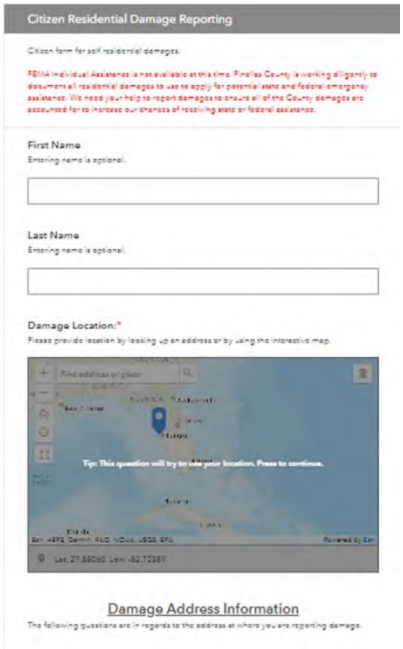
Storm Impressions

Fire Districts utilize the Storm Impressions application on their mobile data terminals or through the internet to assess, collect, and communicate impact information to PCSES, PCEM, and other entities across the County to provide critical situational awareness about the scope and scale of damages. Storm Impressions displays a map of assessed locations, the level of damage, and additional notes regarding the impacts.

Citizen Residential Damage Reporting Tool

After a disaster or other incident, Pinellas County may enable the Citizen Residential Damage Reporting tool to allow citizens to report residential damages (*Figure 18*).

Figure 17: Citizen Residential Damage Reporting



2.5 Training and Exercise

Maintaining and implementing the training and exercise program is a continual effort, consisting of the identification, planning, and implementation to enhance readiness and assess operational knowledge and procedures. PCEM is responsible for the coordination of the local training and exercise program, including coordination with partner agencies, development of an Integrated Preparedness Plan (IPP). The IPP is developed through a strategic planning process with partners to address gaps, increase capabilities and practice operational response together. As part of the exercise and real-life incident process, PCEM

maintains a master Improvement Plan to help track items to inform the IPP and the PCEM Strategic Plan.

The County's warning dissemination systems are tested monthly. Pinellas County also participates in the Annual State Exercise that as a focus on the County's Operational Communications and Emergency Public Information and Warning confirming the ability of Pinellas County to issue emergency public warnings through established warning systems. The community has exercised these activities during actual events several times in recent years. Figure 18 and Figure 19 describe a situation report (Sitrep) from the exercise and a sample report showing the distribution of warning to the community during the exercise using one of the automated notification systems.

Figure 18: Exercise Hurricane Amaranth Exercise Sitrep

EXERCISE EXERCISE EXERCISE

Pinellas County
Emergency Operations Center
SITUATION REPORT #1

CONTACT INFORMATION
Main: (727) 464-5550
FAX: (727) 464-4024
EMA@pinellascounty.org

1. INCIDENT NAME	2. DATE	3. TIME
Potential Tropical Cyclone	05/01/2022	11:30 AM
4. EOC ACTIVATION LEVEL	5. LOCAL STATE OF EMERGENCY DECLARED?	6. PREPARED BY
Level 3 – Enhanced Monitoring	No	EOC Planning Section

CURRENT SITUATION

The National Hurricane Center is currently monitoring an area of disturbed weather in the Caribbean Sea for potential tropical cyclone development.

The forecast for this area of disturbed weather indicates it will move over the western Caribbean Sea and then into the southern Gulf of Mexico over the next few days. The system may then move northeastward towards the Florida peninsula by Friday (05/06).

The area of disturbed weather is forecast to become a Tropical Depression within the next 24 hours, and then a Tropical Storm shortly thereafter.

PCEM recommends everyone review and complete preparedness actions.

GRAPHIC



IMPACTS

- It is too early to determine what, if any, impacts Pinellas County could receive. PCEM is monitoring forecasts and is coordinating with the National Weather Service.

COUNTY ACTIVITIES

- The EOC is activated to a Level 3 – Enhanced Monitoring. Use normal office numbers for PCEM staff.
- PCEM is monitoring the situation and coordinating with partners, including with the State on protective actions and unmet needs.
- Pinellas County Communications is coordinating preparedness messaging.
- The next Situation Report for this system will be issued tomorrow morning (05/02).

RECOMMENDED ACTIONS

- Share weather forecasts and protective measure actions with your partners and communities.
- Review emergency plans and supplies.
- Monitor the weather reports on a regular basis:
  a. https://www.hurricanes.gov/
  b. http://weather.gov/tampabay
- Monitor Pinellas County Social Media Sites:
  a. https://www.facebook.com/PinellasCountyNews/
  b. https://mobile.twitter.com/pinellasem
  c. http://www.pinellascounty.org/social-networking.htm
- Public Information Resources
  a. https://www.ready.gov/severe-weather-toolkit
  b. http://pinellascounty.org/emergency/PDF/All_Hazard_Guide.pdf

This Advisory is provided for informational purposes only. The user assumes the entire risk related to the use, or misuse, of its associated data.

7. Approved By:	8. Title:	9. Date/Time:
Cathie Perkins	Emergency Management Director	05/01/2022 11:30 AM

EXERCISE EXERCISE EXERCISE
NOT A REAL SCENARIO

Figure 19: Example of Exercise Sitrep Distribution Report



3 FLOOD RESPONSE OPERATIONS (FRO)

Different threats and incidents will generate different response actions, including the type and level of coordination needed between agencies, including the convening of Multiagency Coordination (MAC) groups, EOC activation, or other response measures to ensure the public health, safety, and welfare of residents. Pinellas County's framework for response and operational coordination can be found in the *Pinellas County CEMP – Section 5 Response*. *Appendix 2* contains the EOC organizational structure.

PCEM has identified levels of activation for the EOC that transition from coordination at the department level to countywide coordination. Agencies are activated depending upon the level of support needed from them and in conjunction with any protective, response or recovery efforts. Additional information on PCEM's activities and the expected or recommended actions from County departments and partner agencies at each EOC activation level can be found in *Pinellas County CEMP – Table 3*.

Level 4 – Normal Operations

Monitor local and regional incidents and evaluate potential threats.

Level 3 – Enhanced Monitoring

An incident requires PCEM to act or coordinate efforts. Notification to County Administration is made of incidents that require enhanced monitoring.

Level 2 – Partial Activation

An incident requires limited coordination/support at the EOC.

Level 1 – Full Activation

An incident requires high levels of coordination/support at the EOC.

The PCEM Director or designee may implement EOC Level 4 – Normal Operations and EOC Level 3 – Enhanced Monitoring on behalf of the department. EOC Level 2 – Partial Activation and EOC Level 1 – Full Activation are determined in conjunction with the Executive Policy Group (EPG).

3.1 Flooding Hotspots

PCPW maintains a list of flooding "Hot Spots" that are reviewed in conjunction with updating the PCPW ERP[8]. Before an impending storm, PCPW staff will inspect and perform maintenance as necessary on systems in historically flood prone areas to make sure that the systems will have the maximum conveyance capacity for floodwaters.

3.2 Creek Gage Monitoring

All creek gages are to be monitored during heavy rains and storm conditions to ensure that any flooding potential is minimized by PCPW staff prior to and during an event. Gage data for Brooker Creek and Alligator Creek can be viewed through the USGS National Water Information Website. Ensure that public information is disseminated through all available sources before and during a storm event. PW FEOC staff will monitor gages throughout any storm[9].

Figure 20: Gage Elevations Correlated to Flood Inundation Maps



3.3 Sandbag Operations

PCPW in coordination with the Pinellas County EOC EPG will determine the need to provide sandbags to unincorporated citizens prior to the arrival of a weather event forecasting flooding issues[10]. Municipalities may choose to provide sandbags to residents.

[8] 2022 PCPW ERP
[9] 2022 PCPW ERP Annex L: SOP for Creak Gage Monitoring
[10] 2022 PCPW ERP Annex M: SOP for Sandbag Operations

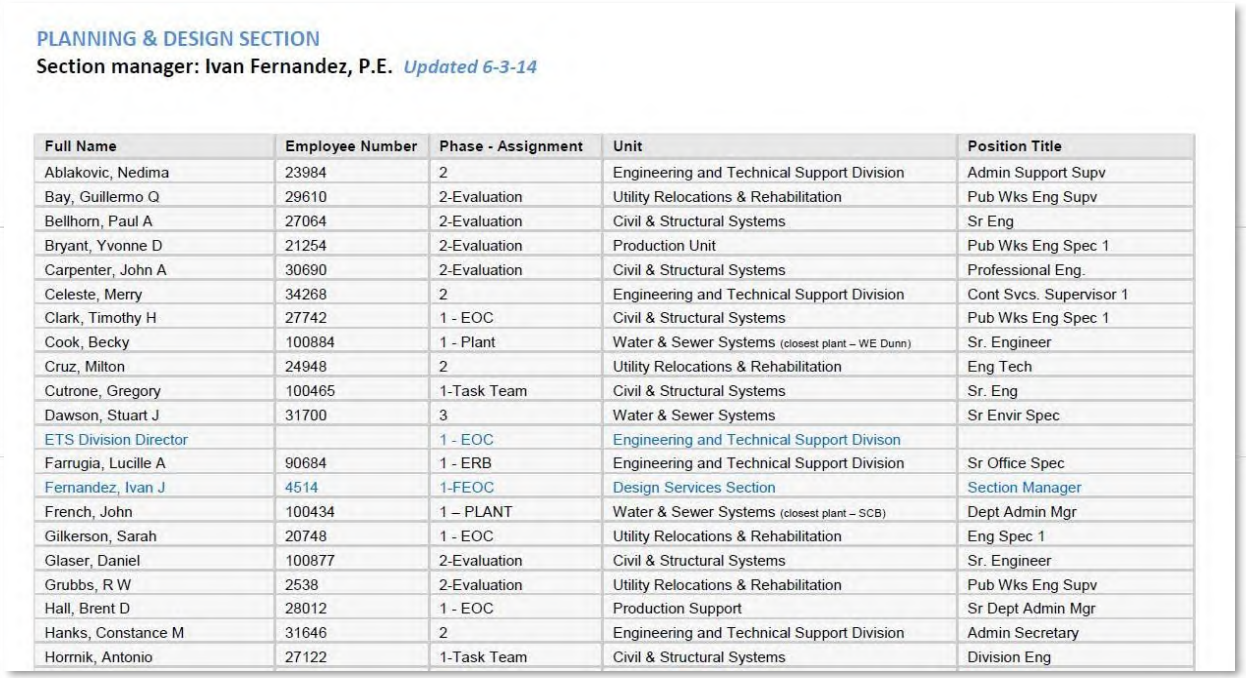
Figure 21: Pinellas County Sandbag Operations During Tropical Storm Elsa



3.4 Assignment Of Resources

In addition, each department maintains their standard operating procedures that outline the personnel, sequence, and timeline of activities to carry out during times of emergency. Specific tasks are assigned to departments to handle response and recovery activities. Furthermore, a department maintains the list of assigned personnel for specific teams or tasks (*Figure 21).* The Logistics Section of the organization is responsible for receiving, inventorying, tracking, maintaining, distributing, and recovering communications equipment. In addition, each department maintains a listing of all available county equipment and staff identified for response and recovery operations, such as debris removal and disposal missions. Each equipment is assigned an asset number. *Figures 22* and *23* illustrate examples of equipment inventories maintained by PCPW for emergency situations. County staff maintain accurate records of time, personnel, materials and equipment for all expenditures relating to hurricane- caused damages.

Figure 22: Assigned Position and Phase Assignment Excerpt from Public Works Emergency Response Plan



PLANNING & DESIGN SECTION

Section manager: Ivan Fernandez, P.E. *Updated 6-3-14*

Full Name	Employee Number	Phase - Assignment	Unit	Position Title
Ablakovic, Nedima	23984	2	Engineering and Technical Support Division	Admin Support Supv
Bay, Guillermo Q	29610	2-Evaluation	Utility Relocations & Rehabilitation	Pub Wks Eng Supv
Bellhorn, Paul A	27064	2-Evaluation	Civil & Structural Systems	Sr Eng
Bryant, Yvonne D	21254	2-Evaluation	Production Unit	Pub Wks Eng Spec 1
Carpenter, John A	30690	2-Evaluation	Civil & Structural Systems	Professional Eng.
Celeste, Merry	34268	2	Engineering and Technical Support Division	Cont Svcs. Supervisor 1
Clark, Timothy H	27742	1 - EOC	Civil & Structural Systems	Pub Wks Eng Spec 1
Cook, Becky	100884	1 - Plant	Water & Sewer Systems (closest plant – WE Dunn)	Sr. Engineer
Cruz, Milton	24948	2	Utility Relocations & Rehabilitation	Eng Tech
Cutrone, Gregory	100465	1-Task Team	Civil & Structural Systems	Sr. Eng
Dawson, Stuart J	31700	3	Water & Sewer Systems	Sr Envir Spec
ETS Division Director		1 - EOC	Engineering and Technical Support Divison	
Farrugia, Lucille A	90684	1 - ERB	Engineering and Technical Support Division	Sr Office Spec
Fernandez, Ivan J	4514	1-FEOC	Design Services Section	Section Manager
French, John	100434	1 – PLANT	Water & Sewer Systems (closest plant – SCB)	Dept Admin Mgr
Gilkerson, Sarah	20748	1 - EOC	Utility Relocations & Rehabilitation	Eng Spec 1
Glaser, Daniel	100877	2-Evaluation	Civil & Structural Systems	Sr. Engineer
Grubbs, R W	2538	2-Evaluation	Utility Relocations & Rehabilitation	Pub Wks Eng Supv
Hall, Brent D	28012	1 - EOC	Production Support	Sr Dept Admin Mgr
Hanks, Constance M	31646	2	Engineering and Technical Support Division	Admin Secretary
Hormik, Antonio	27122	1-Task Team	Civil & Structural Systems	Division Eng

Figure 23: Example Vehicle Inventory

ASSIGNED		ASSIGNED VEHICLE/EQUIPMENT	STAGING AREA	ASSET NUMBER
MODEL	NAME			
CONSTRUCTION PW COST CENTER (LT xxxxxx EC)				
2014 Ford Exp 4 x 4	Bixler, Mike	22211 US 19, Bldg 16	Will Keep	119227
98 F 150 4 x 4	Demyan, Mark	22211 US 19, Bldg 16	Will Keep	87258
2014 Ford Exp 4 x 4	DeMoss, Joe	22211 US 19, Bldg 16	Will Keep	119229
2014 Ford Exp 4 x 4	Gildea, Richard	22211 US 19, Bldg 16	Will Keep	119238
2014 Ford Exp 4 x 4	Hunt, Joe	22211 US 19, Bldg 16	Will Keep	119244
09 Colorado UP 4 x 4	Johnson, Kevin	22211 US 19, Bldg 16	Will Keep	112857
2014 Ford Exp 4 x 4	Lafita, Angel	22211 US 19, Bldg 16	Will Keep	119242
2014 Ford Exp 4 x 4	Lanier, William	Keystone Rd Field Office	Will Keep	119240
2014 Ford Exp 4 x 4	Linton, John	22211 US 19, Bldg 16	Will Keep	119234
2014 Ford Exp 4 x 4	Mowry, Brian	22211 US 19, Bldg 16	Will Keep	119241
05 Silverado PU	Parrish, Joseph	22211 US 19, Bldg 16	Will Keep	431470

Figure 24: Example Emergency Kit Inventory

Inventory No.	Item Description	Purchase Price (each)	Quantity	Location
Tote 1				
Bag for each Task Team 1 person per team	Rope		1	2nd Floor Closet
	Sunscreen		1	2nd Floor Closet
	Protective Goggles		1	2nd Floor Closet
	Flat blade screwdriver		1	2nd Floor Closet
	Leather Gloves		1	2nd Floor Closet
	Hand Sanitizer		1	2nd Floor Closet
	Dust Mask		1	2nd Floor Closet
	Rubber boots		1	2nd Floor Closet
	4 ft. carpenter's level		1	2nd Floor Closet
	Measuring tape – 25 ft		1	2nd Floor Closet
	Range pole/probe		1	2nd Floor Closet
	Tool belt w/ tool pouch		1	2nd Floor Closet
	Plumb bob		1	2nd Floor Closet
	Flashlight		1	2nd Floor Closet
	Chipping Hammer w/ leather holder		1	2nd Floor Closet
	Spray paint – Orange		1	2nd Floor Closet
	Hip waders		1	2nd Floor Closet
Tote 2				
	Rope		1	2nd Floor Closet
	Sunscreen		1	2nd Floor Closet
	Protective Goggles		1	2nd Floor Closet
	Flat blade screwdriver		1	2nd Floor Closet
	Leather Gloves		1	2nd Floor Closet

3.5 Post Disaster Response And Recovery Phases

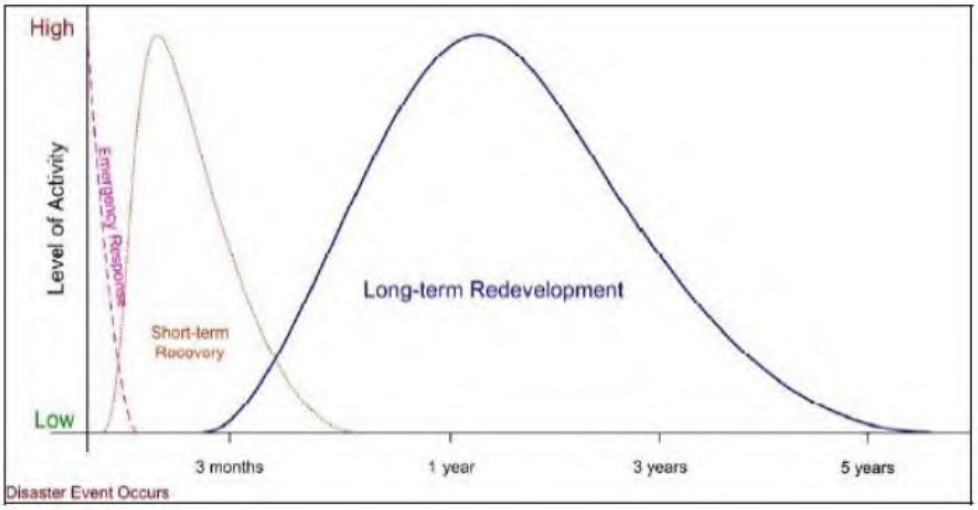
The *Pinellas County Post-Disaster Redevelopment Plan* (PDRP) identifies policies, operational strategies, and roles and responsibilities for implementation that will guide decisions that affect long-term recovery and redevelopment of the community after a disaster. The plan emphasizes seizing opportunities for hazard mitigation and community improvement consistent with the goals of local comprehensive plans. Recovery topics addressed in the plan include business resumption and economic redevelopment, housing repair and reconstruction, infrastructure restoration and mitigation, short-term recovery actions that affect long-term redevelopment, sustainable land use, environmental restoration, and financial considerations as well as other long-term recovery issues identified by the community.

The purpose of the plan is to provide Pinellas County and other local governments with a countywide reference for guiding action and decision-making during the difficult disaster recovery period, as well as detailing actions that can be taken before a disaster strikes to speed the recovery process and make the community more disaster resilient. It addresses disaster recovery and redevelopment issues with long-term implications. It does not address immediate response and emergency operations as those are already covered by the CEMP.

The PDRP is an action-oriented plan outlining, where applicable and appropriate, a countywide implementation approach. Several Steering Groups representing county, municipal, non-profit and private stakeholders developed Action Plans for different subject areas that can be implemented, as needed.

The PDRP assumes three overlapping periods of recovery; the Immediate Emergency Period, the Short Term Restoration Period, and the Long Term Reconstruction Period (*Figure 24*). The length of time of the various post-disaster phases will vary with each disaster. Response activities are contained within the Emergency Support Functions of the Comprehensive Emergency Management Plan and include immediate actions to save lives, protect property, meet basic human needs, and begin to restore water, sewer, and other essential services. During the Response period, a determination of whether the PDRP should be activated will be the only implementation activity. Short-term Recovery period encompasses such activities as damage assessments, public information, transition from shelters to temporary housing, utility restoration, and debris clearance. There are three major components to the Long-term Redevelopment period: reconstruction, holistic long-term recovery, and community enhancement.

Figure 25 Potential Timeline for a Major Disaster Scenario



Short-term recovery activities are those activities that have to take place following a disaster in order for citizens to return to their homes. They are typically initiated in the County EOC while in emergency response mode. Short-term recovery activities include such functions as: implementing a curfew; conducting impact assessments; re-establishing the critical infrastructure necessary for community reconstruction; re-establishing critical services that meet the physical and safety needs of the community (e.g., water, food, ice, medicine and medical care, emergency access, and continuity of government operations), and coordinating re-entry procedures.

During this phase, the PDRP Construction, Permitting and Mitigation Work Group will provide recommendations to the Steering Group on the permitting of temporary housing, emergency repairs, repair and restoration of buildings in unincorporated Pinellas County at the beginning of the short-term recovery phase. The Group will also address issues regarding disaster permitting, temporary moratoria, temporary emergency repairs, contractor licensing, contractor fraud, adequate construction materials and available contractors and skilled construction workers, code enforcement, blight and abandoned homes, mitigation during rebuild and repair, and funding assistance and insurance problems.

Pinellas County has also developed a Countywide Disaster Housing Plan ordinance that allows for temporary flexibility of land use regulations and zoning codes in the aftermath of a disaster resulting in a declared housing emergency.

Long-term recovery involves those activities that are taken to return the community to the conditions that existed before the disaster or emergency occurred, preferably while taking advantage of opportunities to mitigate against the impacts of future disasters. Long-term recovery activities can last for many years following a disaster. They include activities such as: redevelopment; environmental preservation and restoration; rebuilding; construction; repairs; and restoration. Economic recovery and business assistance are some of the most

important long-term recovery activities that must take place for a community to fully recover from a disaster.

During this phase there is tremendous pressure to build back quickly and restore or replace what was damaged or destroyed. The best practice for post-disaster redevelopment is to restrict rebuilding in hazardous locations and require mitigation where vulnerable redevelopment cannot be precluded.

Through the PDRP process, key issues such as how the community will address build back policies and non-conforming uses and structures were addressed. Disasters may provide some opportunity to propel the vision developed for the county in the Local Comprehensive Plan, Land Development Regulations (LDRs), and Economic Redevelopment Plans. This includes opportunities to implement mitigation measures to enhance protection of both community properties and private properties.

Following a disaster there is tremendous pressure to build back quickly as well as to balance the needs of survivors. As such, the County prepared an emergency ordinance for a temporary moratorium in heavily damaged areas to allow sufficient time for review of reconstruction permits yet expediting minor or moderate repairs. The PDRP strategies centered on permit requirements and mitigation measures during redevelopment are detailed in the Land Use, Housing and Mitigation Action Plan.

Pinellas County also takes actions that support property protection measures that could be carried out during response and recovery phases. These activities include educating the public about home property protection measures and mitigation activities to prevent or reduce damage from flood. Media blasts can be issued to the news venues, social media, and other outlets to inform people about protecting themselves and their property. Protection measures that can be taken to protect a property include:

- Inspect and clear gutters frequently
- Get a permit and hire a licensed contractor.
- Use flood-resistant materials and techniques.
- Raise switches, sockets, circuit breakers, and wiring.
- Mark the fuse or breaker box to show the circuits to areas vulnerable to flooding
- Elevate equipment such as hot water heaters and A/C units as much as possible.
- Elevate the entire structure above flood levels.
- If building new or elevating the existing structure, consider building stronger to withstand future storms.
- Inspect sanitary sewer lateral and install a sewer line check valve to prevent sewer backup flooding.
- Buy flood insurance and understand what is covered.

In the case of older structures that are significantly damaged, Pinellas County's ordinance requires these structures to be rebuilt to the current and more restrictive codes to prevent future losses. PCBDRS conducts substantial damage inspections after a major storm. During these inspections, staff distributes informational door hangers to the affected areas to advise residents what they can do and what resources are available to them.

After the storm, PCPW will visit areas that have flooded and record highwater marks. This information will be used by PCPW to evaluate potential best management practices to reduce the flooding. Protection measures that the County develops may include adding storage for flood attenuation, low impact development, new stormwater infrastructure, retrofits, and other measures. All these activities help to prevent property losses.

3.6 Demobilization

As conditions in the community evolve an assessment by the local jurisdiction or Pinellas County EOC will be conducted to determine when and how disaster support can be demobilized. Following minor to moderate incidents, demobilization may be as simple as the local jurisdiction or EOC Director downgrading the activation level and releasing representatives. However, larger, or catastrophic disasters may include significant assets working outside the physical confines of the EOC, warranting a fully developed incident demobilization plan developed by the EOC Planning Section and approved by the EOC Director.

3.7 Close Out and After Action

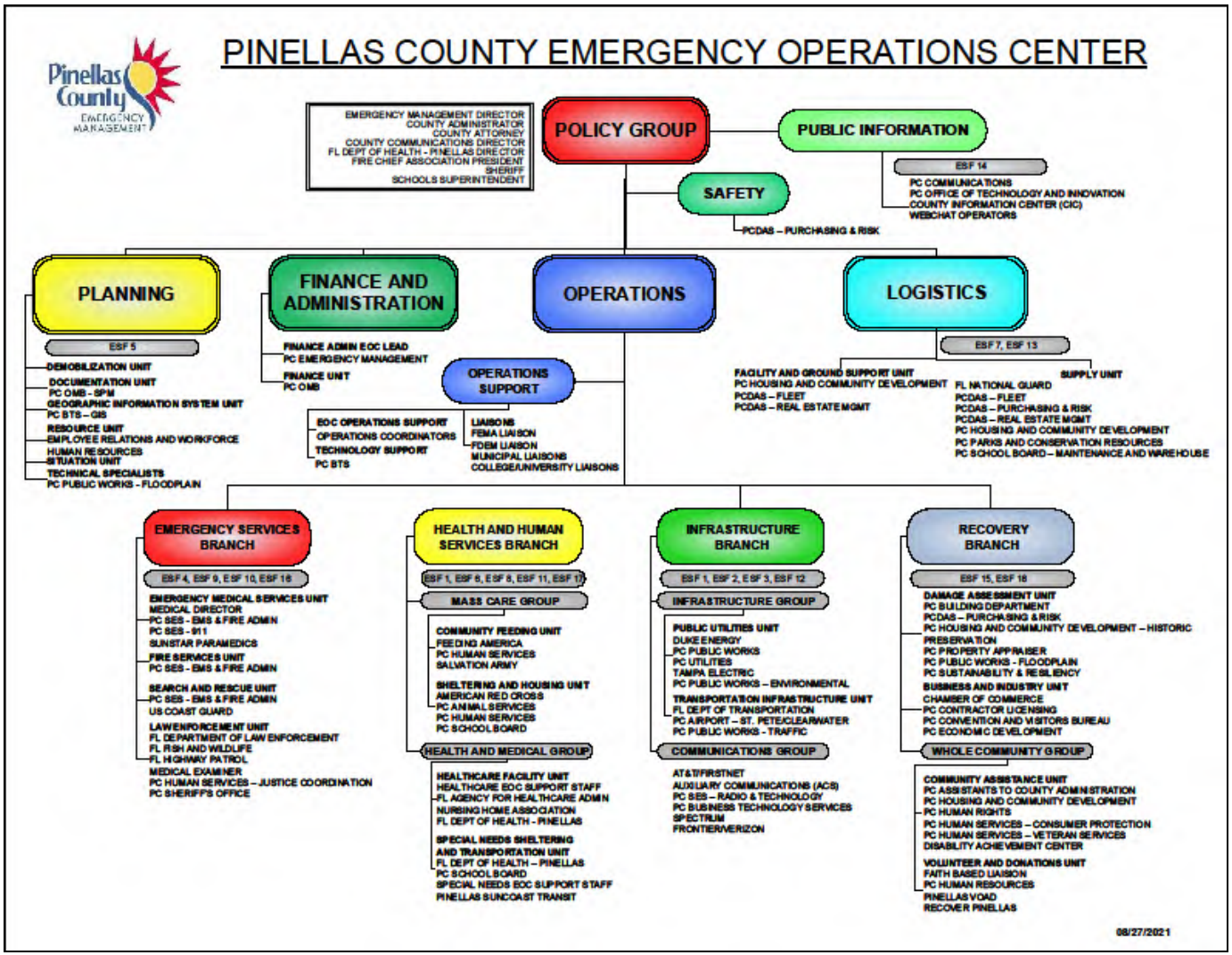
All documentation and records pertaining to the incident will be collected, retained per County protocols and in accordance with federally declared disasters, as applicable. A summation of events will be developed to record actions and After Action or Hot Wash meetings will be held to document any areas that need improvement and subsequent meeting to address any corrective measures may be held. All updates and changes identified during the After Action meetings will be incorporated into a After Action Report and will be shared with all applicable agencies including the PCPW Floodplain Administrator for incorporation into applicable plans.

APPENDICES

Appendix 1: List of Acronyms

CEMP	Comprehensive Emergency Management Plan
CFP	Critical Facilities Planning
COOP	Continuity of Operations
EAS	Emergency Alert System
EMS	Emergency Medical Services
EOC	Emergency Operations Center
ESF	Emergency Support Function
EWD	Emergency Warning Dissemination
FDEM	Florida Division of Emergency Management
FEMA	Federal Emergency Management Agency
FRO	Flood Response Operations
FTR	Flood Threat Recognition System
GIS	Geographic Information System
LDR	Land Development Regulations
LMS	Local Mitigation Strategy
NFIP	National Flood Insurance Program
NHC	National Hurricane Center
NOAA	National Oceanic and Atmospheric Administration
NWS	National Weather Service
PCBDRS	Pinellas County Building Development and Review Services
PCC	Pinellas County Communications
PCEM	Pinellas County Emergency Management
PCPW	Pinellas County Public Works
SFHA	Special Flood Hazard Areas
SLOSH	Sea, Lake and Overland Surges from Hurricanes
SOG	Standard Operating Guide
USGS	United States Geological Survey
WAND	Warning and Notification Database

Appendix 2: EOC Organization Structure



Appendix 3: Hazard Analysis

Chapter 4-1 of the Pinellas County LMS describes the hazards that affect Pinellas County, including flood, wind, erosion, wildfire, and other natural and manmade hazards. The LMS contains an in-depth discussion of the natural hazards, including inland flooding, coastal flooding, hurricanes, and tropical storms. This plan focuses on the flood hazards that affect Pinellas County, including the developments exposed to flooding and the expected impacts to the health and safety of residents in the community. In addition to the information presented here, Pinellas County is affected by flooding nearly every year. These floods have caused extensive damage and loss of life in the past.

Causes Of Flooding

Flooding for Pinellas County is often attributed to coastal flooding, hurricanes and tropical storms, and inland flooding from heavy rainfall.

Coastal Flooding

Pinellas County is a peninsula, which makes it extremely vulnerable to coastal flooding, particularly on the barrier islands and in other low-lying areas along the coastline identified on the NFIP Flood Insurance Rate Maps and local governments' repetitive loss areas. The County has experienced several damaging coastal floods caused by wind-driven water associated with low-pressure systems or frontal boundaries. This flooding can be exacerbated at times of high-tide. The damaging effects to structures in the coastal areas are caused by a combination of high levels of storm surge, winds, waves, heavy rain, and erosion. Losses can occur over short periods or may have long-term effects.

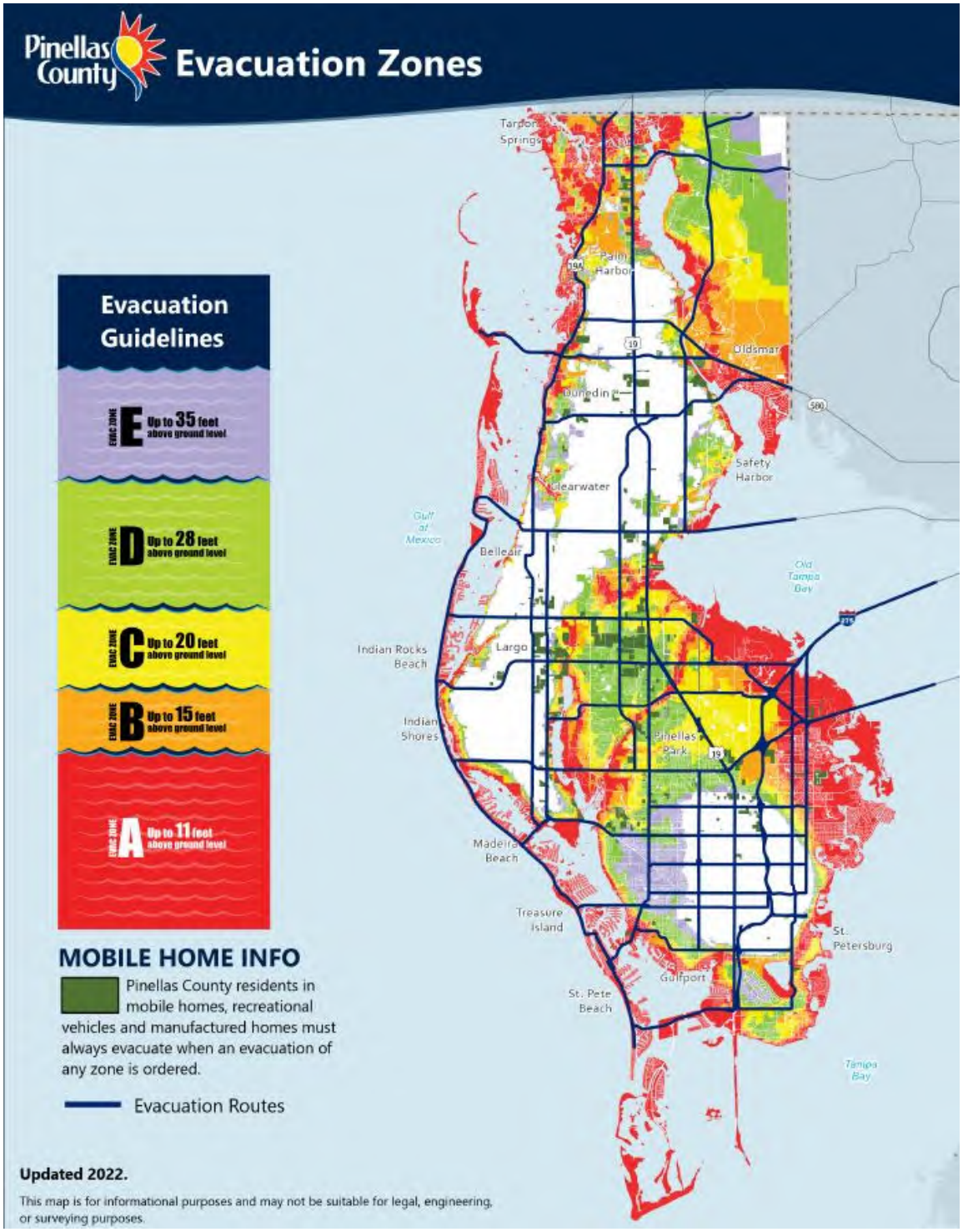
Hurricanes And Tropical Storms

Hurricanes are the natural disasters that pose the greatest threat to Florida and Pinellas County because of their relatively high frequency and potential to cause widespread casualties and property/infrastructure damage. Hazards often associated with hurricanes and tropical storms include storm surge, high winds, and heavy rainfall. Of the hurricane hazards, storm surge typically poses the greatest threat to lives and property located within surge-prone areas. The more intense the hurricane, and the closer to perpendicular its track is, in relation to the coastline, the higher the storm surge and resulting destruction will be. High winds may render large portions of the county vulnerable to the passing hurricane.

Throughout Unincorporated Pinellas County, the more than 43,000 mobile and manufactured homes will be unable to withstand hurricane-force winds.

Since the structure of every hurricane is unique, there is no way to determine the rate and distribution of the expected six to twelve inches of rainfall generally accompanying the storm. Storms that move slowly or stall may drop large amounts of rain, regardless of the category of storm. Localized evacuations for homes inundated by flood waters may be necessary after an event, as opposed to storm surge flooding which may necessitate evacuation prior to landfall. *Figure 25* illustrates the 2022 Evacuation Zones.

Figure 26: 2022 Storm Surge Zones (from Pinellas County Emergency Management)



Historically Pinellas County can expect a hurricane to affect us at least once every 4.5 years. The occurrence of a hurricane impacting the Tampa Bay area on an annual basis is high. The worst-case scenario for Pinellas County is a Category 5 Hurricane heading northeast at less than 15 miles per hour that makes landfall at high tide along the barrier island communities of mid-Pinellas County. A storm surge of over 30 feet at some coastal locations would inundate large areas of the county, while sustained winds of over 155 miles per hour with even higher gusts would destroy thousands of homes and cause damage to thousands more.

The principal tool for analyzing the expected hazards from potential hurricanes that may affect the Tampa Bay Region is the Sea, Lake, and Overland Surges from Hurricanes (SLOSH) numerical storm surge model. The SLOSH model predicts the tidal surge heights that result from test data about hypothetical hurricanes with various combinations of pressure, size, forward speed, track, and winds. Pinellas county has integrated all of the SLOSH data from the NHC into PELICAN, including directional analyses by forward speed. Pre-planning for the areas and numbers of people and critical facilities is done to assist with educating stakeholders on risk and real-time decision-making.

Inland Flooding

Thunderstorms and heavy rainfall affect Pinellas County on a frequent basis, especially in the rainy summer months (June through September). These storms often produce intense rainfall with flood impacts in many sections of Pinellas County. This problem becomes more severe if the heavy rainfall occurs at the same time as the astronomical high tide, which prevents much of the rainwater from flowing through the drainage system into the Gulf of Mexico or Tampa Bay.

The FEMA FIRM maps can be a good indication of where potential flooding issues are within Pinellas County. They represent detailed studies conducted by FEMA and others that describe the flooding potential for major riverine systems as well as coastal flooding. The flood data describe areas of high risk, including the 100-year and 500-year flood zones. They also describe the V Zones, which represent the most hazardous areas and generally include the beach properties. These are high hazard areas due to the wave velocities. *Figure 26* illustrates areas identified by FEMA Special Flood Hazard Areas (SFHA). These are areas that are at the highest risk of flooding and were delineated using results from either riverine hydrologic & hydraulic models or coastal storm surge model. The model results are then compared to the local topography and the area predicted to be inundated make up the SFHA.

Figure 27: FEMA Special Flood Hazard Zones



In addition, Pinellas County conducted watershed management plans that identify these areas at risk in more detail, often using more updated data and incorporating the County's local knowledge of flooding issues. These plans describe the developments that are exposed to flooding, and include:

1. Allen's Creek
2. Anclote River
3. Bishop Creek and Mullet Creek
4. Brooker Creek
5. Clearwater Harbor / St Joseph Sound
6. Cross Bayou
7. Curlew Creek and Smith Bayou
8. Joe's Creek
9. Klosterman Bayou
10. Lake Seminole
11. Lake Tarpon
12. Long Branch
13. McKay Creek
14. Roosevelt Creek
15. Starkey Basin

The results of these plans help to identify those areas that are vulnerable to flooding from both small storms as well as less frequent, larger storms. *Figure 27* illustrates the areas identified to have a high potential for flooding based on the County's watershed management plans. The models not only indicate the extent of flooding, but can provide valuable information that includes:

- Flood elevation
- Depth of flooding
- Duration of flooding
- Areas of high flow or velocity

Figure 28 illustrates an example of the flood information for a segment of McKay Creek.

Figure 28: Pinellas County 100YR/24HR Flood Hazard Areas



Figure 29: Flood Elevation, Depth, Velocities and Duration (McKay Creek)



Historical Flooding

Based on historical information, Pinellas County remains highly vulnerable to inland flooding from heavy rains, high tide on the barrier islands and in other low-lying areas along the coastline identified on the NFIP Flood Insurance Rate Maps and local governments' repetitive loss areas. Examples of past flooding events include:

- June 1974: During the period of June 22 through June 30, 1974, Pinellas County received between 20 and 30 inches of rain. Damage to public and private property totaled more than $20 million.
- May 1979: Flooding occurred when 10-18 inches of rain fell in Pinellas County on May 8, 1979. The massive rain event led to three deaths in St. Petersburg. One woman drowned when her truck was swept down a flooded street. Another woman and her 12-year-old daughter were sucked into a drainage ditch. About 200 people were evacuated from their homes in Tyrone and St. Petersburg. 17.6 inches of rain fell in St. Petersburg during a 14-hour period. Shore Acres received 12.4 inches, while Seminole received 10.78 inches, and Tyrone received 8.7 inches. Several roads and bridges were washed out. (*The Evening Independent*, 8/9/1979 and the NWS)
- September 1979: During the months of August and September 1979, Central Florida, including Pinellas County, experienced the most significant period of rainfall in over three decades. In some areas, the two-month rainfall total was more than 40 inches.
- September 1988: After a week of light to moderate rains, flooding began to occur county-wide. Areas of Pinellas Park, Clearwater and Dunedin were hardest hit. 13.25 inches of rain were recorded.
- September 1997: Thirty-hour rainfall totals of 8 to 14 inches caused flooding of roads, highways, homes, commercial buildings, low-lying areas and rivers over much of Pinellas and Hillsborough Counties. In St. Petersburg, a 13-year-old female was swept into a storm drain while playing in floodwaters at a city park on 36th Avenue N. and Eighth Street at 7 pm EST. She was dragged into raging waters underground for 2 blocks before she emerged and was rescued by firefighters. In St. Petersburg, floodwaters carried a 23-year-old woman twelve blocks underground in a drain before she was dumped into a retention pond with only minor injuries. Another woman was playing at Booker Creek under a wooden bridge with two children when she lost her footing and was carried off by the fast-moving flood waters. The heaviest rainfall and subsequent flooding occurred over the cities of Gulfport, Pinellas Park and St. Petersburg in southern Pinellas County. (National Climatic Data Center Storm Events and the NWS).
- February 2006: The combination of tropical moisture flowing into a line of thunderstorms and an approaching upper-level disturbance allowed a train of intense thunderstorms to repeatedly cross over parts of the Tampa Bay area on February 3, 2006. Between 8 and 11 inches of rain fell in roughly a five-hour period

in a five-mile-wide stripe extending from Madeira Beach northeast through Pinellas Park, then across Old Tampa Bay to west Tampa, including Tampa International Airport. The area of heaviest rain was so concentrated that downtown St. Petersburg, less than 10 miles away recorded less than an inch of rain during the same period. The torrential rains caused flash flooding in the areas where more than eight inches fell. The flash flooding prompted the mayor of St. Petersburg to term the event a "hundred-year flood." In Lealman, an entire mobile home community was evacuated, and at least 69 of the homes were flooded. A partial roof collapse was reported at a big box store in St. Petersburg. Water pouring into the store washed out several cash register stands and injured one employee as he was washed into the parking lot. Another roof collapsed at Treasure Island. Hundreds of vehicles were stranded by the flood waters. Total property damage was estimated at $2.0 million. Rainfall amounts measured in Pinellas County include Pinellas Park (Upper Highlands Canal): 11.17 inches, Saint Petersburg/Clearwater International Airport: 8.20 inches, Seminole: 7.01 inches, Largo: 6.44 inches, and Clearwater: 5.81 inches.

- June 2012: Tropical Storm Debby: Tropical Storm Debby caused extensive flooding in North Florida and Central Florida during late June 2012. The fourth tropical cyclone and named storm of the 2012 Atlantic hurricane season, Debby developed from a trough of low pressure in the central Gulf of Mexico on June 23. In St. Petersburg, a wind gust of 45 mph was observed. The NWS reporting stations around Pinellas recorded 14.28 inches in Tarpon Springs, 13.66 in Largo, 12.60 in Oldsmar, 12.28 in Pinellas Park, 12.27 in Dunedin and 10.61 in St. Petersburg. There was substantial beach erosion. Portions of Upham Beach in Pinellas County were completely eroded up to the seawall and other areas in that county had lost 20 to 30 ft of sand. On Treasure Island, coastal dunes were eroded by 10 to 15 ft. In Pass-a-Grille, Debby's storm surge flooded coastal hotels with ankle-deep water as the dunes were washed away. Throughout St. Pete Beach, 30–40 homes were damaged by a tornado spawned by Debby. Losses throughout the county were estimated at over $1.5 million.
- June 2013: TS Andrea: Tropical Storm Andrea brought flooding to Cuba, the Yucatan Peninsula, and portions of the East Coast of the United States in June 2013. The first tropical cyclone and named storm of the annual hurricane season, Andrea originated from an area of low pressure in the eastern Gulf of Mexico on June 5. Despite strong wind shear and an abundance of dry air, the storm strengthened while initially heading north-northeastward. Later on June 5, it re-curved northeastward and approached the Big Bend region of Florida. Forecasters issued a tornado warning for Pinellas County as the storm moved north past the County. Minor to moderate flooding was forecast through the event with potential coastal storm surges of 2 to 5 feet. Forecasters also sent out a flood advisory for Pinellas, warning of urban and small stream flooding. Over 4.82 inches of rain had fell in Largo, Gulfport saw 3.71 inches of rain and a tornado touchdown that caused damages to a commercial district.

- July 2015: Areal Flood event: A late July early August stubborn low-pressure system stalled over central Florida bringing torrential rain to the Tampa Bay area. The NWS issued flood warnings for parts of Pasco, Pinellas and Hillsborough. Tampa shattered a 42-year- old record for the amount of rainfall for Aug. 1. when it received 3.1 inches of rain in one day. Over 14.46 inches of rain fell from July 28 – August 4 in the City of Clearwater.
- June 2016: TS Colin: Tropical Storm Colin was an atypical, poorly organized tropical cyclone, Colin developed from a low-pressure area over the Gulf of Mexico near the northern coast of the Yucatán Peninsula late on June 5, 2016. Moving northward, the depression strengthened into a tropical storm about eight hours after formation. The storm produced heavy rainfall over portions of Florida, resulting in flooding in some areas, especially Hillsborough and Pinellas counties. There, the freshwater flooding was compounded by coastal flooding from high tides. Winds caused over 93,300 power outages throughout the state. The storm spawned two tornadoes, one of which knocked down trees and damaged several cars and homes in Jacksonville. In Pinellas County, rainfall amounts peaked at 17.54 in the City of Seminole. Tropical storm force wind gusts were observed at several locations, though few locations reported sustained tropical storm force winds. A mobile home park in Clearwater was flooded, while water entered some homes in St. Pete Beach. Floodwaters overwhelmed the sewage system, forcing the city to pump partially treated sewage into Tampa Bay. Heavy rainfall in St. Petersburg resulted in water entering the hallway at St. Petersburg High School while school was in session. Overall, damage in the Tampa Bay area totaled over $10,000.
- January 2017: A line of strong and fast-moving thunderstorms developed ahead of a cold front moving southeast through the Florida Peninsula. Breezy gradient winds were compounded by stronger thunderstorm wind gusts, some of which caused minor damage. Additionally, the persistent gradient winds caused minor coastal flooding. Water was observed to have risen 2.1 feet above the predicted high tide at Clearwater Beach. The city of Indian Rocks Beach also reported that beach erosion caused the loss of sand and damage to public signs and trash cans, totaling around $20,000 in damage.

Flooding Hotspots

Pinellas County geocoded the historical claims data. This data was overlaid with other data, such as topographic information, FEMA flood zones, historical flooding complaints, and other information to identify areas within the County that are at risk for flooding. In addition, Pinellas County Public Works staff maintain an inventory of problem areas, or ‘hot spots,’ in the conveyance system. The County uses an enterprise maintenance management system to track the inspections and maintenance of the hot spots. In addition to the normally scheduled inspections, these locations are inspected before, during, and after major storm events. Field records are maintained in the management system, which allows staff to generate reports to monitor the problem area assets, observe trends, and identify new hot spots. Staff also identify flooding hot spots after a major storm and note the issues and lessons learned that

affect the various departments at the County. Projects to alleviate problems in these areas are incorporated into the County's Capital Improvement Program (CIP) based on prioritization and available funding. *Figure 29* illustrates an example for locations of hot spots.

Figure 30: Hot Spots



Repetitive Loss Areas Analysis

Pinellas County performed a repetitive loss areas analysis using the most recent repetitive loss properties data from FEMA, with the goal of reducing the number of repetitive loss properties (RLPs) within the County. A Repetitive Loss Structure is an NFIP-insured structure that has had at least two paid flood losses of more than $1,000 each in any 10-year period since 1978. In addition, a Severe Repetitive Loss (SRL) Structure is defined as a residential property that is covered under an NFIP flood insurance policy and (a) has at least four NFIP claim payments (including building and contents) over $5,000 each, and the cumulative amount of such claims payments exceeds $20,000; or (b) at least two separate claims payments (building payments only) have been made with the cumulative amount of the building portion of such claims exceeding the market value of the building. For both (a) and (b) above, at least two of the referenced claims must have occurred within any 10-year period and must be more than 10 days apart.

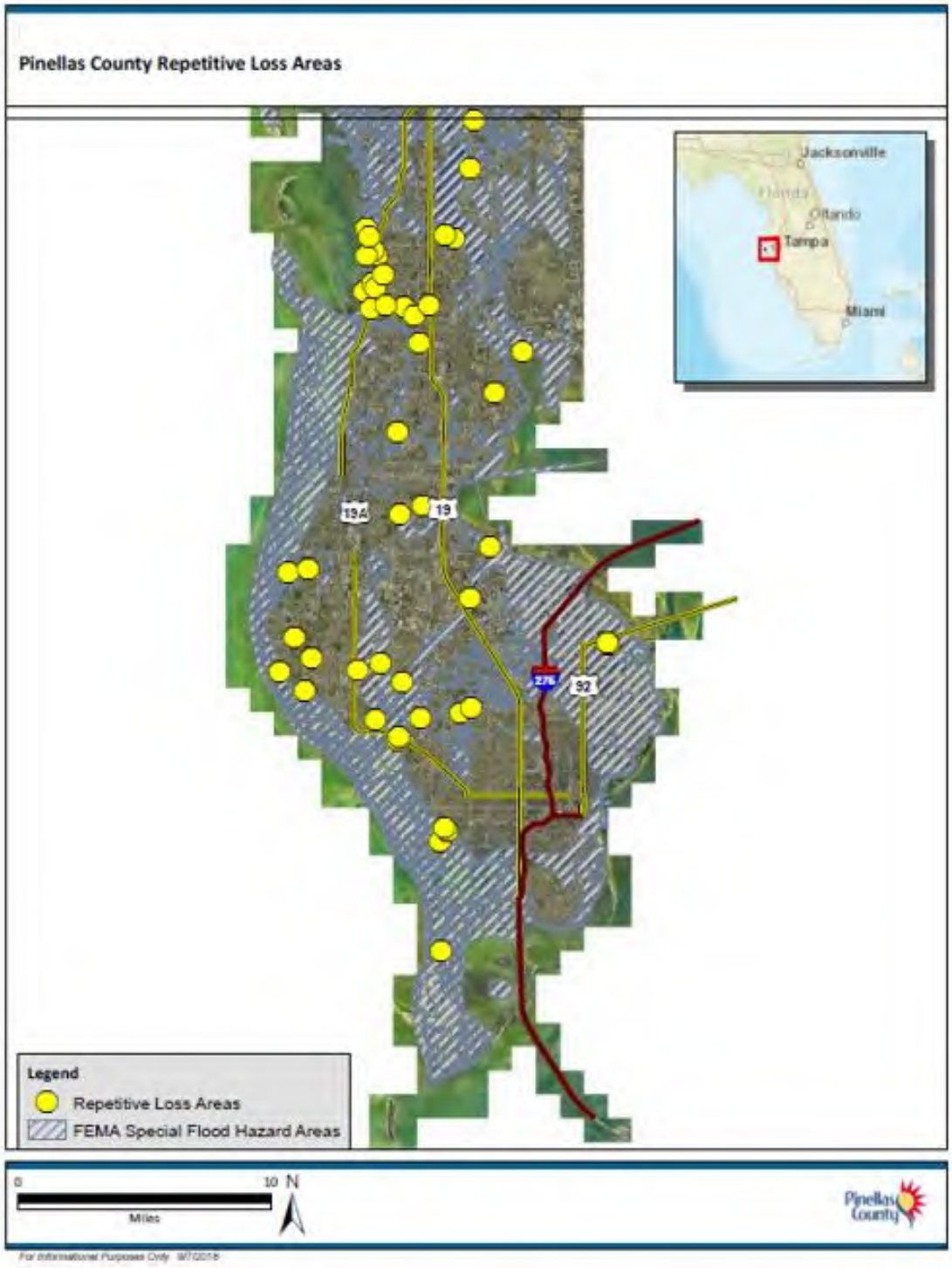
Pinellas County mapped the RLPs and evaluated nearby properties with the same potential for flooding. The repetitive loss areas include the properties on the repetitive loss list and all nearby properties that may experience similar flooding conditions. The repetitive loss areas were delineated based on compilation of the following data:

- Repetitive loss properties and data (e.g., number of losses and associated cost).
- LiDAR (elevation data, land slope).

- Conveyance system components (e.g., location and size of stormwater pipes, ditches, storage basins, work requests).
- Floodplains (e.g., WMP studies and FIRMs).
- Storm surge areas.
- Streetview.
- Historical flooding complaints.

Figure 30 illustrates the repetitive loss areas identified by the analysis. Flooding occurrences in these areas were due to significant storm events combined with structures located in or around water bodies. The terrain characteristics with respect to these structures can be described as low-lying areas with a high depth to the water table.

Figure 31: Pinellas County Repetitive Loss Areas



Development Exposed To Flooding

Pinellas County is vulnerable when a heavy rain event occurs. Hazard conditions become more significant if these events are accompanied by high tide and/or storm surge. These conditions can impact areas on the barrier islands and in other low-lying areas along the coastline identified on the NFIP Flood Insurance Rate Maps and repetitive loss areas. Inland flooding can also occur in depressional areas or areas having inadequate drainage systems. Prolonged periods of rainfall in these areas have the potential for causing damage to properties and could lead to evacuation of residents due to flooding.

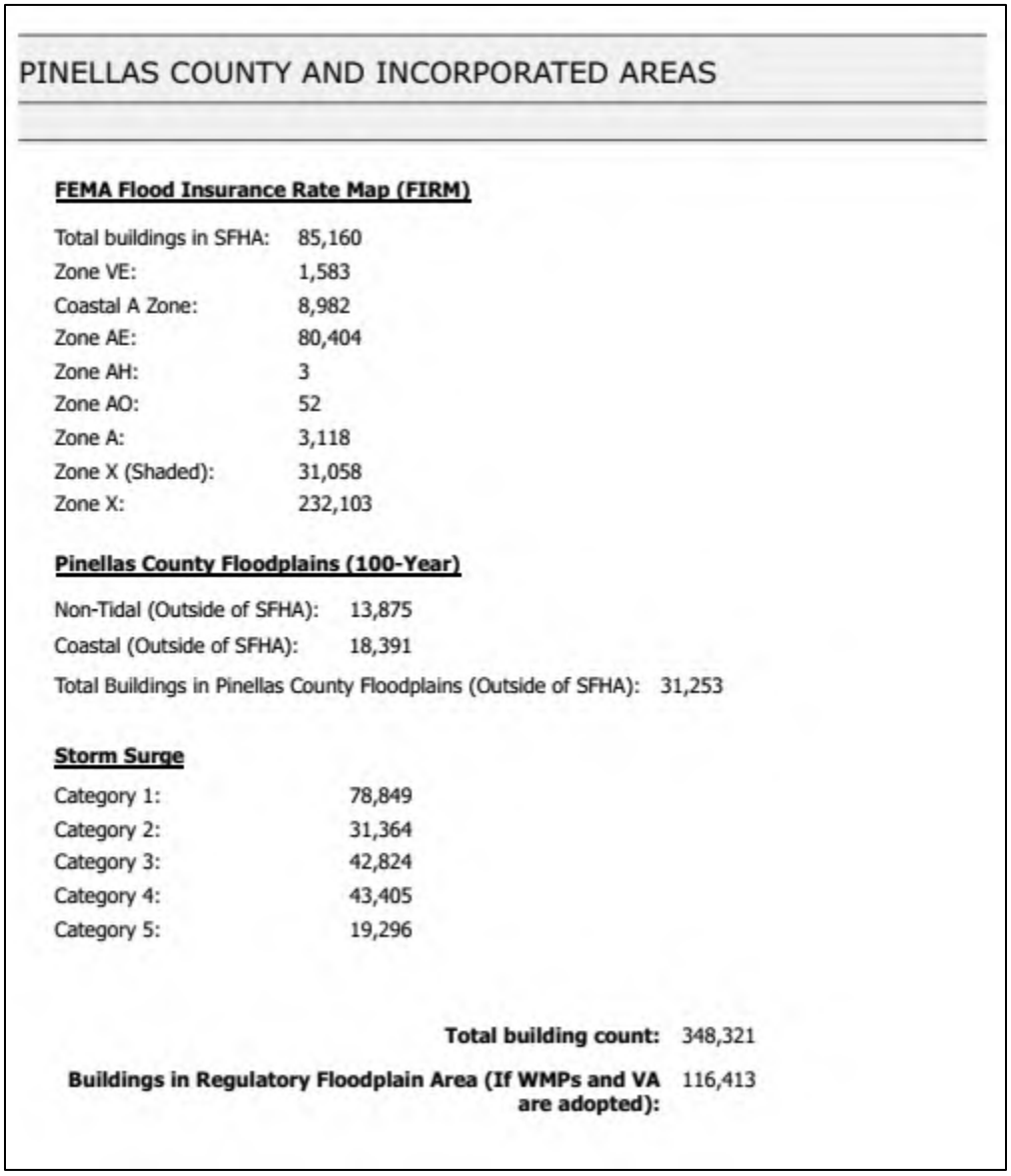
Types Of Land Exposed To Flooding

Although much of the floodplains are located in and adjacent to waterbodies, most of the areas in Pinellas County are built-out. In addition to natural floodplain areas such as streams and wetlands, many other types of land are also exposed to flooding. F describes the different types of land in Pinellas County that can be potentially affected by flooding and the impact flooding could have on the economy of the County.

Types Of Buildings Exposed To Flooding

There are well over 30,000 buildings currently within FEMA's SFHA. However, based on additional analyses by the County and taking into account other types of flooding hazards such as storm surge, the number of affected buildings can be significantly more. *Figure 32* summarizes the unincorporated Pinellas County development that is exposed to different types of flooding. These statistics were derived based on analyses using GIS data. The number of affected buildings were determined by overlaying GIS features for building footprints with the specific hazard features.

Figure 32: Development Exposed to Flooding



PINELLAS COUNTY AND INCORPORATED AREAS

FEMA Flood Insurance Rate Map (FIRM)

Total buildings in SFHA:	85,160
Zone VE:	1,583
Coastal A Zone:	8,982
Zone AE:	80,404
Zone AH:	3
Zone AO:	52
Zone A:	3,118
Zone X (Shaded):	31,058
Zone X:	232,103

Pinellas County Floodplains (100-Year)

Non-Tidal (Outside of SFHA):	13,875
Coastal (Outside of SFHA):	18,391

Total Buildings in Pinellas County Floodplains (Outside of SFHA): 31,253

Storm Surge

Category 1:	78,849
Category 2:	31,364
Category 3:	42,824
Category 4:	43,405
Category 5:	19,296

Total building count: 348,321

Buildings in Regulatory Floodplain Area (If WMPs and VA are adopted): 116,413

Critical Facilities

There are numerous Critical Facilities in Pinellas County that may be affected by flooding due to various types of natural hazards, including coastal flooding, storm surge, and significant rain events. .*Figure 32* summarizes the vulnerability of certain types of critical facilities to flooding. The impacts of flooding on the health and safety of individuals within health care facilities can be significant given the large elderly population in Pinellas County. Flood waters can contribute to a variety of health hazards for the people within these critical facilities, including drowning, contamination/diseases, mold, and other hazards. PCEM through the healthcare CEMP review process maintains a database of contacts to provide year-round planning information, and real time notification of impending or occurring events to notify these facilities to maintain the safety of its residents and continuity of its operations. The vulnerability of critical facilities to other natural hazards can also be found in the Pinellas County LMS. Section 5 describes the critical facilities plan in more detail.

Pinellas County in coordination with the State Division of Emergency Management maintains a detailed inventory of critical facilities. These facilities are considered essential for Continuity of Government and Continuity of Operations. They represent public and private resources necessary to ensure public safety, emergency response and continuation of mission essential functions. The list of critical facilities is exempt from public record under Florida Statute 119.07(1) for security purposes. The list will be provided to federal, state, regional and local agencies with emergency management responsibilities, but will not be provided in documents intended for public review.

Figure 33: Critical Facilities in Flood Risk Areas

Location	Number of Critical Facilities in Flood Risk Area					
	Effective FIRM			Preliminary FIRM		
	100-year	500-year	VE-Zone	100-year	500-year	VE-Zone
Belleair	0	0	0	0	0	0
Belleair Beach	3	0	0	2	1	0
Belleair Bluffs	0	0	0	0	0	0
Belleair Shore	0	0	0	0	0	0
Clearwater	24	3	6	26	5	0
Dunedin	6	9	2	3	14	0
Gulfport	2	0	0	1	0	1
Indian Rocks Beach	3	0	0	3	0	0
Indian Shores	7	0	1	8	0	0
Kenneth City	3	0	0	0	1	0
Largo	13	7	0	11	10	0
Madeira Beach	5	0	0	5	0	0
North Redington Beach	2	0	0	2	0	0
Oldsmar	5	22	0	15	13	0
Pinellas Park	20	32	0	7	21	0
Redington Beach	3	0	1	4	0	0
Redington Shores	3	0	1	4	0	0
Safety Harbor	1	2	0	1	1	0
St. Petersburg	87	23	0	78	26	1
St. Pete Beach	7	0	2	9	0	0
Seminole	10	4	0	4	9	0
South Pasadena	14	0	4	16	0	2
Tarpon Springs	7	11	0	2	13	0
Treasure Island	13	0	1	13	1	0
Unincorporated	60	31	5	35	36	8
PINELLAS COUNTY TOTAL	**298**	**144**	**23**	**249**	**151**	**12**

***Source: Pinellas County Local Mitigation Strategy, 2020**

Impacts To Life, Health, Safety And Community

This section describes the impact to life, safety, health, critical facilities and infrastructure, economy and buildings within Pinellas County from these flood hazards. Additional descriptions of the vulnerabilities and impacts from these hazards to life, health, safety and community functions can also be found in Pinellas County's LMS and Post-Disaster Redevelopment Plan).

Life Safety

In Florida, common hazards to life safety include coastal and inland flooding, tropical storms, hurricanes, and lightning. Deep, fast flowing, or rapidly rising floodwaters can cause physical injury and loss of life. A mere 6 inches of moving water can sweep a

person away. The risk for drowning and physical injury increases when floodwaters carry debris. Floodwaters can also hide other hazards for wading pedestrians, such as manhole openings where the covers have been lifted by flood flow. Vehicles, too, can be moved by 6 inches of flowing water. Roads can be washed away. Downed power lines or other energized systems in the water can cause electrocution.

The maximum threat to Pinellas County is a hurricane- generated storm surge from a landfalling storm striking the coastline during an astronomical high tide. This would place up to 232,310 persons at risk, as well as 126,932 dwelling units from a category 1 storm (up to 11' AGL). Surges can be especially dangerous because water levels can rise quickly and flood large areas. if people have not evacuated from the risk area this leaves no time to take action and poses a significant threat of drowning. During the peak of a storm surge, it is unlikely that emergency responders will be able to respond to a call for help. Therefore, it is very important for residents and visitors to heed early warnings from officials.

Pinellas County uses the Alert Pinellas Notification System to notify residents, businesses and property owners in cases of emergencies such as tropical storms, hurricanes and other major flooding issues.

Error! Reference source not found. describes the potential impacts to life safety of t hese and other identified hazards for Pinellas County.

Table 1: Potential Impacts on Life Safety in Pinellas County

Hazard	Probability of Occurrence	Potential Impact
Coastal Flooding	High	Major coastal flooding as result of storm surge and/or high tide in the County can pose a threat to human life.
Inland Flooding	High	Floodwaters have the potential to cause drowning. The risk for drowning and physical injury is increased if floodwater is carrying debris. Floodwaters can also hide other hazards for wading pedestrians, such as manhole openings where the covers have been lifted by flood flow.
Tropical Storm / Hurricane	High	Storm surge or flooding from tropical storms and hurricanes can be extremely dangerous, since water levels can rise quickly and flood large areas, potentially causing drowning. Additional dangers include flying debris, falling trees, and electrocution from downed power lines.
Dam Failure	Low	Potential impact of a dam failure is low.

Coastal Erosion	High	Coastal erosion accompanying tropical storms or hurricanes has a higher potential to cause injury or drowning.

In the event of a community emergency, Pinellas County has more than 30 emergency shelters for residents and visitors available as a last resort, including three pet-friendly shelters. Pinellas County provides a shelter program for those residents requiring special medically related care. Special needs shelters will be available for persons requiring more skilled medical care than available in a public shelter but not requiring an acute care facility such as a hospital. A listing of the shelters could potentially open is available on the Pinellas County website. Once a determination to open shelters has been made, the actual shelters that open will be communicated via media and updated on all of our GIS products, including Know Your Zone so residents can see the closest available shelter to them.

Public Health

Of all hazards, flooding presents the most prevalent risk to public health. Floodwater may be contaminated by various pollutants such as sewage, human and animal feces, pesticides and insecticides, fertilizers, oil, asbestos, rusting building material, and others. Prolonged flooding also provides breeding grounds for mosquitoes. Flooded homes are exposed to mold and mildew and can cause flood victims to contract upper respiratory diseases and trigger cold-like symptoms.

Power outages caused by hurricanes can present health concerns from food spoilage and high heat and humidity can cause heat exhaustion or heat stroke. Floodwaters present an additional health hazard when they inundate drinking water facilities, chemical and waste storage facilities, wastewater treatment facilities, and solid waste disposal sites.

A major storm can leave victims isolated without water and medicines. For individuals who are injured in the storm or whose care for chronic conditions lapses restoring medical care services is a public health priority.

Community Infrastructure

Significant impacts on the region's bridges - especially the approaches - are expected on all causeways including the Courtney Campbell Causeway, Howard Frankland Bridge, Gandy Bridge and the Skyway Bridge during extreme weather events, including hurricanes and tropical storms. Damage to the transportation infrastructure, and the fact that a storm can impact areas across the entire state, can slow the influx of recovery personnel and supplies into the area. Interstate 75 (I-75), Interstate 275 (I-275), and Interstate 4 (I-4) are expected to be the primary routes used to transport goods and people into and out of the affected zone during a response and recovery effort within the nine-county West Central Florida area and are the Florida Department of Transportation's top priority for debris clearance.

The loss of business facilities, utilities, and transportation are major impacts of flooding. The closure of roads and public transportation services can prevent employees from getting to work and employers from providing goods and services. The closure of businesses can affect the economy due to loss of revenue, fixed costs, replacement costs, and other expenses. In addition, there are several critical facilities located in storm surge vulnerable areas (in addition to the countywide vulnerability to hurricane-force winds). A discussion of storm surge-vulnerable facilities can be found in Section 5 of this plan.

A significant storm destroying a large segment of the power grid is the maximum threat likely to affect both Pinellas County's power source and distribution systems. If the outage lasts more than a few days, it may affect critical infrastructure including water/wastewater systems, health care facilities, communications, and transportation. However, there is a low probability that a total power failure will occur in Pinellas County; although, if it were to happen, the impact would be extremely high. Since the County is so densely populated, and there is a high number of elderly people who are electrically dependent, an extended period without power would have a significant impact. In addition, telecommunications are dependent upon power so an extended outage would have a substantial economic impact.

APPENDIX D – MITIGATION INITIATIVES

This appendix includes the mitigation measures or initiatives that are a result of the identification, evaluation, and prioritization of the proposed actions from the representatives on the LMS Working Group in Table D-1. The mitigation measures are consistent with the goals and objectives identified in the LMS as well as the defined priority methodology. Each proposed initiative is self-scored by the applicant using the standardized scoring sheet that was developed by the LMS Working Group. The tool allows the applicant to populate a series of low, medium, or high scores for a variety of criterion related to the following three overarching sections:

- Suitability (with 5 factors such as “Community Acceptance” and “Environmental Impact”)
- Risk Reduction (6 factors including “Scope of Benefits” and “Number of People to Benefit”)
- Cost (5 factors such as “Benefit to Cost Ratio” and “Financing Availability”)

Following the self-scoring of any new initiative, the LMS Scoring Committee reviews them. The Scoring Committee comprising of representatives from multiple jurisdictions, meets to review and re-adjust the self-scores to ensure that all the new initiatives are scored in a consistent manner. Any discrepancies determined by the scoring committee are brought back to the LMS Working Group for consensus on any possible items to be re-scored. Finally, the new projects are presented to the Working Group for further explanation by the applicant and acceptance to be added to the living list of potential measures. When funding becomes available to support these initiatives, the initiatives are reviewed and rescored by the Working Group to reflect the current needs and priorities, prior to applying for the available funding. A copy of a blank scoring sheet is provided within this appendix to offer further explanation of how projects are scored and prioritized.

An accounting of completed projects detailed by jurisdiction and showing cost data, an estimate of the total benefit, and source of funding is also provided in Table D-2.

Identification of Mitigation Measures

Mitigation measures implemented in Florida can be grouped into five general categories or approaches: preventive measures, property protection, emergency services, structural projects, natural resource protection, and public information.

Preventive Measures

Preventive measures keep problems from getting started or getting worse. The use of known hazard areas, like floodplains, can be limited through growth management strategies, land acquisition, or regulation. Building, zoning, planning, and code enforcement activities work hand-in-hand to implement public safety and mitigation goals in the most cost-effective manner.

Implementation of preventive measures is a local responsibility which involves planning, permitting, and development review.

Property Protection

Property protection refers to the actions which retrofit or relocate vulnerable properties including property acquisition, elevation of structures, hardening of structures (shutters), safe rooms, or flood proofing. Many of the measures listed are property protection strategies.

Structural Projects

Structural projects are typically engineering projects designed to reduce or redirect the impact of natural disaster (especially floods) away from at-risk population areas. Examples include reservoirs, levees, seawalls, channel modification, storm water management facilities, and drainage system maintenance. Stormwater management is a major task in urbanized areas such as Pinellas County and represents a significant part of local government budgets.

Natural Resource Protection

Natural resource protection preserves or restores natural areas or their natural functions. Park and recreation departments, conservation agencies, or wildlife groups usually implement such measures including wetland protection, riverine protection, erosion and sediment control, and beach renourishment projects.

Public Information Programs

Public information programs involve conveying risk to property owners and potential property owners and an awareness of mitigation actions they should take. Examples of these activities include flood maps and data, library resources, outreach projects, technical assistance, real estate disclosure information, and environmental education projects.

Project Name					
Submitted by:					
Project Cost:					
Project Description: (The description should					
Potential Funding Sources:		Partial funding from Town, HMGP			
Parameter		**Weighting Factor**	**Scoring Criteria**	**Score**	**Points**
Suitability		**30%**	**Rank each project with a score of either a 1 (low), 3 (medium) or 5 (high). Note that in some instances a 5 may be the most desireable score and in some cases it will be the least desireable score.**		
1	Appropriateness of the Project	40%	**5 - High:** Reduces vulnerability and is consistent with Local Mitigation Strategy (LMS) goals and plans for future growth. **3 - Medium:** Needed, but does not tie to identified vulnerability. **1 - Low:** Inconsistent with LMS goals or plans.	**1**	36
2	Community Acceptance	15%	**5 - High:** Accepted by most communities. **3 - Medium:** Accepted by most; may create some burdens. **1 - Low:** Not likely to be accepted by any community ("The not in my backyard" theory).	**1**	13.5
3	Environmental Impact	10%	**5 - Positive effect** on the environment. **3 - No effect -** environmentally neutral. **1 - Adverse effect** on the environment.	**1**	9
4	Consistent with Existing Legislation and/or Policies	10%	**5 - High:** Consistent with existing laws and policies. **3 - Medium:** New legislation or policy changes needed, but no conflicts identified. **1 - Low:** Conflicts with existing laws, regulations and/or policies.	**1**	9
5	Consistent with Existing Plans and Priorities	25%	**5 - High -** Consistent with existing plans and priorities. **3 - Medium -** Somewhat consistant with current plans and priorities. **1 - Low -** Conflicts with existing plans and priorities. Does not fit in with identified initiatives.	**1**	22.5
	Parameter Subtotal	100%	**sum of parameter scores; max =**	450	90
Suitability subtotal			(sum of parameter scores) / (maximum possible score)		20%
Risk Reduction		**45%**			
1	**Scope of Benefits**	**15%**	**5 - High: Benefits the entire municipalitiy and other jurisdictions directly or indirectly. 3- Medium: Benefits more than half the municipality or other jurisdictions area. 1- Low: Benefits less than half the municipality.**	**1**	20.25
2	Potential to Save or Protect Human Lives	35%	**5 - High:** More than 1,000 lives. **3 - Medium:** Up to 1,000 lives. **1 - Low:** No lifesaving potential.	**1**	47.25
3	Importance of Benefits	15%	**5 - High:** Needed for essential services. **3 - Medium:** Needed for other services. **1 - Low:** No significant implications.	**1**	20.25
4	Level of Inconveniece or "Nuisance Factor" Caused by the Project	10%	**5 - None:** Causes few problems. **3 - Moderate:** Most major problems avoided. **1 - Significant:** Causes much inconvenience (e.g., traffic jams, loss of power, delays).	**1**	13.5
5	Economic Effect or Loss Caused by the Project	10%	**5 - Minimal** economic loss (little effect during project). **3 - Moderate** economic loss (minimum disruption). **1 - Significant** economic loss (businesses closed, jobs affected, etc.).	**1**	13.5
6	Number of People to Benefit from this Project	15%	**5 - High: M**ore than 100,000 people. **3 - Medium:** 10,000 to 100,000 people. **1 - Low: F**ewer than 10,000 people.	**1**	20.25
	Parameter Subtotal	100%	**sum of parameter scores; max =**	675	135
Risk Reduction Subtotal			(sum of parameter scores) / (maximum possible score)		20%
Cost		**25%**			
1	Estimated Costs*	20%			15
	i. Initial Cost	*75%*	**5 - Low:** $0 to $100,000. **3 - Moderate:** $100,001 to $1 million. **1 - High:** More than $1 million.	**1**	11.25
	ii. Maintenance/Operating Costs	*25%*	**5 - Low** costs **3 - Moderate** costs **1 - High** costs	**1**	3.75
2	Benefit to Cost Ratio	40%	**5 - High:** Ratio is greater than 4 to 1. **3 - Medium:** Ratio is between 1 to 1 and 4 to 1. **1 - Low:** Ratio is less than 1 to 1.	**1**	30
3	Financing availability	10%	**5 - Good:** Readily available through grants or other funding sources. **3 - Moderate:** Limited grant or matching funds available. **1 - Poor:** No funding sources or matching funds are identified.	**1**	7.5
4	Affordability	10%	**5 - Good:** Project is easily affordable. **3 - Moderate:** Project is somewhat affordable. **1 - Poor:** Project is very costly for the jurisdiction.	**1**	7.5
5	Repetitive Damages Corrected (Repetitive Damages and Loss in this case is NOT the same as a Repetitive Loss as in the CRS program)	20%	**5 - High:** Alleviates repetitive loss. Property must have been damaged in the past by a disaster event. **3 - Medium:** Repetitive loss may have occurred but was not documented. **1 - Low:** No effect on repetitive loss.	**1**	15
	Parameter Subtotal	100%	**sum of parameter scores: max =**	375	75
Cost Subtotal			(sum of parameter scores) / (maximum possible score)		20%
*Estimated costs are comprised of two secondary parameters: initial and maintenance/operating costs.					
SUITABILITY		**30%**		20%	90
RISK REDUCTION		**45%**		20%	135
COST		**25%**		20%	75
TOTAL		**100%**			**300**

LMS Scoring Committee Revisions

Applicant Self Score	Scoring Committee Revisions

Cell: E8
Note: The LMS Goal and accompanying Objective from our LMS plan Appendix 4 will be listed in evaluators comments. If the project doesn't tie to one, best score will be 3.

Cell: E9
Note: The approach to this question is: "How would another community like this project in their community?"

Cell: E10
Note: The approach to this question is the environmental impact of the completed project, not during construction.

Cell: E17
Note: The approach to this is as a countywide initiative. Most projects score 1.

Cell: E18
Note: For a hardening project, this score reflects the lives potentially saved during the time the hardened facility would be out of service if not hardened. Also, drafting plans and maintaining functioning systems have little potential to save lives.

Cell: E19
Note: Essential services to the LMS are considered those necessary for response to disaster: police, fire, medical, EOC, emergency communications.

Cell: E20
Note: This is the inconvenience during construction or implementation.

Cell: E21
Note: This is the economic effect during construction or implementation.

Cell: E22
Note: For a hardening project, score a 1 unless you can show that more than 10,000 people would benefit until the services that would be interrupted without the hardening project would be restored.

Cell: E30
Note: If you don't have a BCR that documents a value greater than 4, this should be a score of 3.

Cell: E31
Note: If you aren't planning to fund this yourself, the score should be 3 or lower.

Cell: E32
Note: Normal score is 1 or 3. To rate a 5, you should be planning to fund this yourself.

Cell: E33
Note: Normal score is 1. For a 3, you should be able to document the storm surge/flooding events that could have caused losses and the losses that occurred elsewhere in the area as proof of the severity of the events. For a 5, you'll need to have documentation of the repetitive losses due to disaster events.

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Appendix D, Table D-1: Mitigation Initiatives

Total Score	Jurisdiction and Department/ Organization	Project Name	Project Description	Hazards Mitigated - Natural Hazard Addressed (Key: 1=Flooding; 2=Storm Wind; 3=Erosion; 4=Combination of 1, 2 and/or 3 Hazard Types; 5 - Other Hazards)	Est. Cost	Timeframe / Status	Possible Funding Sources	Date Last Reviewed	Date Last Updated	Updated By
1274	AdventHealth North Pinellas	Hardening Building Envelope for Hurricane Protection	Complete building envelope of hospital facility to withstand hurricane winds/2 The hospital facility is a critical community lifeline that provides emergency services, as well as inpatient and outpatient care. The facility currently has 168 licensed beds which includes acute care and skilled nursing. Except for the Emergency Department addition, all existing portions of the facility were constructed prior to any code requirements for the enhanced wind loads and impact resistance brought on by Hurricane Andrew. While adequate to meet the code requirements of their time, many of the structures fall short of the requirements of current code and practice. In recent years, AHNP has been forced to evacuate and shut down operations every time a hurricane was projected to affect the facility. This has caused extraordinary disruptions in patient care and has cost AHNP millions of dollars in additional expenses. Hurricane Idalia forced AHNP to evacuate 65 patients over 4 counties (Marion, Pasco, Hillsborough, and Pinellas) and disrupted healthcare operations for 6 days. In 2017, Hurricane Irma tore away a large section of exterior cladding from the patient tower, exposing the inner wall construction to outside elements. This damage put the hospital at risk for catastrophic failure. The proposed hardening of the facility envelope will bring all structures up to current Florida Building Code for wind speed impacts which improves resilience against future storm events. After completion of the hardening, the hospital will no longer have to evacuate for every storm. The facility will be able to withstand hurricane wind impacts and maintain operations that ensure patient and staff safety during high winds and storms. Reducing the likelihood of evacuations also reduces stress on patients and families, and potential strain on other critical resources for transportation and sheltering of displaced patients, some with critical care needs. In 2023, there were 112,000 patient encounters at this hospital. The ability to remain operational in place and reopen immediately following storms is essential to the safety of the community, the community's resilience, and long-term recovery. All components and materials specified and used will meet American Society for Testing and Materials (ASTM) standards and the requirements mandated by the Florida Building Code (FBC). /4	4	$74,063,104		Capital funding through Advent Health	1/22/2025		Tim Moreira
1274	AdventHealth North Pinellas	Advent Health Critical Facility Generator	The hospital facility is a critical community lifeline that provides emergency services, as well as inpatient and outpatient care. The facility currently has 168 licensed beds which includes acute care and skilled nursing. Except for the Emergency Department addition, all existing portions of the facility were constructed prior to any code requirements for the enhanced wind loads and impact resistance brought on by Hurricane Andrew. In recent years, AHNP has been forced to evacuate and shut down operations every time a hurricane was projected to affect the facility. This has caused extraordinary disruptions in patient care and has cost AHNP millions of dollars in additional expenses. The existing backup power system is not sufficient and unable to supply backup power to the entire facility in an emergency. The proposed generator system will be installed in the recently completed generator building. The new system will modify the existing electrical service and emergency power system at AHNP which will bring all of the hardened equipment, including main power and emergency power, back to the Central Energy Plant (CEP). The generator system will ensure backup power can be maintained throughout the entire facility, in the event of electrical power disruption. The facility will be able to maintain operations that ensure patient and staff safety during high winds and storm related power interruptions. Reducing the likelihood of evacuations also reduces stress on patients and families, and potential strain on other critical resources for transportation and sheltering of displaced patients, some with critical care needs. In 2023, there were 112,000 patient encounters at this hospital. The ability to reopen immediately following storms is essential to the safety of the community, the community's resilience, and long-term recovery. All components and materials specified and used will meet American Society for Testing and Materials (ASTM) standards and the requirements mandated by the Florida Building Code (FBC). /4	4	$14,512,241		Capital funding through Advent Health	1/22/2025		Tim Moreira
1065	The Arc Tampa Bay	The Arc Tampa Bay Residential Mitigation Project - Group Home	Installation of impact resident windows for residential properties for opening protection. One facility is a group home for medical/aging residents with intellectual and developmental disabilities that is used as a shelter during hurricanes. 2 group homes evacuate to this location. There is a generator onsite. The other property is a group home for individuals with autism spectrum disorder. This home is not occupied during hurricane events but wind mitigation activities would strengthen post-event resiliency and return to normalcy for residents. UPDATE 9/27/2024: This project has been partially completed with one of the homes receiving funding from Pinellas County SHIP for the generator purchase and installation.	4	$55,000	FY23/24	Local funding, HMGP, Pinellas County SHIP	1/22/2025		Carolyn Reginelli
1025	Baycare, Inc. / St. Petersburg	Hospital EOC	Construct new EOC. Estimated completion time: more than 12 months. / 4	4	$1,100,000	Currently Unfunded	EMPATF, HMGP; PDM Program	1/22/2025		
1150	Bayfront Medical Center / St. Petersburg	Harden Window Openings - Building A	Harden the exterior of Building A and install new hurricane-rated windows. Estimated completion time: more than 12 months. / 2	2	$1,217,370	Currently Unfunded	EMPATF, HMGP; PDM Program	1/22/2025		
1150	Bayfront Medical Center / St. Petersburg	Harden Window and Roof - Building C Center	Harden the exterior including hurricane-rated windows and roofing system to protect against high wind velocity events. Estimated completion time: more than 12 months. / 2	2	$2,789,889	Currently Unfunded	EMPATF, HMGP; PDM Program	1/22/2025		
1150	Bayfront Medical Center / St. Petersburg	Harden Window and Roof - Building C South	Harden the exterior including hurricane-rated windows and roofing system to protect against high wind velocity events. Estimated completion time: more than 12 months. / 2	2	$4,575,295	Currently Unfunded	EMPATF, HMGP; PDM Program	1/22/2025		
1150	Bayfront Medical Center / St. Petersburg	Harden Window and Roof - Building C North	Harden the exterior including hurricane-rated windows and roofing system to protect against high wind velocity events. Estimated completion time: more than 12 months. / 2	2	$4,646,281	Currently Unfunded	EMPATF, HMGP; PDM Program	1/22/2025		
1090	Bayfront Medical Center / St. Petersburg	Harden Cancer Care Center	Harden the exterior including the roof, windows and walls to ensure continuity of operations. Estimated completion time: more than 12 months. / 2	2	$430,003	Currently Unfunded	EMPATF, HMGP; PDM Program	1/22/2025		
1070	Bayfront Medical Center / St. Petersburg	Harden West Lobby	Harden the roof and curtainwall window assembly to protect against high wind velocity events. Estimated completion time: more than 12 months. / 2	2	$1,250,200	Currently Unfunded	EMPATF, HMGP; PDM Program	1/22/2025		
1000	Bayfront Medical Center / St. Petersburg	Harden Mechanical Room & Medical Gas Enclosure - Building B/C	The Mechanical Room and a fenced lean to will be hardened. Estimated completion time: more than 12 months. / 2	2	$1,000,000	Currently Unfunded	Emergency Management, Preparedness and Assistance Trust Fund, HMGP; PDM Program	1/22/2025		
995	Bayfront Medical Center / St. Petersburg	Building C Boiler / Chiller Plant Hardening & Rooftop Equipment Mitigation	The hospital's boiler & chiller plant needs hardening for severe weather mitigation. Estimated completion time; More than 12 months. / 2	2	$1,000,000	Currently Unfunded	Emergency Management, Preparedness and Assistance Trust Fund, HMGP; PDM Program	1/22/2025		

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995	Bayfront Medical Center / St. Petersburg	Tank Farm Enclosure	On the South side of Building C, the Oxygen Tank Farm will be hardened. Estimated completion time; more than 12 months. / 2	2	$1,000,000	Currently Unfunded	Emergency Management, Preparedness and Assistance Trust Fund, HMGP; PDM Program	1/22/2025		
995	Bayfront Medical Center / St. Petersburg	Life Services Building Window, Door & Wall Hardening	The Life Services Building needs windows, doors and walls hardened for protection against high wind velocity and severe weather events. Estimated completion time; more than 12 months. / 2	2	$1,000,000	Currently Unfunded	Emergency Management, Preparedness and Assistance Trust Fund, HMGP; PDM Program	1/22/2025		
990	Bayfront Medical Center / St. Petersburg	Child Development Center Wind, Door & Roof Hardening	Harden windows, doors and roof for hurricane and severe weather mitigation. Estimated completion time: more than 12 months. / 2	2	$1,000,000	Currently Unfunded	Emergency Management, Preparedness and Assistance Trust Fund, HMGP; PDM Program	1/22/2025		
980	Bayfront Medical Center / St. Petersburg	Family Health Center Structural Hardening	Harden walls and roof to mitigate high wind velocity. Estimated time of completion: 12 months. / 2	2	$1,000,000	Currently Unfunded	Emergency Management, Preparedness and Assistance Trust Fund, HMGP; PDM Program	1/22/2025		
980	Bayfront Medical Center / St. Petersburg	Haden Exterior - Building C East - Area 4	Harden the exterior of Building C East - including hurricane-rated windows, walls, doors and roofing system to protect against high wind velocity events. / 2	2	$3,070,827	Currently Unfunded	Emergency Management, Preparedness and Assistance Trust Fund, HMGP; PDM Program	1/22/2025		
1089	Belleair Beach Publice Works / City of Belleair Beach	STREET AND DRAINAGE IMPROVEMENTS FROM 9TH STREET TO MORGAN DRIVE	The 9TH Street to Morgan Drive Stormwater and Roadway Improvement Project includes the mill and resurfacing of approximate 26,181 Square Yards of residential roadway, curb replacement, stormwater collection improvements including installation of 3 inlets, replacing 9 inlet tops, installation of 656 Lineal Feet of Cured-in-Place-Pipe lining in existing stormwater culverts, clear debris and remove barnacles from stormwater culverts.	1	$4,100,000	Construction	Local Funds	1/22/2025	8/16/2016	Kyle Riefler
910	Belleair Beach Publice Works / City of Belleair Beach	Stormwater Management	Stormwater repairs, improvements, and replacing curb work.	1	$60,000	Design	Local Funds	1/22/2025	8/16/2016	Kyle Riefler
1086	Belleair Beach/Public Works	Gulf Blvd. Utility Undergrounding	Undergrounding overhead power utilities and equipment to build resiliency in Belleair Beach. Project includes east side of Gulf Blvd. from the City Marina to 28th Ave. N. Provides a major reduction to power outages and reduce threat to human life.	4	$4,729,757	Construction	Local Funds	1/22/2025	11/19/2024	Kyle Riefler
970	Belleair Bluffs / Public Works	City Hall Storm Shutters	Install commercial roll-down storm shutters to protect city hall. Estimated completion time: more than 12 months.	2	$80,000	Currently Unfunded	EMPATF, HMGP; PDM Program	1/22/2025		RUSSELL SCHMADER, PUBLIC WORKS SUPERVISOR
1044	Belleair Bluffs / Public Works	PUBLIC WORKS FACILITY - UNDERGROUND GAS RUN GENERATOR	A fully operational gas line operated building generator for use during any outages, storms, storm preparations. It is imperative that the public works facility be ready to mitigate storm risks at all times for residents, businesses, major street clearance. There is currently NO generator at the facility; therefore all preparations have to be prepared Prior to the storm as well as getting all vehicles, machinery, tools ready.	4	$20,000	Currently Unfunded	City Funds that would be reallocated from other budget line items.	1/22/2025		RUSSELL SCHMADER, PUBLIC WORKS SUPERVISOR
1095	Clearwater / Public Utilities	Purchase and install manhole pans	This project is to purchase and install 17,614 manhole pans. These manhole pans are designed to limit rainwater from entering the waste water collection system when a manhole is submerged. This can help with storms that cause standing water or storm surge that has pushed tides onto roadways. Preventing water from entering the water collection system is important because if the pipe or the water reclamation facility cannot keep up with the amount of water entering the system, then a sanitary sewer overflow occurs. This can occur at either the manhole or at the reclamation facility. The Public Utilities Department has selected Rain stopper as their preferred manhole pan. Installation is basic: lift up the manhole, place on the rim of the manhole frame, then lower the manhole lid. Any water entering from the lid is stopped from entering the waste water collection system. The device only weighs ten pounds and is low maintenance since there are no moving parts. The cost of this preventative measure is less than $150 per manhole. The estimated construction length is one year.	1	$2,625,000	Not approved for HMGP	EMPATF, PDM Program	1/22/2025	5/8/2018	Sarah Kessler
1080	Clearwater / Public Utilities	Telemetry installation at critical and essential lift stations	This project involves outfitting 23 critical and essential lift stations with telemetry which enable remote monitoring. Allowing real time monitoring of lift stations enables faster responses to issues. This would reduce the likelihood of sanitary sewer overflows. The cost of this preventative measure is less than $18,100 to add monitoring equipment to lift stations. The estimated construction length is 90 days.	1	$416,000	Not approved for HMGP	EMPATF, PDM Program	1/22/2025	7/26/2018	Sarah Kessler
1043	Clearwater / Public Utilities	Design and install automatic transfer bypass switches	This project includes the design and installation of 23 automatic transfer bypass switches at lift stations, water reclamation facilities, and water treatment facilities. The bypass switch has the ability transfer the electrical load from the electric utility to the back-up generator and switch back when the power is back on. By having an automatic process, there is a reduction in the likelihood that a sanitary sewer overflow will occur. The cost of this preventative measures is $100,000 per bypass switch. The estimated construction length is 6 months.	4	$2,300,000	Not approved for HMGP	EMPATF, PDM Program	1/22/2025	7/26/2018	Sarah Kessler
996	Clearwater / Public Utilities	Manhole and gravity sewer rehabilitation on Clearwater Beach	This project includes complete coating of structures, replacement of frame and cover of manholes and gravity piping. Through surveys, 333 manholes and 30,245 linear feet of gravity piping were identified as having the potential to allow the inflow and infiltration of stormwater. These corrections are designed to limit rainwater from entering the waste water collection system when a manhole is submerged. This can help with storms that cause standing water or storm surge that has pushed tides onto roadways. Preventing water from entering the water collection system is important because if the pipe or the water reclamation facility cannot keep up with the amount of water entering the system, then a sanitary sewer overflow occurs. This can occur at either the manhole or at the reclamation facility. The estimated construction length is one year.	1	$4,420,000	Not approved for HMGP	EMPATF, PDM Program	1/22/2025	7/26/2018	Sarah Kessler

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1070	Clearwater / Engineering	Public Works Complex – Phase 2 Public Utilities and Stormwater Warehouse Facility	New warehouse facility will be built to Category 5 standards. Added 2016 /4	4	$4,248,134	Unfunded	EMPATF, HMGP; PDM Program	1/22/2025	12/16/2016	Sarah Kessler
1080	Clearwater / Engineering	Public Works Complex – Phase 3 Administration Building with IT Server	New administration building and secure storage of IT servers will be built to Category 5 standards. Added 2016 /4	4	$10,191,909	Unfunded	EMPATF, HMGP; PDM Program	1/22/2025	12/16/2016	Sarah Kessler
960	Clearwater / Engineering	Public Works Complex – Phase 4 Meter Shop/ Utilities Mechanical Shop/ Survey Office	New facility for meter shop, utilities mechanical shop, and survey office will be built to Category 5 standards. Added 2016 /4	4	$1,449,586	Unfunded	EMPATF, HMGP; PDM Program	1/22/2025	12/16/2016	Sarah Kessler
1150	Clearwater / Engineering	Public Works Complex – Phase 5 Traffic Operations Facility	New facility for traffic operations will be built to Category 5 standards. Added 2016 /4	4	$2,626,580	Unfunded	EMPATF, HMGP; PDM Program	1/22/2025	12/16/2016	Sarah Kessler
1010	Clearwater / Engineering	Acquisition of Repetitive Loss Properties	Several repetitive loss properties have been identified for acquisition Added 2016 /1	1	$16,000,000	Unfunded	EMPATF, HMGP; PDM Program	1/22/2025	12/16/2016	Sarah Kessler
1030	Clearwater / Engineering	Sunshine Towers Stormwater Pipe Realignment	The realignment of the stormwater pipe under the Sunshine Towers will alleviate flooding from the collapsed pipes under the building. Added 2016 /1	1	$588,000	Unfunded	EMPATF, HMGP; PDM Program	1/22/2025	12/16/2016	Sarah Kessler
1034	City of Clearwater - Emergency Management	Clearwater Staff/Family Shelter	This project provides a continuous supply of electricity to the city's employee/family shelter located at Morningside Recreation Center. Employee shelters are commonly used during disasters to provide a safe and restful environment to those staff who are required to perform the city's mission essential functions but may have lost their residence to a disaster. In addition, these facilities provide a safe place for the immediate family of employees which provides affected staff greater resiliency against adverse condition to perform essential municipal tasks. Morningside Recreation Center was constructed with an ATS connection to the facility but does not have a dedicated generator.	4	$480,000	Unfunded	HMGP, Local	1/22/2025		Sarah Kessler
1142	City of Clearwater/Public Works	City of Clearwater Mast Arm Conversion Project- converting span wire signals to mast arms for wind mitigation	Traffic signals that utilize span wires for signal head attachments are susceptible to wind damage, resulting in twisted signal heads pointing the wrong direction at best, and fallen, knocked down signal spans at worst. Damage to signals during emergencies can result in unsafe electrical exposure to citizens, blocking roadways until signals elements are cleared or restored, and unsafe egress from side streets. These conditions require police control to direct motorists at these locations, diverting police manpower from other needed duties. In addition, repairs require the attention of signal maintenance staff during potentially unsafe weather conditions. Signals that utilize mast arms provide added stability to both the electrical systems as well as the signal heads, which allow the roadway to operate even during adverse weather conditions. Mast arms are metal structures designed to withstand wind speeds up to 150 mph. Signal heads are rigidly mounted to the steel arms providing a rigid, wind resistant installation. The electric cable is fully protected within the mast arms and underground conduit. As long as power is supplied to the signal cabinet, the signal should operate with all signal heads pointing in the correct direction, even during high wind conditions. Span wire signals suffer damage under wind speeds > 60 mph. For span wire signals, repairs due to wind damage are costly and can take up to 8 weeks, depending on the damage and equipment availability. FDOT supports to use of mast arms as the preferred signal support to protect the signal investment and provide the safest, most resilient signalized intersection, especially along coastal areas that are susceptible to storms with high winds. This work includes a total rebuild of 4/5 traffic signals including installation of mast arms including foundations, underground directional bored conduit, traffic signal cabinet, signal heads and pedestrian treatments, vehicle detection systems and electric cable connecting all devices. There will be 3 to 4 mast arms per signal, approximately 12-16 signal heads, 8 pedestrian heads/buttons, one signal cabinet, one ITS cabinet, 1 electric service, 4-6 video detection cameras and/or inductive loop systems per lane per approach, fiber optic cable connections, CCTV connections, and electric cable. Approximate costs to rebuild the traffic signals is $700k per signal, for an estimated cost of $2.8M/$3.5M for construction. An additional cost of $63k/ea ($252k -$315k) is required to develop construction plans. (9% of construction costs) An additional 8% is required for E&I $56k per signal) at the following locations: 1) #1850 McMullen Booth Rd & Eastland Blvd 33759, 2) #1840 McMullen Booth Rd & Ruth Eckerd Hall 33759, 3) #1825 Gulf To Bay Blvd & McMullen Booth Rd 33759 , 4) #1785 Gulf to Bay &Hampton Rd 33759 , 5) # 1755 Gulf to Bay & Park Place 33759	4	$4,095,000	Unfunded	HMGP, Local	1/22/2025		Sarah Kessler Project Contact: David Lutz, Traffic Engineering Manager (David.Lutz@myclearwater.com, 727-444-8237)
1065	Dunedin / Public Works	WWTP Backup Generators	The City's Wastewater Treatment Plant (WWTP) has a whole site generator that is aged and has experienced issues staying on line in times of emergency. The City is looking to install separate, smaller generators to power individual portions of the plant at the pumping points to keep water flowing and the process working properly in emergency situations and during power outages. The weak points identified at the plant are: Facility 4 (Headworks of the plant), Facility 7 (Clarifiers and Sludge & Secondary Effluent Pumping), Facility 8 (Denitrification Filters), Facility 13 (Blowers), and Facility 14 (Chemical Dosing). The power requirements for the generators identified are 200kW, 200kW, 300kw, 400kw, and 25kw for Facilities 4, 7, 8, 13, and 14 respectively. The City is a coastal community with an outfall to St. Joseph Sound and failure of the Wastewater Treatment Plant will cause sanitary sewer overflows (SSOs) at the plant, outfall of raw sewage into coastal waters, and have the potential to have a significant impact on water quality. These improvements will help mitigate impacts on waterways and residents.	1	$1,200,000	Currently Funded	SRF	1/22/2025	12/26/2024	Alejandro Gonzalez
966	Dunedin / Public Works	Lift Station #20 Rehabilitation	Lift station #20 is adjacent to Jerry Branch, a tributary of Curlew Creek. The Florida Department of Environmental Protection (FDEP) along with the Environmental Protection Agency (EPA) listed Curlew Creek on the 303(d) list of impaired waterbodies for a bacteria Total Maximum Daily Load (TMDL). This lift station basin area suffers from Inflow and Infiltration (I&I), is currently undersized, and can experience significant sanitary sewer overflows (SSO's) during periods of heavy rains. This project's intent is to relocate the lift station to a location further from Jerry Branch, to increase the wet well size and capacity, and to mitigate the issues with I&I. These improvements will help mitigate impacts on waterways and residents.	1	$2,286,000	Currently Funded	HMGP	1/22/2025	12/26/2024	Alejandro Gonzalez
988	Dunedin / Public Works	Lift Station #32 Rehabilitation	Lift station #32 is adjacent to Jerry Branch, a tributary of Curlew Creek. The Florida Department of Environmental Protection (FDEP) along with the Environmental Protection Agency (EPA) listed Curlew Creek on the 303(d) list of impaired waterbodies for a bacteria Total Maximum Daily Load (TMDL). This lift station basin area suffers from Inflow and Infiltration (I&I), is currently undersized, and can experience significant sanitary sewer overflows (SSO's) during periods of heavy rains. This project's intent is to increase the wet well size and capacity, to mitigate the issues with I&I, and to address issues in the system related to undersized interceptor sewer mains in the system. These improvements will help mitigate impacts on waterways and residents.	1	$1,800,000	Currently Funded	HMGP	1/22/2025	12/26/2024	Alejandro Gonzalez

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970	Dunedin / Public Works	Lift Station Emergency Backup Systems	Install emergency backup pumps on 9 lift stations and emergency generators on 3 lift stations / 1	1	$1,300,000	Currently Unfunded	EMPATF, HMGP; PDM Program	1/22/2025	12/26/2024	Alejandro Gonzalez
920	Dunedin / Public Works	Dunedin Main Library Opening Protection	Install hurricane shutters/opening protection on Dunedin Main Library. / 2	2	$250,000	Currently Unfunded	EMPATF, HMGP; PDM Program	1/22/2025	11/26/2018	Joseph DiPasqua
1155	Dunedin	Manhole Reinforcement via structural lining	The project will increase resiliency of the lift station and sanitary sewer basin by increasing durability as well as prolonging the useful life of the existing system and its ability to carry flows safely through the basin. The structural lining of the sewer basin manholes will allow for the increased protection of residences and infrastructure serviced in the sewer basin area and the protection of the treatment capacity of the City's WWTP. The project will avoid the open cut method of removing and replacing the existing infrastructure. The project will decrease inflow and infiltration during emergency storm events while mitigating Sanitary Sewer Overflow effects. The project will consist of structural reinforcement of approximately 133- 4ft diameter manholes of various depth. Key basins were chosen for their susceptibility to structural failure due to age and material type. City of Dunedin Basin Manholes 1, 2, 5, and 16 were chosen.	1	$680,000	Currently Funded	Local funding	1/22/2025	12/26/2024	Alejandro Gonzalez
1133	Dunedin	Sanitary Sewer CIPP for I&I and SSO mitigation	The project will increase resiliency of the sanitary sewer collections system by increasing durability as well as prolonging the useful life of the existing system and its ability to carry flows safely through the basin. The lining of the sewer basins will allow for the increased protection of residences serviced in the sewer basin area and the protection of the treatment capacity of the City's WWTP. The project will avoid the replacing sewer mains and utilize Cured-in-Place-Pipe (CIPP) to rehabilitate the existing infrastructure. The project will decrease inflow and infiltration during emergency storm events while mitigating Sanitary Sewer Overflow effects. The project will consist of annually lining approximately 15,000 to 20,000 linear ft. of sanitary sewer pipe.	1	$8,000,000	Currently Funded	Local funding	1/22/2025	12/26/2024	Alejandro Gonzalez
1118	Dunedin	City of Dunedin Lift Station Rehabilitation and Reinforcement	The project will increase resiliency of the lift station and sanitary sewer basin by increasing durability as well as prolonging the useful life of the existing system and its ability to manage flows safely through the lift station collection points, well capacities, and forcemain system. The rehabilitation and reinforcement of the lift stations will allow for the increased protection of residences serviced in the sewer basin area and the protection of the treatment capacity of the City's WWTP. The project will avoid the reactionary measures of catastrophic failure, ensuring continued operation in emergency situations. The project will assure design capability and capacity during emergency storm events while mitigating Sanitary Sewer Overflow effects. The project will consist of rehabilitation and reinforcement of 5 Lift Stations on an annual basis within the City of Dunedin Sanitary network. A total of 43 Lift Station require rehabilitation under this project.	1	$5,700,000	Currently Funded	Local funding	1/22/2025	12/26/2024	Alejandro Gonzalez
970	Eckerd College / St. Petersburg	Building Flood/Wind Retrofit	Retrofit priority support building to address vulnerabilities to high winds and/or flooding based on engineering evaluation. Estimated completion time: more than 12 months. / 1, 2	4	$250,000	Currently Unfunded	EMPATF, HMGP; PDM Program	1/22/2025	10/24/2016	Adam Colby
940	Eckerd College / St. Petersburg	Building Flood/Wind Retrofit	Retrofit academic building to address vulnerabilities to high winds and/or flooding based on engineering evaluation. Estimated completion time: more than 12 months. / 1, 2	4	$250,000	Currently Unfunded	EMPATF, HMGP; PDM Program	1/22/2025	10/24/2016	Adam Colby
1090	Gulfport / Public Works	Stormwater Project	Enlarge drainage pipes and construct retention ponds citywide to reduce street and yard flooding to improve drainage in low lying areas of the City. Estimated completion time: more than 12 months. / 1	4	$500,000	Currently Unfunded	Capitalization Grants for Clean Water State Revolving Funds; CDBG; FMAP; HMGP; Nonpoint Source Implementation Grants	1/22/2025	10/31/2017	Michael Taylor
1035	Gulfport / Public Works	Flood Mitigation in Waterfront Redevelopment District	Construct storm doors for commercial businesses within the 100-year floodplain of the Waterfront Redevelopment District. Estimated completion time: more than 12 months. / 1	4	$60,000	Currently Unfunded	EMPATF, HMGP; PDM Program	1/22/2025	10/31/2017	Michael Taylor
1030	Gulfport / Community Development	Land Acquisition	Public purchase of properties that are flood prone or at high risk/exposure to being flooded or experience wave action/erosion. Estimated completion time: more than 12 months. / 1	4	$500,000	Currently Unfunded	EMPATF, HMGP; PDM Program	1/22/2025	10/31/2017	Michael Taylor
1015	Gulfport / Public Works	Municipal EOC	Build a new City EOC, 1617 - 49th Street South. Estimated completion time: more than 12 months. / 4	4	$3,500,000	Currently Unfunded	HMGP, Local	1/22/2025	10/31/2017	Michael Taylor
1,247	Gulfport / Public Works, Community Development	City Hall Complex – EOC Generators Installation	Hurricane Irma left 85% of Gulfport without power for more than one week, destroying 17 transformers and downing many power lines. City Hall complex was without electricity for one week. City Hall complex is the city's EOC and consists of three buildings: City Hall/Police Department, Fire Department, and Public Services. No power at the EOC complex compromised the City's emergency services and ability to respond and recover from Irma due to the lack of communications within and outside of the City, the use of computers, telephones, radios, and the equipment for damage assessment and monitoring of critical facilities such as water and lift stations. Replace two generators and install 1 new generator. One new generator will be 300 Kw, two other new generators will be 150Kw. / 4	4	$334,000	HMGP Application approved by FDEM and FEMA. Project is currently under construction.	HMGP, Local	1/22/2025	10/31/2017	Michael Taylor

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1,284	Gulfport / Public Works, Community Development	Generator Installation at Alternate EOC	Hurricane Irma left 85% of Gulfport without power for more than one week, destroying 17 transformers and downing many power lines. City Hall complex and the Public Works building was without electricity for one week. City Hall complex is the city's EOC but lies within Evacuation D Zone. Therefore, the Public Works building is the alternate EOC since it is not in a flood zone or evacuation zone. No power for the EOC complex and Public Works building compromised the City's emergency services and ability to respond and recover from Irma due to the lack of communications within and outside of the City, the use of computers, telephones, radios, and equipment for damage assessment and monitoring of critical facilities such as water and lift stations. Install one 100Kw generator. /4	4	$75,204	HMGP Application was approved by FDEM and FEMA. Project is currently under construction.	HMGP, Local	1/22/2025	10/31/2017	Michael Taylor
1250	Indian Rocks Beach / Public Works	Stormwater Drainage	Reconstruction of small basin stormwater collection and discharge facilities as required by NPDES. Based upon an updated Stormwater Master Plan in 2022, multiple City facilities are scheduled to be upgraded moving forward over a 20 year period and thereby be in compliance with NPDES regulations. One segment on 16th Avenue and one segment on 2nd Street are scheduled to be constructed /completed in 2023 with 3 segments on Harbor Drive scheduled to be designed in 2023.	1	$2,833,218	2023	City of Indian Rocks Beach Capital Improvement Plan; Capitalization Grants for Clean Water State Revolving Funds; CDBG; FMAP; HMGP; Nonpoint Source Implementation Grants; Penny for Pinellas; SWFWMD	1/22/2025	10/9/2017	Dean Scharmen
893	Indian Rocks Beach / Public Works	Gulf Blvd Utility Undergrounding - Phase II	To make aesthetic and safety improvements to Gulf Boulevard, including undergrounding of the Gulf Blvd. overhead utilities and equipment. Phase II of the project, about $5.5 million in costs, would start at the 506 Gulf Boulevard (ending point for Phase I) and continue North approximately 1 mile.	2	$5,696,869	The City has contracted with a consultant for the engineering, design and construction of the project in April of 2021. Completion is anticipated by September 2026.	Pinellas County, City of Indian Rocks Beach Capital Improvement Plan	1/22/2025		Dean Scharmen
860	Indian Rocks Beach / Public Works	Road Milling, Resurfacing and Curbing	Road deterioration causes safety hazards and negatively impacts the attractiveness of the neighborhood. This project includes continuation of street milling, resurfacing, and curb replacement and includes updating the drainage system in the areas resurfaced. This project also includes concrete curb and gutter replacement and asphalt milling and resurfacing at selected locations in Fiscal Years 2021-2025.	1	$2,500,000	In CIP for the next five years	City of Indian Rocks Beach Capital Improvement Plan; SWFMD	1/22/2025	10/9/2017	Dean Scharmen
1030	Indian Shores / Town Administrator	Critical Facility Rebuild	Build new town hall, police department and annex buildings. Estimated completion time: more than 12 months. / 2	2	$3,500,000	Currently Unfunded	FMAP; HMGP; PDM Program	1/22/2025		
915	Indian Shores / Town Administrator	Seawall Erosion Control	Reconstruct seawall with tiebacks at Intra Coastal Waterway and Town Street. Estimated completion time: more than 12 months. / 3	3	$160,000	Currently Unfunded	Capitalization Grants for Clean Water State Revolving Funds; CDBG; FMAP; HMGP; Nonpoint Source Implementation Grants	1/22/2025		
865	Indian Shores / Town Administrator	Detention Pond	Create a detention pond and storm water drainage system in the community redevelopment area. Estimated completion time: more than 12 months. / 1	1	$100,000	Currently Unfunded	Capitalization Grants for Clean Water State Revolving Funds; CDBG; FMAP; HMGP; Nonpoint Source Implementation Grants	1/22/2025		
1229	Johns Hopkins All Children's Hospital	Hardening Medical Structures for John Hopkins All Children's Hospital	John Hopkins All Children's Hospital Campus structures are out of date regarding the structural system being resistant to current code level wind speeds for their doors and their main hospital needs its roof tie-downs to be upgraded. These mitigation measures will harden the envelope of the structures and prevent future wind and flood damage when a hurricane impacts the campus. The cost presented above is to replace doors on 2 buildings and the roof tie downs on the main hospital. These structures provide essential care to children across the county and throughout the Tampa Bay Area. They are a research and teaching hospital with a network of over 590 physicians and specialists. They provide various pediatric medical services including emergency care, cardiology, and cancer care. Replacing these doors and roof tie-downs is critical to ensure these emergency services remain operational and can continue in the wake of a disaster.	2	$393,908	Currently Unfunded	HMGP	1/22/2025		Shanti Smith Copeland
910	Kenneth City / Public Works	Stormwater Management	Repair, rework, and replace components in the Kenneth City storm drain system. Estimated completion time: more than 12 months. / 1; Project is ongoing. The Town routinely funds ongoing stormwater improvements annually in conjunction with the Town's Capital Improvement Plan (CIP). The Town would utilize the services of a contractor to complete these updates, as identified in our future Stormwater Plan.	1	$300,000	Currently Unfunded	Capitalization Grants for Clean Water State Revolving Funds; CDBG; FMAP; HMGP; Nonpoint Source Implementation Grants	1/22/2025		
910	Kenneth City / Public Works	Stormwater Management	Repair, rework, and replace components in the Kenneth City storm drain system. Estimated completion time: more than 12 months. / 1; Project is ongoing. The Town routinely funds ongoing stormwater improvements annually in conjunction with the Town's Capital Improvement Plan (CIP). The Town would utilize the services of a contractor to complete these updates, as identified in our future Stormwater Plan.	1	$500,000	Currently Unfunded	Capitalization Grants for Clean Water State Revolving Funds; CDBG; FMAP; HMGP; Nonpoint Source Implementation Grants	1/22/2025		

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1052	Kenneth City / Public Works	Street Improvements	Funding for street resurfacing has been allocated in the 2021/2022 fiscal year. Streets that require drainage improvements will be prioritized. This would take place consistent with the recommendations of the watershed management plan. Drainage improvements include the construction of stormwater infrastructure for flood control.This project is ongoing.	1	$250,000	Currently Unfunded	HMGP, Local	1/22/2025		Jocilyn Martinez
1271	Kenneth City / Public Works	Stormwater Management	Repair, rework, and replace components in the Kenneth City storm drain system. Estimated completion time: more than 12 months. / 1; Project is ongoing. The Town routinely funds ongoing stormwater improvements annually in conjunction with the Town's Capital Improvement Plan (CIP). Drainage improvements include the construction of stormwater infrastructure for flood controlThe Town would utilize the services of a contractor to complete these updates, as identified in our future Stormwater Plan.	1	$75,000	Currently Unfunded	Capitalization Grants for Clean Water State Revolving Funds; CDBG; FMAP; HMGP; Nonpoint Source Implementation Grants	1/22/2025		Jocilyn Martinez
1082	Kenneth City / Public Works	Stormwater Master Plan	This project was initiated in 2019 and is to be completed in late 2021. The Master Plan serves as a foundation for future drainage improvements for the purposes of flood control throughout the Town. This is a requirement of SWFWMD and will be funded by a 50:50 matching grant.	1	$92,120	Currently Unfunded	HMGP, Local	1/22/2025		Jocilyn Martinez
980	Kenneth City / Public Works	Stormwater Rate Study	Currently, the Town does not have a designated mechanism to fund stormwater maintenance and future stormwater improvements for the purposes of flood control. The implementation of a stormwater utility program, which many Pinellas County municipalities have in place, may be needed. The study would identify a rate structure that could be incorporated into a future utility. This study would also be eligible for 50% funding through SWFWMD. A rate study will help determine the best way to fund stormwater improvements through fees or impact fees. This project has no definitive start date.	1	$50,000	Currently Unfunded	HMGP, Local	1/22/2025		Jocilyn Martinez
1052	Kenneth City / Public Works	Watershed Management Plan	The Town is conducting a Watershed Management Plan to identify water quality problems in the watershed, proposes solutions, and creates a strategy for putting those solutions in action. This project will identify water quality benefits. This project will be completed in December 2021.	1	$125,000	Currently Unfunded	HMGP, Local	1/22/2025		Jocilyn Martinez
1044	Kenneth City / Public Works	Town Parking Lot/Resurfacing	This project would entail rebuilding the exiting Town parking lot on in accordance with Town Codes. Possible drainage improvements may be necessary as part of this project. Drainage improvements include the construction of stormwater infrastructure for flood control. This project has no definitive start date.	1	$100,000	Currently Unfunded	Capitalization Grants for Clean Water State Revolving Funds; CDBG; FMAP; HMGP; Nonpoint Source Implementation Grants	1/22/2025		Jocilyn Martinez
921	Largo / Engineering Services	Allens Creek BMP Implementation	The Allens Creek Basin Watershed Management Plan, completed in 2013, identified Best Management Practices (BMPs) designed to provide flood control and water quality benefits. This project is a combination of two BMPs identified in the study. First, it is proposed to replace the four 48- inch culverts under St. Pauls Drive with three 5-ft by 12-ft concrete box culverts. The proposed alternative is predicted to significantly improve flooding conditions within the Belleair Road/St. Pauls Drive area. Second, the Deville Drive area is drained by a 287-foot long 36-inch concrete pipe. Flooding in this residential area can be greatly reduced by installing a parallel 48-inch pipe to the existing outfall./1	1	$1,905,000.00	FY2025-FY2026	Penny for Pinellas IV	1/22/2025		Ann Rocke
944	Largo / Engineering Services	Clearwater Largo Road BMP	The Clearwater-Largo Road Drainage District Study update, completed in 2013, proposed best management practice (BMP) alternatives to address areas that experienced significant flooding during seasonal summer rains and to comply with National Pollutant Discharge Elimination System (NPDES) regulations. Seven proposed BMP alternatives were identified for implementation based on jurisdictional considerations and general feasibility and include replacement or new construction of curb and gutter, swales, inlets, ponds and pipes./1	1	$791,000.00	FY2024-FY2025	Penny for Pinellas IV	1/22/2025		Ann Rocke
944	Largo / Engineering Services	Cross Bayou BMP Implementation	The Cross Bayou Basin Watershed Management Plan, completed in 2013, identified Best Management Practices (BMPs) designed to provide flood control and water quality benefits. This project is one of the BMPs identified in the study. The Pinebrook Canal between 142nd Avenue North and Ulmerton Road floods during the 100-year/24-hour and 25-year/24-hour storms. To mitigate flooding, the project involves re-grading and stabilizing or possibly armoring portions of approximately 5,200 feet of the Pinebrook Canal where bank failures have reduced conveyance capacity. The BMP also calls for replacing the 5-foot-by-7-foot concrete box culvert under Ulmerton Road with two 5-foot-by 7-foot box culverts./1	1	$2,113,000.00	FY2024-FY2025	Penny for Pinellas IV	1/22/2025		Ann Rocke
944	Largo / Engineering Services	Medical Arts District Regional Pond	The first phase of this project includes a feasibility study to determine a location for a regional stormwater pond system for the Medical Arts District in the West Bay Drive Community Redevelopment District (WBD- CRD). Funding for land acquisition is programmed as Phase II in FY 2021. A regional stormwater pond would allow property owners in the Medical Arts District to redevelop property without the need to accommodate stormwater from projects on the redevelopment site. Additional benefits include components to improve multimodal connectivity, trails, water quality treatment, and flood mitigation. If the project proves feasible, design and construction could move forward for funding in FY 2024. The project could include funding involving a public-private partnership (P3) for the design, construction, and maintenance phases./1	1	$200,000.00	Unfunded	Local (Stormwater Fund)	1/22/2025		Ann Rocke
921	Largo / Engineering Services	Pocahontas Drive Drainage Improvements	Drainage improvements include the construction of stormwater infrastructure for flood control./1	1	$6,027,000.00	Unfunded	Penny for Pinellas IV	1/22/2025		Ann Rocke
944	Largo / Engineering Services	Starkey Road Basin BMP Implementation	The Starkey Road Basin Watershed Management Plan, completed in 2012, identified Best Management Practices (BMPs) designed to provide flood control and water quality benefits. This project is a combination of three BMPs identified in the study. It proposes upgrading the culvert at Starkey Road on Channel 10 near the East Bay Oaks Mobile Home Community and at Lake Palms Drive on Channel 10 combined with regrading the south-flowing tributary ditch west of Dahlia Place and Gardenia Place to expand the bottom width and recreate a positive ditch bottom gradient. New inlet/collection structures between the Dahlia Place and Gardenia Place cul- de- sac roadway are also proposed to fully convey roadway runoff through the collector system without overflow down driveways./1	1	$1,144,000.00	FY2024	Penny for Pinellas IV	1/22/2025		Ann Rocke
921	Largo / Engineering Services	Venetian Gardens Drainage Improvements	Drainage improvements include the construction of stormwater infrastructure for flood control./1	1	$1,764,000.00	FY2024	Local	1/22/2025		Ann Rocke

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1240	Largo / Fire Rescue	Fire Station Renovation Program	The City of Largo operates six fire stations, 38, 39, 40, 41, 42 and 43. The stations are in need of significant repair, maintenance, and upgrade in order to remain operational. An outside consultant completed a needs analysis in 2015 to determine the following: space needs analysis, analysis of all current and immediate repair and maintenance needs and costs, and estimates on the remaining useful life of the buildings. The 2015 Needs Assessment indicated extensive repairs and upgrades for Largo Fire Rescue stations. The Largo Fire Rescue Department is looking ahead to replacing stations that have reached the end of their useful life, including fire stations 38, 39, 42, and 43. The replacement of Station 43 was initiated in FY 16 and will be completed in FY 17. Station 38 would be next, station 42 would be after station 38 and station 39 would be the last, in coordination with the county project to rebuild Rainbow Village. Fire Station 38: Apparatus bay floor resurfacing, interior painting, and drop ceiling replacement. Station 38 is slated to be the first station to be replaced if the penny is re-approved. (Station was built in 1987.) Fire Station 39: Roof replacement, apparatus bay floor resurfacing, and interior painting. Station 39 is scheduled to be replaced in coordination with the county project to rebuild Rainbow Village. (Station was build in 1980.) Fire Station 40: Major roof repair, apparatus bay floor resurfacing, and interior painting. (Station was built in 1990.) Fire Station 42: Roof replacement, apparatus bay floor resurfacing, and interior painting. Station 42 is slated to be the second station replaced if the penny re-approved. (Station was built in 1978.) /4	4	$692,000	FY 17-FY 21	General (Local Fund)	1/22/2025	10/19/2017	Matthew DiFiore
1150	Largo / Fire Rescue	Fire Station 38 Reconstruction	This is the youngest of the three proposed stations however still has many of the same issues. The roof and HVAC systems will need replacing, the building will need to be brought up to ADA and NFPA standards and living quarters will need redesign and reconfiguration. This building has gone through many changes due to personnel additions and changes over the last ten years. The current building is 6,500 square feet and was constructed in 1986. /4	4	$16,167,200	FY2027-2032	General (Local Fund)	1/22/2025	10/19/2017	Ann Rocke
1016	Largo / Environmental Services	WWRF Lift Station Flood Mitigation	This project meets the goals and objectives for structural mitigation projects that include strengthening of vulnerable structures and public facilities to withstand wind, fire and other forces, and elevation of structures to protect them from flood damage. A number of the Wastewater Reclamation Facility (WWRF) sanitary sewer lift stations are in the flood plain. Continuity of operations of these lift stations is at risk during high rain and/or flooding events. The purpose of this project is to reconstruct the lift stations to raise the critical infrastructure above the flood plain at existing Lift Station Nos. 19, 26, 41 and 47.	1	$3,150,000	FY2024	HMGP	1/22/2025	5/8/2018	Ann Rocke
1150	Largo / Fire Rescue	Fire Station 39 Reconstruction	This building has exceeded its useful life and currently is in need of a roof replacement and internal renovations. The building has no separated living quarters and has inadequate storage space for the needs of the department. This project is intended to work in coordination with the county project to rebuild Rainbow Village. The current building is 5,300 square feet and was constructed in 1979./4	4	$9,920,595	FY2024	General (Local Fund)	1/22/2025	10/19/2017	Ann Rocke
1150	Largo / Fire Rescue	Fire Station 42 Reconstruction	On top of issues regarding access and the age of the facility, the building has had multiple roof replacements, renovations, and updates throughout its life. It is recommended that a new building be built with better access for apparatus and better separation of living quarters for firefighters. The current building is 5,300 square feet and was constructed in 1978. /4	2	$16,167,200	FY2027-2032	General (Local Fund)	1/22/2025	10/19/2017	Ann Rocke
990	Largo / Environmental Services	WWRF - Biosolids Building Hardening	The Biosolids building is a large industrial, pre-engineered metal building. It houses most of the operating components used to convert wastewater solid into a Class AA Biosolid product, used for fertilization. Due to the essential nature of the facility and the potential for the facility to sustain significant damage during a hurricane, a study was conducted to evaluate the structural performance of the building under the effects of a Category 3 hurricane. Based on the results of the contracted study, scope for this project includes either 1) structural modifications to the existing building, including roofing work, wall work, all structural bracing and stiffening, replacement of doors, windows, louvers (framed openings), and fans, and painting or 2) replacement of the entire building. /1, 2	4	$1,600,000	FY 18 -FY19	Wastewater (Local Fund)	1/22/2025	12/22/2016	Matthew DiFiore
1190	Largo / Environmental Services	WWRF – Operations Center Reconstruction	The existing WWRF control building and laboratory, both of which are approximately 40 years of age, are not hurricane hardened. As these structures are essential to treatment plant operations, the Department would like to construct a new facility so that staff could continue to operate the plant after a storm event. This would entail design and construction of a new two-story building overlooking the process trains, which would be hurricane hardened for safe quartering during a storm. It would contain the main control room for SCADA workstations, a server room, a full laboratory for permit required lab analysis, storage for chemicals & supplies, a bunker/lounge area, a records room, and a variety of other needs to be determined during the design process. /1, 2	4	$4,570,000	FY 18-FY19	Wastewater (Local Fund)	1/22/2025	12/22/2016	Matthew DiFiore
970	Largo / Administration	City Hall Reconstruction	The City Hall facility has a number of issues. First, it is not rated for hurricane winds and is in a flood plain. It has electrical and plumbing systems that are original to the building and are repeatedly needing repair. The HVAC system needs to be redesigned as it is not efficient and does not service employees there appropriately. The building is not hardened and has significant space utilization issues. This estimate would construct a new building with the same square footage of the current City Hall and does not include land acquisition or design costs at this time. Policy direction is needed to determine the needs for inside a new City Hall building. The current building is 57,740 square feet and was constructed in 1973. /1, 2	4	$80,000,000	FY2022-FY2024	General (Local Fund)	1/22/2025	12/22/2016	Ann Rocke
1000	Largo / Environmental Services	Public Works Complex Reconstruction	Due to the complex being built on a former closed landfill, the soil underneath the complex is giving way to considerable damage to both the pavement used around the building and the buildings themselves. The Administration building is showing settling in both the facilities workshop and the fleet central stores area and while currently not a structure issue, may be in the near future. The building does not currently meet some ADA requirements for facilities of this nature and size and the building has had multiple issues with water intrusion over the past ten years. It is in the intention that through this project Public Works administrative and management functions can be reviewed, centralized, and coordinated more efficiently. This project scope and cost is based upon engineering estimates and a space needs analysis done in 2013. Costs include the environmental remediation, the moving of the fuel island, the consolidation of the divisions into one building, and associated vehicle storage areas. Total square footage of existing buildings is 44,528, Public Works Administration and Fleet building was constructed in 1976 and the Solid Waste facility was constructed in 1990. /3	3	$20,000,000	N/A	HMGP, Local	1/22/2025	12/22/2016	Matthew DiFiore

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1210	Largo / Environmental Services	Regional Watershed Management Planning	The Regional Watershed Management Planning project was initiated in the FY2012-2016 CIP and identified the need for the development of a City-wide Watershed Management Plan for the various drainage basins (Starkey, Longbranch, Allen's Creek, McKay Creek) and sub-basins located in the City of Largo. This project included joint funding and participation with the South West Florida Water Management District, Pinellas County, City of Clearwater and other entities that share jurisdiction within the watersheds. The watershed management plans for McKay Creek, Allen's Creek, Long Branch Creek, Starkey Road Basin, and the Clearwater-Largo Road Drainage District Study were completed by FY14. The purpose of this project is to begin planning and designing stormwater system improvements based on the Best Management Practices (BMPs) identified in the Watershed Plans to address flooding, water quality, infrastructure rehabilitation, and meet regulatory requirements. This project will contribute to compliance with the City's National Pollutant Discharge Elimination System (NPDES) stormwater permit and pending Total Maximum Daily Loads (TMDL's) regulations which are administered by the Florida Department of Environmental Protection. /1	1	$14,800,000	N/A	HMGP, Local	1/22/2025	12/22/2016	Matthew DiFiore
1090	Largo / Environmental Services	WWRF Master Plan Improvements – Biological Treatment Systems	A portion of the overall project is intended raise critical components of the Largo Wastewater Reclamation Facility (WWRF) above the floodplain. This includes elevating the structure that contains the filter feed pump station and the new disk filters. It also includes four (4) new Motor Control Center (MCC) Buildings that are hardened and elevated. /1	1	$2,375,000	FY 18	Wastewater (Local Fund)	1/22/2025	12/22/2016	Matthew DiFiore
944	Largo/ Engineering Services	126 Ave Church Creek Storm Drainage Improvements	Project will construct large conveyance piping to eliminate repeat property flooding and damage/1	1	$1,725,000	FY2025-FY2027	Local Funding	1/22/2025	10/25/2017	Ann Rocke
1060	Lealman SFCD / Emergency Management	Fire Station #18 EOC Hardening	Harden by installing roll down shutters, 5 double doors, 3 single doors and 16 windows. Estimated completion time: more than 12 months. / 2	2	$36,500	Currently Unfunded	HMGP, Local	1/22/2025		
980	Lealman SFCD / Emergency Management	Fire Station #19 Secondary EOC Hardening	Harden by adding roll down shutters, 4 single doors and 5 windows. Estimated completion time: more than 12 months. / 2	2	$12,700	Currently Unfunded	HMGP, Local	1/22/2025		
860	Lealman SFCD / Emergency Management	Fleet Building Hardening	Harden with roll down shutters, 2 single doors and 1 window. Estimated completion time: less than 12 months. / 2	2	$3,900	Currently unfunded	HMGP, Local	1/22/2025		
840	Lealman SFCD / Emergency Management	Fleet Building Emergency Power	Evaluate and install quick connect and power transfer switch. Estimated completion time: less than 12 months. / 4	4	$35,000	Currently Unfunded	EMPATF, HMGP; PDM Program	1/22/2025		
	Madeira Beach / Community Development	Underground Utilities - East and West side streets	Underground utilities – East and West side streets	2	$3,000,000	Penny for Pinellas Phase 111 commence FY/2021; Under construction	Local	1/22/2025	10/5/2016	Megan Wepfer
986	Madeira Beach/Fire Department	Fire Station Expansion	Expand fire station to accommodate the growing needs of the Fire Department.	2	$1,500,000	2026	HMGP, Local LOST fund	1/22/2025		Clint Belk
842	Madeira Beach/Public Works	131st Ave E and 129th Ave. Roadway Improvements	Mill and resurface, stormwater pipe repairs, and curb repairs.	1	$1,000,000	2024/under construction	DEO Infrastructure Grant Program 50% match	1/22/2025		Megan Wepfer
1154	Madeira Beach/Public Works	Madeira Beach Groin Rehabilitation	Rehab 22 beach groins for safety and effectiveness	3	$1,750,000	2024-2025	FDEP Grant received of $1.75M	1/22/2025		Megan Wepfer
824	Madeira Beach/Public Works	Johns Pass Park parking lot improvements	Mill and resurface Johns Pass Parking lot to improve water pooling and stormwater runoff	1	$450,000	2024-2025	Budget	1/22/2025		Megan Wepfer
864	Madeira Beach/Public Works	Johns Pass Village parking lot improvements	Mill and resurface Johns Pass Village parking lot	1	$2,000,000	2025	Budget	1/22/2025		Megan Wepfer
858	Madeira Beach/Public Works	E Parsley, W Parsley, A Street, B Street, Lynn Way and Marguerite Drive (Safe Infrastructure).	Mill and resurface, stormwater pipe repairs, and curb repairs.	1	$1,500,000	2024/in review	FDOT Grant of $549,400	1/22/2025		Megan Wepfer
1100	Madeira Beach/Public Works	Watershed Management Plan	Inventory assets, propose maintenance schedule, implement sea-level rise, develop proposed CIP	1	$150,000	2024	South Florida Water Management District- Cooperative Funding 50% Match	1/22/2025		Megan Wepfer
1113	Madeira Beach/Public Works	Stormwater Generator - *Generator Replacement (Stormwater Station)*	The City of Madeira Beach has one stormwater station located at 1410 I N Bayshore Dr. In 2007 the city approved improvements to the station which included two (2) new Flyght pumps, new control panel including alarms and flashing lights, and a new diesel generator. The purpose of this stormwater station is to pump the water off the roadway relieving roadway flooding. The current diesel generator is 16 years old and has major rust from sitting directly on the water. After discussions with vendors and the city mechanic staff has decided to convert the new generattor to natural gas. Staff coordinated with TECO Gas to run a new gas line from Gulf Blvd to the station approximately 550 feet. The cost to run the new gas line is $19,388 .00 . Tampa Armature Works (TAW) is on the Sourcewell Cooperative Purchasing for Kohler generators and installation. The generator will be a l00KW, 3 Phase, 480 Volt Natural Gas with a hunricane impact enclosure rated at I 86 wind load for a cost of $64,830.86. The estimate to replace the grates and rebuilt the inlets would be about $50K. There are 7 inlets and the estimated cost to rebuild each is anywhere from $5k - $7k and then the grates are around $1K each. I would only like to rebuild the inlets on 141st because they are quite old and outdated. purchase new stormwater grates and leveling ground area.	1	$180,831	2024	Budget, HMGP	1/22/2025		Megan Wepfer

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776	Madeira Beach/Public Works	John's Pass Boardwalk Piling Repair	Wrap pilings with structural jacket for durability - plan to do nine to 10 each year	1	$150,000	2023-2025	Budget	1/22/2025		Megan Wepfer
884	Madeira Beach/Public Works	Area 6 Roadway Improvements - 153rd to 155th Ave (1st & 2nd Streets E), Harbor Drive & Municipal Drive	Mill and resurface, stormwater pipe repairs, and curb repairs	1	$1,200,000	2024/engineering	Budget and $1M FDOT Grant	1/22/2025		Megan Wepfer
902	Madeira Beach/Public Works	New Public Works Building	Garage space for Public Works vehicles (for maintenance/storage), offices, and additional training facilities for Fire Department	1	$2,000,000	2024-2025	Budget (costs include engineering and start of construction)	1/22/2025		Megan Wepfer
1043	Morton Plant Hospital Association Inc.	Mease Countryside Hospital Flood Wall	In order to mitigate the identified threat of storm surge driven waters from impacting the South side of the hospital as identified in the slosh model; Morton Plan Hospital Association INC. would like to build a flood wall along the South perimeter to prevent the flooding of the loading dock area. This identified risk has moved the Morton PLant Hospital from a previously identified non-evacuation zone to a level D evacuation zone. The sucessful mitigation of this risk would help to ensure critical community Infatsructure and the commiunity as a whole is more prepared and resilient.	1	$300,000	Currently Unfunded	Baycare Self-Funded	1/22/2025		Dirk Palmer
1043	Morton Plant Hospital Association Inc.	MPH PTAK Rehab Ctr Shutters	In order to further protect the building envelope and provide a more resilient Healtcare facility, Morton Plant Hospital Association would like to submit this project to add shutters to the Morton PLant Hospital PTAK Rehabilitation Center. This facility provides both rehabilitaion and nursing Home services to the community. Mitigating the storm wind losses would lead to a more prepared and resilient community as well as reducing the potential for storm wind losses in the county.	2	$825,000	Currently Unfunded	Baycare Self-Funded	1/22/2025		Dirk Palmer
1020	Morton Plant Hospital Association Inc.	MCH Windows & Shutters	Morton Plant Hospital INC. in order to further enhance the building envelope is submitting this project to replace 78 windows with hurricane hardened windows. Some of the areas where the window replacement may not be as effective would have shutters installed to minimize storm wind losses. THis would also support a more rresilient community and reduce the amount of storm wind loss in the county.	2	$2,150,000	Currently Unfunded	Baycare Self-Funded	1/22/2025		Dirk Palmer
890	Morton Plant Hospital / Clearwater	Hospital Retrofit	Replace windows at Morton Plan Hospital's Adler/ Women's Center Estimated completion time: more than 12 months. / 2	2	$680,000	Currently Unfunded	EMPATF, HMGP; PDM Program	1/22/2025		
890	Morton Plant Hospital / Clearwater	Hospital Retrofit	Replace the lower roof of Witt South building at Morton Plant Hospital. Estimated completion time: more than 12 months. / 2	2	$400,000	Currently Unfunded	FMAP; HMGP; PDM Program	1/22/2025		
830	North Redington Beach / Public Works	Stormwater Management #2	Implement retrofit of the remaining 14 storm water valves. Estimated completion time: more than 12 months. / 1	1	$210,000	Currently Unfunded	EMPATF, HMGP; PDM Program	1/22/2025		Mary Campbell
810	North Redington Beach / Public Works	Underground Utilities	Place underground utilities along Gulf Boulevard (NRB). Estimated completion time: more than 12 months. / 2	2	$7,000,000	Currently Unfunded	EMPATF; HMGP; PDM Program	1/22/2025		Mary Campbell
1065	North Redington Beach / Public Works	North Redington Storm Drain 173rd	Installing a brand new storm drain between 555 and 557 173rd Avenue.	1	$15,000	Currently Unfunded	HMGP, Local	1/22/2025		Bruce Cooper
1160	Oldsmar / Fire Rescue	Station #54 Hardening	Remote EOC location. Hardening of Station #54 as recommended following wind mitigation study. Replace overhead doors and station windows./2	2	$150,000	Currently Unfunded	Local, HMGP	1/22/2025	7/17/2024	Jason Schwabe
950	Oldsmar / City Clerk; IT	COOP Document Imaging	Document management program utilizing scanning and digitization of vital records for off-site storage and retrieval. / 4	4	$75,000	Currently Unfunded	EMPATF; HMGP; PDM Program	1/22/2025	7/17/2024	Tatiana Childress
880	Oldsmar / Planning and Redevelopment; Communications	Public Education and Information	Provide education and information to property and business owners about storm damage and ways to properly protect structures. Estimated completion time: more than 12 months. / 4	4	$25,000	Currently Unfunded	EMPATF; HMGP; PDM Program	1/22/2025	7/17/2024	Tatiana Childress
950	Oldsmar / Public Works; TECO	Bury Utilities Underground	Bury the overhead electric, telephone and cable TV utility lines in the Community Redevelopment District. Estimated completion time: more than 12 months. / 2	2	$2,000,000	Currently Unfunded	HMGP, Local	1/22/2025	7/17/2024	Tatiana Childress
1160	Oldsmar / Public Works; Water Reclamation	Flood Proofing and Hardening of Sanitary Sewer Lift Stations	Storm proof and retrofit eight existing sanitary sewer lift stations within the flood plain. Estimated completion time: more than 12 months. / 1, 2	4	$400,000	Currently Unfunded	EMPATF; HMGP; PDM Program	1/22/2025	7/17/2024	Tatiana Childress
1115	Oldsmar/Fire Rescue	Aerial Fire Apparatus Replacement	Current response of City assets includes fire pumper apparatus only. Replacement of current response with an aerial fire apparatus will include additional option of aerial component providing ability to access elevated structures such as hotels and commercial buildings. The additional option of an aerial master stream for large fire attack will also be available. /4	4	$1,150,000	Currently Unfunded	EMPATF; HMGP; PDM Program	1/22/2025	7/17/2024	Mandi Clark
902	Oldsmar/Public Works	Dougls Road Improvements	Douglas Road is a narrow, high traffic volume, two lane commercial collector street that does not meet current collector road standards for commercial vehicles. This Project will improve the roadway and drainage of the right-of-way. This road is a necessary route during an emergency for City field staff to physically connect with the EOC. The project is to widen the road and to improve drainage facilities, and provide landscaping and sidewalks. /1,4	4	$6,200,000	Currently Funded	EMPATF; HMGP; PDM Program	1/22/2025	7/17/2024	Tatiana Childress
1076	Oldsmar/Public Works	Trailer Mounted Generator (#402)	Mounted Generator (#402) is essential for continuing services of Lift Stations during power failure. /4	4	$75,000	Funded in 25/26 CIP	Local	1/22/2025	7/17/2024	Tatiana Childress

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1076	Oldsmar/Public Works	Trailer Mounted Bypass 6" Mobile Pump (#410)	Mobile pump is necessary to maintain and fix lift stations during emergency events. /4	4	$55,000	Funded in 24/25 CIP	Local	1/22/2025	7/17/2024	Tatiana Childress
1038	Oldsmar/Public Works	Moccasin Creek Bank Stabilization	Moccasin Creek between Peppertree Ct. and Oakleaf Blvd. has ongoing erosion. This project would be to stabilize the banks in order to stop the continued degredation. Gabion Baskets or another sustainable option, would be utilized in order to armor the river banks. Ongoing erosion causes sediment to be transported downstream. This leads to reduced capactiy in the channel which causes increased frequency of flooding. Additionally if erosion continues, it will threaten the integrity of structures closest to the creek./3	3	$325,000	Currently Funded	Local; TBEP	1/22/2025	7/17/2024	Ashlee Painter
1070	Oldsmar/Public Works	Stormwater Master Plan	Develop a 10-year Stormwater Master Plan that will serve as the guidance for the stormwater utility's capital improvement and maintenance programs. The plan should encompass the city's history of stormwater management, provide a path forward for improvement, and be clear and concise. /4	4	$500,000	Currently Funded	Local	1/22/2025	7/17/2024	Ashlee Painter
930	PARC / St. Petersburg	Disabilities Registration	Provide computerized pre-registration for individuals with severe developmental disabilities. Estimated completion time: less than 12 months. / 4	4	$25,000	Currently Unfunded	HMGP, Local	1/22/2025		
920	PARC / St. Petersburg	Special Needs Shelter Retrofit	Harden PARC building to serve as a safe multi-hazard shelter including an emergency operation center. Estimated completion time: more than 12 months. / 2	2	$9,500,000	Currently Unfunded	HMGP, BRIC, Local	1/22/2025		
920	Pinellas County / Parks & Conservation Resources	Alligator Lake Habitat Restoration (845)	Comprehensive ecosystem restoration project for wetland and upland creation and enhancement and stormwater polishing. /2 (Project on schedule in monitoring/maintenance phase)	2	$1,300,000	FY2012 - FY2018	Grant; Local funds; SWFWMD	1/22/2025	10/30/2017	Steve Harper
680	Pinellas County / Parks & Conservation Resources	Mobbly Bay Habitat Restoration (656)	Comprehensive ecosystem restoration project for wetland and upland creation and enhancement and stormwater polishing. /2 (Project to be completed by SWFWMD)	2	$1,100,000	FY2012 - FY2018	Grant; Local funds; SWFWMD	1/22/2025	10/30/2017	Steve Harper
1255	Pinellas County / Public Works Environmental Mgmt Division	Sea Level Rise Vulnerability Assessment	Pinellas County Sea Level Rise and Storm Surge Vulnerability Assessment. Will perform vulerability risk assessments of tidal flooding & storm surge impacts at multiple SLR scnarios & time horizons for critical County infrastructure assets / 2	2	$450,000	FY18-FY21 / Digital Elevation Model and asset geodatabase complete, Storm Surge modeling ongoing.	U.S. Treasury	1/22/2025	10/27/2017	Andy Squires
1140	Pinellas County / Public Works	South Creek Watershed Management Plan	Evaluate drainage patterns within watershed; identify flooding locations; develop BMPs to address the issues. / 1, 3	4	$750,000	FY2019 - FY2021 / In Progress	Surface Water Utility Fund and SWFWMD CFI Grant	1/22/2025	11/30/2020	Rob Burnes
1140	Pinellas County / Public Works	Klosterman Bayou Watershed Management Plan	Evaluate drainage patterns within watershed; identify flooding locations; develop BMPs to address the issues. / 1, 3	4	$300,000	FY2020 - FY2021 / In Progress (Scoping)	Surface Water Utility Fund and SWFWMD CFI Grant	1/22/2025	11/30/2020	Rob Burnes
1140	Pinellas County / Public Works	Roosevelt Creek Watershed Management Plan	Evaluate drainage patterns within watershed; identify flooding locations; develop BMPs to address the issues. / 1, 3	4	$800,000	FY2020 - FY2023 / In Progress (Scoping)	Surface Water Utility Fund and SWFWMD CFI Grant	1/22/2025	11/30/2020	Rob Burnes
1140	Pinellas County / Public Works	Coastal Zone 5 Watershed Management Plan	Evaluate drainage patterns within watershed; identify flooding locations; develop BMPs to address the issues. / 1, 3	4	$575,000	FY2021- FY2024 (Procurement)	Surface Water Utility Fund and SWFWMD CFI Grant	1/22/2025	11/30/2020	Rob Burnes
1140	Pinellas County / Public Works	Starkey Road Watershed Management Plan Update	Evaluate drainage patterns within watershed; identify flooding locations; develop BMPs to address the issues. / 1, 3	4	$500,000	FY2021- FY2024 (Procurement)	Surface Water Utility Fund and SWFWMD CFI Grant	1/22/2025	11/30/2020	Rob Burnes
1140	Pinellas County / Public Works	Sutherland Bayou Watershed Management Plan	Evaluate drainage patterns within watershed; identify flooding locations; develop BMPs to address the issues. / 1, 3	4	$300,000	FY2022-FY2025 (CFI)	Surface Water Utility Fund and SWFWMD CFI Grant	1/22/2025	11/30/2020	Rob Burnes
1200	Pinellas County / Public Works	Cross Bayou Improvements Phase 2	Cross Bayou Improvements Segment 2 (002124B): This project will improve conveyance through Cross Bayou Canal and reduce duration of flooding. The banks of the canal will be stabilized as needed to reduce future sediment buildup. Property rights will be acquired and maintenance berms furnished to provide access for future maintenance. This project also undertakes a number of secondary goals via the Envision Sustainable Infrastructure process to include habitat and floodplain storage, water quality and explores recreational trail and blueway opportunities.	4	$15,355,000	FY23-FY29 / In Progress	Penny for Pinellas, Grants	1/22/2025	8/9/2024	Amber Hauser
1190	Pinellas County / Public Works	Curlew Creek (Channel A Oro Dr to Wilshire Dr) and Smith Bayou (Lower Bee Branch Channel Restoration near Tampa Rd) Stormwater Conveyance Improvements	Curlew Creek and Smith Bayou Stormwater Conveyance Improvements (004121A): Implementation of the recommended capital improvement projects contained in the Curlew Creek Watershed Management Plan (WMP) to provide an increased level of flood protection and improve water quality. The County will undertake highly ranked projects that primarily benefit unincorporated Pinellas County and will seek partnership opportunities with municipalities for other high priority recommended projects.	4	$13,433,000	FY23-FY29 / In Progress	Penny for Pinellas, Grants	1/22/2025	8/9/2024	Amber Hauser

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1035	Pinellas County / Public Works	Cross Bayou Estates Drainage Phase 2	Cross Bayou Estates Drainage 2 (001328B): Drainage improvements to alleviate residential structural and street flooding in the vicinity of Cross Bayou Estates. / 1	1	$4,454,000	FY23-FY29 / In Progress	Penny for Pinellas, Grants	1/22/2025	8/9/2024	Amber Hauser
1076	Pinellas County / Public Works	Stormwater Infrastructure Program PIV	Stormwater Infrastructure Program PIV (004207A): Annually funded program to rehabilitate stormwater infrastructure to address flooding. / 1, 3	4	$12,149,000	FY23-FY29 / In Progress	Penny for Pinellas, Grants	1/22/2025	8/9/2024	Amber Hauser
932	Pinellas County / Public Works	Starkey Road Channel 5 Bank Stabilization Improvements	Starkey Road Channel 5 Bank Stabilization Improvements (004135A): Bank stabilization and erosion control measures for approximately 2,100' of Starkey Road Channel 5 from Starkey Road northeasterly to the CSX railroad crossing. / 3	3	$6,137,000	FY23-FY29 / In Progress	Penny for Pinellas, Grants	1/22/2025	8/9/2024	Amber Hauser
1181	Pinellas County / Public Works	Joe's Creek Greenway Trail and Stormwater Management	Joe's Creek Greenway Trail and Stormwater Management (004116A): This project is for preliminary engineering, design and construction of the Joe's Creek Greenway Trail, adjacent main channel improvements and implement projects identified by the watershed management plan for watershed wide flood protection, erosion control, and water quality improvements. These efforts are highly interdependent and will benefit from a coordinated single project approach, at least through the preliminary engineering phase. Projects include the Joe's Creek Greenway Trail, culvert upgrades, main channel improvements, treatment swales, and dry retention (at Joe's Creek Greenway Park) the and improvements affecting main channel tributary systems. / 1, 3	4	$56,143,000	FY23-FY29 / In Progress	Penny for Pinellas, Grants	1/22/2025	8/9/2024	Amber Hauser
1175	Pinellas County / Public Works	McKay Creek Watershed-wide Flood Reduction	McKay Creek Watershed-wide Flood Reduction (004117A): Implementation of the recommended capital improvement projects contained in the McKay Creek Watershed Management Plan (WMP) to provide an increased level of flood protection and improve water quality. / 1, 3	4	$7,402,000	FY23-FY29 / In Progress	Penny for Pinellas, Grants	1/22/2025	8/9/2024	Amber Hauser
1172	Pinellas County / Public Works	Starkey Road Channel 8 Drainage Improvements	Starkey Road Channel 8 Drainage Improvements (004119A): Implementation of the recommended capital improvement projects contained in the Starkey Road Watershed Management Plan (WMP) to provide an increased level of flood protection and improve water quality. / 1, 3	4	$3,100,000	FY23-FY29 / In Progress	Penny for Pinellas, Grants	1/22/2025	8/9/2024	Amber Hauser
1148	Pinellas County / Public Works	Implementation of the Allen's Creek Watershed Management Plan Recommendations	Implementation of the Allen's Creek Watershed Management Plan Recommendations (004124A) Implementation of the recommended capital improvement projects contained in the Allen's Creek Watershed Management Plan (WMP) to provide an increased level of flood protection and improve water quality. The County will undertake highly ranked projects that primarily benefit unincorporated Pinellas County and will seek partnership opportunities with municipalities for other high priority recommended projects. WMP identified projects include culvert and channel upgrades on Belleair Road, Nursery Road and nearby streets.	4	$1,963,640	Not Started	State / Local Grants	1/22/2025	8/9/2024	Amber Hauser
1170	Pinellas County / Public Works	Implementation of the Brooker Creek Watershed Management Plan Recommendations	Implementation of the Brooker Creek Watershed Management Plan Recommendations (004099A) Implementation of the recommended capital improvement projects contained in the Brooker Creek Watershed Management Plan (WMP), including culvert and channel improvements, to provide an increased level of flood protection and improve water quality. The County will undertake highly ranked projects that primarily benefit unincorporated Pinellas County and will seek partnership opportunities with municipalities for other high priority recommended projects.	4	$244,455	Not Started	State / Local Grants	1/22/2025	8/9/2024	Amber Hauser
1188	Pinellas County / Public Works	Implementation of the Cross Bayou Canal Watershed Management Plan Recommendations	Implementation of the Cross Bayou Canal Watershed Management Plan Recommendations (004118A): Implementation of the recommended capital improvement projects contained in the Cross Bayou Watershed Management Plan (WMP) to provide an increased level of flood protection and improve water quality. The County will undertake highly ranked projects that primarily benefit unincorporated Pinellas County and will seek partnership opportunities with municipalities for other high priority recommended projects.	4	$3,660,000	Not Started	State / Local Grants	1/22/2025	8/9/2024	Amber Hauser
1272	Pinellas County / Public Works	McKay Creek Operable Lake Controls and SCADA (004134A)	The 9 square-mile McKay Creek watershed is located in the western coastal portion of Pinellas County, with significant flooding along McKay Creek, Church Creek, and other locations within the watershed. The 2014 McKay Creek Watershed Management Plan (WMP) identified lake drawdown projects to provide significant flood reduction in the watershed. The project includes the design and construction of operable lake level control structures with SCADA systems for control and monitoring at Taylor Lake and at the Walsingham Reservoir.	4	$5,272,000.00	FY21-FY27 / In Progress	Penny for Pinellas , SWFWMD CFI, HMGP	1/22/2025	8/9/2024	Rob Burnes
1035	Pinellas County / Public Works	Cross Bayou Estates Drainage Phase 1	Cross Bayou Estates Drainage (001328A): Drainage improvements to alleviate residential structural and street flooding in the vicinity of Cross Bayou Estates. / 1	1	$3,357,000	FY23-FY29 / In Progress	Penny for Pinellas, Grants	1/22/2025	8/9/2024	Amber Hauser
1035	Pinellas County / Public Works	Cherokee Drive (48th Avenue N) from 113th Street North to 112th Street North Drainage Improvements	Cherokee Drive (48th Avenue N) from 113th Street North to 112th Street North Drainage Improvements (002115A): The existing stormwater infrastructure system will be upgraded and expanded to address flooding; curbing will be installed to facilitate effective drainage. Some roads with subgrade and groundwater intrusion issues will be reconstructed and protected to extend their service lives. / 1	1	$4,208,000	FY23-FY29 / In Progress	Penny for Pinellas, Grants	1/22/2025	8/9/2024	Amber Hauser
1215	Pinellas County / Public Works	Baypointe Stormwater Conservation Area	Baypointe Stormwater Conservation Area (003435A): Regional stormwater management facility providing stormwater storage, flood protection, attenuation, and treatment; habitat restoration, creation, and mitigation; and opportunities for park, open space, passive recreation, and public education / 1,3	4	$9,670,000	FY23-FY29 / In Progress	Penny for Pinellas, Grants	1/22/2025	8/9/2024	Amber Hauser
887	Pinellas County / Public Works	Oakwood Drive over Stephanie's Channel Bridge Replacement	Oakwood Drive over Stephanie's Channel Bridge Replacement (001035A) / 1, 3	4	$3,177,000	Crrently Unfunded	Penny for Pinellas, Grants	1/22/2025	8/9/2024	Amber Hauser
1020	Pinellas County / Public Works	Granger Drive Drainage Improvements	Granger Drive Drainage Improvements (001638A): Channel improvement and culvert upgrades to address flooding. / 1	1	$701,000	currently funded	Penny for Pinellas, Grants	1/22/2025		Amber Hauser
1130	Pinellas County / Public Works	Stormwater Conveyance System Improvement Program (921321)D	Storm Sewer Pipeline Rehabilitation and CIPP (002064A): Annual program to replace/line inadequate or deteriorating stormwater conveyance systems in municipal boundaries in Pinellas County. / 1	1	$7,270,000	FY23-FY29 / In Progress	Penny for Pinellas, Grants	1/22/2025	8/9/2024	Amber Hauser

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932	Pinellas County / Public Works	Bee Branch Phase 3	Bee Branch Phase 3 Erosion Control (002121C) / 1, 3- Design and construction of bank stabilization and erosion control along Bee Branch from the west side of 15th St westward to 14th St. / 3	3	$4,801,000	FY23-FY29 / In Progress	Penny for Pinellas, Grants	1/22/2025	8/9/2024	Amber Hauser
1020	Pinellas County / Public Works	Roosevelt Channel 5 Improvements	Roosevelt Channel 5 Improvements (002123A): Channel dredging, restoration and stabilization, removal of salinity barrier. / 1, 3 (Construction anticipated in FY20. FY19-25 budget updated, source: FY20-25 Governmental Capital Budget)	4	$5,552,000	FY23-FY29 / In Progress	Penny for Pinellas, Grants	1/22/2025	8/9/2024	Amber Hauser
1269	Pinellas County / Public Works	Cross Bayou Improvements Phase 1	Cross Bayou Improvements Segment 1 (002124A): Improve conveyance through Cross Bayou Canal to reduce duration of flooding. Channel dredging, restoration, and bank stabilization. / 1, 3	4	$10,501,000	FY23-FY29 / In Progress	Penny for Pinellas, Grants	1/22/2025	8/9/2024	Amber Hauser
830	Pinellas County / Public Works	Cross Bayou Channel 2 - Rena Dr. (1821)H	N Rena Drive Drainage Improvements North of Ulmerton Road & West of 66th Street N (002227A): Improve Cross Bayou Channel 2 from 66th St. to Pinecrest Subdivision. / 1	1	$60,000	Currently Unfunded	HMGP, BRIC, Local Funding	1/22/2025	8/9/2024	Amber Hauser
990	Pinellas County / Public Works	Surface Water Pipe Lining/Remove & Replace	Surface Water Pipe Lining/Remove & Replace (002625A): Annual program to replace/line inadequate or deteriorating stormwater conveyance systems in unincorporated areas of Pinellas County. / 1	1	$9,204,000	FY23-FY29 / In Progress	Surface Water Utility Fee	1/22/2025	8/9/2024	Amber Hauser
1073	Pinellas County / Public Works	Flood Prevention Program	Flood Prevention Program (003800A): Annual program to implement recommendations from WMPs and other studies. / 1, 3	4	$2,499,000	FY23-FY29 / In Progress	Surface Water Utility Fee	1/22/2025	8/9/2024	Amber Hauser
1091	Pinellas County / Public Works	Creek, Channel, Erosion Control Program	Creek, Channel, Erosion Control Program (003810A): Ongoing program to address erosion and bank stabilization / 3	3	$645,000	Currently Unfunded	Penny for Pinellas	1/22/2025	8/9/2024	Amber Hauser
932	Pinellas County / Public Works	Mullet Creek	Mullet Creek Channel B Bank Stabilization (003894A): Repair and stabilize creek banks, install erosion control measures along Mullet Creek near McMullen Booth Road and Cypress Trace Drive. This project will improve the conveyance capacity of the creek and protect the infrastructure from future erosive damage. / 1, 3	4	$3,958,000	FY23-FY29 / In Progress	Penny for Pinellas	1/22/2025	8/9/2024	Amber Hauser
1008	Pinellas County / Public Works	Chenango Ave - Sedeeva Street Drainage Improvements	Chenango Ave - Sedeeva Street Drainage Improvements (003895A): Drainage improvements to address flooding in the vicinity of Chenango Ave and Sedeeva Cir / 1, 3	4	$763,000	Currently Unfunded	HMGP, BRIC, Local Funding	1/22/2025	8/9/2024	Amber Hauser
1026	Pinellas County / Public Works	Crystal Beach Drainage Improvements	Crystal Beach Drainage Improvements (003896A): Improve the stormwater collection system and add green infrastructure to alleviate frequent street flooding, improve water quality and enhance the Crystal Beach community between Crystal Beach Ave and Florida Blvd. / 1, 3	4	$7,851,000	FY23-FY29 / In Progress	Penny for Pinellas	1/22/2025	8/9/2024	Amber Hauser
1170	Pinellas County / Public Works	Anclote Road Roadway and Stormwater Improvements	Anclote Road Roadway and Stormwater Improvements (003897A): Drainage and Roadway Improvements to address flooding hot spots; includes sidewalks and multi-modal transportation options along Anclote Road. / 1, 3	4	$8,818,000	FY23-FY29 / In Progress	Penny for Pinellas, Grants	1/22/2025	8/9/2024	Amber Hauser
1116	Pinellas County / Public Works	Lakeview and Keene Rd Drainage Improvements	Lakeview and Keene Rd Drainage Improvements (003898A): Drainage improvements to address structural and yard flooding near Lakeview Rd and Keene Rd. Intersection improvements include extending the E-W left turn storage capacity and Mast Arm installation. / 1	1	$4,137,000	FY23-FY29 / In Progress	Penny for Pinellas, Grants	1/22/2025	8/9/2024	Amber Hauser
1076	Pinellas County / Public Works	98th Way - 100th Way Drainage Improvements	98th Way - 100th Way Drainage Improvements (003899A): Improve the stormwater collection system and outfall to Long Bayou to address flooding in the vicinity of 98th Way - 100th Way. Improve drainage along Pinellas Trail to include replacement of deep ditches. / 1, 3	4	$4,621,000	FY23-FY29 / In Progress	Penny for Pinellas, Grants	1/22/2025	8/9/2024	Amber Hauser
1137	Pinellas County / Public Works	Acquisiton of Repetitive Loss Area Properties for Flood Mitigation within Smith Bayou and Cross Bayou Watersheds	This project is designed to remove repetitive loss properties from the flood hazard area and to increase the flooding Level of Service to roads and other properties within two target watersheds, Smith Bayou and Cross Bayou. This project includes recommendations from the Pinellas County Repetitive Loss Area Analysis (RLAA) and Local Mitigation Strategy (LMS). Both watersheds are listed as impaired waterbodies and will benefit from increased water quality level of service (LOS). The Smith Bayou watershed, including the 6-mile Bee Branch creek, is located in the northwestern part of Pinellas County and discharges to Sutherland Bayou north of Tampa Road. The watershed is 1,835 acres within the City of Dunedin and Unincorporated Pinellas County. Land use is mostly residential with a mix of commercial and light industrial areas and recreational open space. Most of the terrain in the Bee Branch watershed is steep and sloping, except for the flatter northwest areas. Model results indicate that portions of Alt-19 between Tampa Road and Virginia Avenue experience flooding during events equal to and greater than the 10-year storm event and Tampa Road east of Alt-19 experiences flooding during the 50-year storm. Because Alt-19 and Tampa Road are classified as Evacuation Routes the prescribed level of service is to remain passable during a 100-year and 24-hour storm event, therefore, acquisition can provide additional flood mitigation opportunity to meet service objectives. The Cross Bayou watershed encompasses approximately 7,697 acres in the central portion of Pinellas County within the cities of Pinellas Park, Largo, Seminole, and Unincorporated Pinellas County. The watershed contains closed-conduit drainage features leading to many open-channel drainage features, including the tidally influenced 7.9-mile Cross Bayou Canal, which extends across the county from Boca Ciega Bay to Tampa Bay. The majority of the watershed consists of high-density residential, industrial, and commercial areas. Because of the range of NAD88 elevations from 22 ft and below, there are significant flooding concerns within the watershed and especially along the Cross Bayou Canal. Flood damages in this area are associated with major rain events and/or higher than normal tides. Floodplain land acquisition along with the ongoing canal dredging project will improve flood level of service, remove repetitive loss area properties, and eliminate the hurricane evacuation zone A category. Acquisition of four target properties within repetitive loss areas within these watersheds is requested for this project. The acquired properties will be incorporated into proposed and ongoing flood and water quality mitigation within these watersheds to further increase flooding level of service in vulnerable, low income, and underserved communities./1	1	$12,816,090	Currently Unfunded	RESTORE Act Spill Component - Gulf Consortium, Hazard Mitigation Grant Program (FDEM), General Fund	1/22/2025	7/17/2024	Natasha Dickrell

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1097	Pinellas County/Housing and Community Development	Acquisition of repetative loss properties for flood mitigation within Tinney Creek Swamp	The proposed project involves the restoration of the Tinney Creek Swamp Watershed. This floodplain restoration and mitigation project includes the acquisition of a mobile home community in a low area and the restoration of over 8 acres back to its natural state. The property has been subject to repetitive flooding and experienced significant flooding during Hurricane Idalia. This project will allow the restoration of the property and will provide areas for natural floodplain functions, including additional floodplain storage, water quality treatment, addition of habitat, and recreational features./1	1	$7,700,000	Currently Unfunded	Local, HMGP	1/22/2025	3/22/2024	Scott Swearengen/Glenn Bailey
960	Pinellas County / Public Works	Repetitive Loss Area Analysis and Mitigation Projects Evaluation	Develop a detailed mitigation plan for repetitive loss areas and identify potential mitigation projects, develop scopes of work, budgets, and cost-benefit analyses for each. Estimated completion time: less than one year	1	$25,000	Currently Unfunded	Surface Water Assessment and HMGP	1/22/2025	8/20/2024	Maxine Moore
1205	Pinellas County / Public Works	Floodplain models for extreme events	Develop a simplified rain-on-grid family of storms flood models to see predicted inundation from severe rain events (exceeding standard 100 year event) for improved flood warning and response.	1	$225,000	Currently Unfunded	Surface Water Assessment and HMGP	1/22/2025	8/20/2024	Maxine Moore
1197	Pinellas County / Public Works	Real-time flood forecasting	Develop a real-time flood forecasting model to predict flooding from NWS rainfall and NOAA tide predictions for improved flood warning and response.	1	$500,000	Currently Unfunded	Surface Water Assessment and HMGP	1/22/2025	8/20/2024	Maxine Moore
1205	Pinellas County / Public Works	Rain and stream gage data correlation with flooding	Develop rain and stream gage data correlation to predict flooding in vicinity of existing stream gages and develop response procedures for gage levels at each location for improved flood warning and response.	1	$150,000	Currently Unfunded	Surface Water Assessment and HMGP	1/22/2025	8/20/2024	Maxine Moore
981	Pinellas County / Public Works	Whitney Road and Wolford Road intersection and Roadway Improvements (002109A)	Whitney Road and Wolford Road intersection and Roadway Improvements (002109A) / 1): The existing stormwater infrastructure system will be upgraded and expanded to address flooding.	1	$10,978,000	FY23-FY29 / In Progress	Penny for Pinellas, MIF, ARPA	1/22/2025	8/9/2024	Amber Hauser
1080	Pinellas County / Public Works	Regional Stormwater Facilities (004126A)	Regional Stormwater Facilities (004126A) - Design and construction of regional stormwater management facility to provide stormwater storage, attenuation and treatment.	1	$3,303,000	FY23-FY29 / In Progress	Penny for Pinellas	1/22/2025	8/9/2024	Amber Hauser
1026	Pinellas County / Public Works	Drainage Improvements on Pinebrook Canal between 142nd Avenue and Ulmerton Road (002119A)	Drainage Improvements on Pinebrook Canal between 142nd Avenue and Ulmerton Road (002119A)/ Reduce flooding at Pinewood Villas through conveyance improvements. / 1	1	$729,000	Currently Unfunded	HMGP, BRIC, Local Funding	1/22/2025	8/9/2024	Amber Hauser
1080	Pinellas County / Public Works	Lealman Regional Stormwater Facility (003001C)	Lealman Regional Stormwater Facility (003001C) - Design and construct regional stormwater facilities in the Lealman Community Redevelopment Area (CRA) / 1	1	$11,734,000	FY23-FY29 / In Progress	Penny for Pinellas, ARPA	1/22/2025	8/9/2024	Amber Hauser
1161	Pinellas County / Utilities	Back Up Power and Pumping Equipment for Sewer Pumping Stations	Improve infrastructure resiliency to natural hazards by installing back up power and/or permanent bypass pumping at sewer pumping stations to maintain sewer transmission during emergency events. /4	4	$2,500,000	FY18 – FY20 / Unfunded	HMGP, PDM	1/22/2025	12/15/2017	Nory Hancock
978	Pinellas County / Utilities	Force Main Sampling Equipment to Improve Sanitary Sewage Collection Process	The South Cross Bayou Water Reclamation Facility (SCBWRF) treats sanitary sewage collected from (4) different and independent collection system basins located in southern Pinellas County. There have been occurrences of monitored parameters exceeding the allowable limits in the influent ('hits'). Most recently these have included lead and copper, and other unknown compounds that have caused upsets in the treatment process. Although the County's IPP group is notified, there is no effective mechanism in-place that can quickly help identify the source(s) of these 'hits'. This equipment will help track those sources and potentially prevent them from causing a negative effect on the quality of the treatment process, reclaimed water and surface water discharge. /1	1	$450,000	FY19 – FY20 / Unfunded	HMGP	1/22/2025	12/15/2017	Nory Hancock
1118	Pinellas County / Utilities	Drinking Water Facility Security Equipment	Installing additional pan and zoom cameras at drinking water facilities to cover blank areas. Provide remote gate control and install perimeter fencing. /1, 2	4	$250,000	FY19 – FY20 / Unfunded	HMGP	1/22/2025	12/15/2017	Nory Hancock
1220	Pinellas County/Utilities	Hardening of North Booster Pump Station	Harden building envelope of major water booster station to withstand hurricane winds. /1,2	4	$6,000,000	Currently unfunded	CBDG-MIT, BRIC	1/22/2025		Thomas Menke
1064	Pinellas County	Palm Harbor Community Service Agency-Multi-Use Facility Replacement of Existing Facility	The Palm Harbor Community Service Agency (PHCSA) operates a community center at 1500 16th St. in Palm Harbor. The Center has two buildings which house programs that serve the needs of approximately 62,000 members of the community including senior activities, indoor youth activities, summer camps, event space, community meeting space, instructional space and administrative offices. The original building was built in 1978. It is approximately 9,000 SF and has been retrofitted numerous times to fit the ongoing demands of the community. The facility has outlived its design life and is a candidate for replacement. Currently the project is unfunded but, is programmed in the Penny IV outer years. The site is adjacent to Pinellas County School Board property for Palm Harbor University High School (a designated shelter) and is located in a non-evacuation zone for storm surge. The location of this facility makes it ideal for use as an at risk shelter for hurricanes. If constructed to ARC 4496 standards with backup generation and well capability, this site could provide an additional 800 shelter spaces for general populations during a storm event and be utilized as a step-down shelter post-event for 115 people. The County currently has a shelter deficit for category 4 and 5 storms. After Hurricane Irma it was identified that non-school facilities are needed to be able to move people that still require shelter assistance./1,2	4	$8,000,000	Currently Unfunded	Penny for Pinellas IV & HMGP	1/22/2025		Nancy McKibben, MPA, CPM Assistant to the County Administrator Representing the Communities of Unincorporated North County Direct: (727) 464-4812 Mobile: (727) 409-0762 Email: nmckibben@pinellascounty.org
1052	Pinellas County	Palm Harbor Community Service Agency-Multi-Use Facility Hardening of Existing Facility	The PHCSA also operates a second, considered the Main building, on the same site - 1500 16th St. in Palm Harbor. The Center offers programs that serve the needs of approximately 62,000 members of the community including senior activities, indoor youth activities, summer camps, event space, community meeting space, instructional space and administrative offices. The Main building was built in 1999. It is approximately 10,000 SF. Recommendations are for the Main Building to serve as a shelter for a tropical storm for up to 300 people or as a step-down shelter for about 100 people. This facility currently has a commercial kitchen with some natural gas powered appliances but would benefit from a generator to supply the lighting, air conditioning, and the remaining kitchen appliances. The site has an irrigation well that, with the appropriate work, could serve as a backup water supply. Window and door protection would enhance the building to reduce damages during a storm and may provide for utilization during hurricanes. This site would be ideal to help support Special Needs populations with the appropriate mitigation./1,2	4	$5,500,000	Currently Unfunded	Penny for Pinellas IV & HMGP	1/22/2025		Nancy McKibben, MPA, CPM Assistant to the County Administrator Representing the Communities of Unincorporated North County Direct: (727) 464-4812 Mobile: (727) 409-0762 Email: nmckibben@pinellascounty.org
1335	Pinellas County / Public Works / Transportation Division	Stock Generators	A countywide benefit: To assist with the safety and welfare of citizens, the stock generators will provide a temporary, long-term power source to traffic signals throughout the county in the event of a natural disaster or emergency where there is power loss. Generators are utilized for long-term relief for larger intersections that require more power. Additionally, generators will be used as a temporary source of power supply for public works crews who are responding post-storm. 25% match funding could be acquired from Pinellas County Gas Tax. Hazards Addressed: All Hazards 50 Honda EU3000is Super Quiet Light Weight Inverter 3000W 120V Fuel Efficient Generator: http://www.electricgeneratordepot.com/honda-super-quiet-light-weight-inverter-3000w-120v-fuel-efficient-generator-with-parallel-capability-and-oil-alert-5880	4	$116,498	Currently Unfunded	HMGP	1/22/2025	5/8/2018	

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1053	Pinellas County / Public Works	Cross Bayou Floodplain Restoration and Mitigation	The Cross Bayou Floodplain Restoration and Mitigation Project includes the acquisition of two properties; the removal of 94 manufactured homes, an office building, and two commercial structures; the removal of all infrastructure associated with the mobile home park and commercial property; and the restoration of over 10 acres into a green space that will provide for floodplain, stormwater, and other ecosystem services, and recreational opportunity. The PreFIRM mobile home park and commercial business to the south were developed in a low lying area along Cross Bayou, a tidally influenced creek in the Cross Bayou watershed. There are 95 structures in the park, including the manufactured homes and office. Over 85% of the mobile home park and the entire commercial lot flood with a mean annual rain event. Over 95% of the park becomes inundated with a 10 year event with depths in areas of the park reaching 3 ft and over 4 ft, respectively. The entire property is inundated with a 100 year storm with depths up to 6 feet in areas. This project will remove 97 structures from the 25, 50, and, 100 year floodplains and restoration of the property will provide areas for natural floodplain functions, including additional floodplain storage, water quality treatment, addition of habitat, and recreational features.	4	$5,000,000	Currently Unfunded	HMGP	1/22/2025	5/8/2018	Maxine Moore
1053	Pinellas County / Public Works	Lower Bee Branch Drainage Improvements and Caladesi Repetitive Loss Area Acquisition	The Lower Bee Branch Bypass Drainage Improvements and Caladesi Repetitive Loss Area Acquisition project mitigates hazards from both Inland and Coastal flooding. The project is comprised of structural drainage improvement / stream restoration component (Alternative 3) and a repetitive loss acquisition / water quality pond / natural wetland creation components (Alternative 5) of the attached Drainage Study for Lower bee Branch Bypass. The Lower Bee Branch Bypass structural drainage improvements / stream restoration component reduces flooding by as much as 2.6 feet for the 100-year/24-hour freshwater flood event. This is a capital improvement project for a double box culvert structure to bypass flood flows from Bee Branch near the north end of Hidden Brook Drive to downstream of the existing culverts under Pennsylvania Avenue. The box culvert would run under Virginia Avenue and Pennsylvania Avenue staying within existing rights-of-way where possible. The existing stream bed is ecologically restored and will continue to carry normal low-flows. Collectively, drainage system capacity is greatly increased. The estimated cost of the Lower Bee Branch Bypass Drainage Improvements is $6.5M based on estimate for Alternative 3. The Caladesi Repetitive Loss Area Acquisition component acquires the 5.5 acre Caladesi RV Park property, vacates 6 buildings and approximately 90 mobile home / recreational vehicle from the 100- floodplain and constructs an ecologically enhanced regional retention / water quality treatment pond facility in its place. The pond system will enhance water quality in the estuary through biological nutrient uptake in created wetlands and also capture sediments. The estimated cost of this repetitive loss property acquisition component is estimated as approximately $2.2M based on estimate for Alternative 5.	4	$8,700,000	Currently Unfunded	HMGP	1/22/2025	5/8/2018	Maxine Moore
1179	PC / Public Works	Re-establish Coastal Benchmarks in Pinellas County	There is approximately 23 miles of coastal beach from Pass-a-grille to Sand Key Bridge where most coastal benchmarks with elevations have been destroyed. Estimate approximately $4,500 per mile to re-establish coastal benchmarks for all 23 miles for a total of approximately $104,000 (for the survey bench run and bluebooking) plus approximately $28,000 for the monuments plus project management time. Total estimate $150k. Funding requested is to start re-establishing benchmarks for 5 to 10 miles along the coast for $40,000. Further funding would be sought to complete the project over the next several years.	4	$150,000	Currently Unfunded	HMGP, BRIC, Local Funding	1/22/2025	8/9/2024	Paul Miselis
1100	Pinellas County / Public Works	Lake Seminole Watershed Management Plan	Evaluate drainage patterns within watershed; identify flooding locations; develop BMPs to address the issues. / 1, 3	4	600,000	FY25-27	Surface Water Utility Fund and SWFWMD CFI Grant	1/22/2025	8/12/2024	Rob Burnes
1080	Pinellas County / Public Works	Palm Harbor Regional Stormwater Facility Improvements (004243A)	Palm Harbor Regional Stormwater Facility Improvements (004243A): Regional pond for stormwater management including water quality and attenuation.	1	4,755,000	FY23-FY29 / In Progress	Penny for Pinellas, Grants	1/22/2025	8/12/2024	Amber Hauser
1073	Pinellas County / Public Works	Stormwater Quality Program PIV (004296A)	Stormwater Quality Program PIV (004296A): Preliminary engineering to identify water quality improvement project opportunities.	1	1,785,000	FY23-FY29 / In Progress	Penny for Pinellas, Grants	1/22/2025	8/12/2024	Amber Hauser
999	Pinellas County / Public Works	Stevensons Creek Channel Reconstruction (005541A)	Stevensons Creek Channel Reconstruction (005541A): Channel improvement project for flood reduction and water quality improvements.	4	4,867,000	FY23-FY29 / In Progress	Penny for Pinellas, Grants	1/22/2025	8/12/2024	Amber Hauser
969	Pinellas County / Public Works	Spring Branch Floodplain Preservation and Habitat Improvement Area (005542A)	Spring Branch Floodplain Preservation and Habitat Improvement Area (005542A): Spring Branch watershed habitat /water quality improvement project.	4	7,847,000	Currently Unfunded	HMGP, BRIC, Local Funding	1/22/2025	8/12/2024	Amber Hauser
981	Pinellas County / Public Works	Sutherland Area Drainage Improvements (005585A)	Sutherland Area Drainage Improvements (005585A): Neighborhood drainage improvement project.	1	4,063,000	FY23-FY29 / In Progress	Penny for Pinellas, Grants	1/22/2025	8/12/2024	Amber Hauser
1040	Pinellas County / Public Works	Bee Branch Erosion Control - Omaha to Outfall (005587A)	Bee Branch Erosion Control - Omaha to Outfall (005587A): Channel improvement project for flood reduction and water quality improvements.	1	4,654,000	FY23-FY29 / In Progress	Penny for Pinellas, Grants	1/22/2025	8/12/2024	Amber Hauser
1004	Pinellas County / Public Works	Lealman Drainage Improvements (006028A)	Lealman Drainage Improvements (006028A): Drainage improvements on and around 33rd Way N and 33rd St N in Lealman.	1	489,000	FY23-FY29 / In Progress	Partially funded, ARPA	1/22/2025	8/12/2024	Amber Hauser
1004	Pinellas County / Public Works	Riverside Dr Drng Imp (sub-project 001037B)	Riverside Dr Drng Imp (subproject 001037B)	1	1,426,257	FY23-FY29 / In Progress	Partially funded, Local	1/22/2025	8/12/2024	Amber Hauser
1062	Pinellas County / Public Works	Allen's Creek Ch 5 - Belleair (sub-project 001221A)	Allen's Creek Ch 5 - Belleair (sub-project 001221A)	1	260,000	FY23-FY29 / In Progress	Partially funded, Local	1/22/2025	8/12/2024	Amber Hauser
1004	Pinellas County / Public Works	Bogie Lane Drainage Imp (sub-project 003132A)	Bogie Lane Drainage Imp (Sub-project 003132A)	1	600,000	FY23-FY29 / In Progress	Partially funded, Local	1/22/2025	8/12/2024	Amber Hauser
1004	Pinellas County / Public Works	Curtis Drive Drainage Improvements (sub-project 004511A)	Curtis Drive Drainage Improvements (Sub-project 004511A)	1	540,000	Currently Unfunded	HMGP, BRIC, Local Funding	1/22/2025	8/12/2024	Amber Hauser
1004	Pinellas County / Public Works	Wayfair Court Drainage Improvements (Florida Ave) (sub-project 004510A)	Wayfair Court Drainage Improvements (Florida Ave) (sub-project 004510A)	1	400,000	Currently Unfunded	HMGP, BRIC, Local Funding	1/22/2025	8/12/2024	Amber Hauser
1004	Pinellas County / Public Works	86th Ave N Drainage Improvements (sub-project 004533A)	86th Ave N Drainage Improvements (sub-project 004533A)	1	200,000	FY23-FY29 / In Progress	Partially funded, Local	1/22/2025	8/12/2024	Amber Hauser
1004	Pinellas County / Public Works	Imperial Point Sub Drainage Improvements (sub-project 004509A)	Imperial Point Sub Drainage Improvements (sub-project 004509A)	1	211,448	FY23-FY29 / In Progress	Partially funded, Local	1/22/2025	8/12/2024	Amber Hauser

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1133	PC / Transportation Division of Public Works	Dunedin Causeway Bridges Project	The bridge, located off of S.R. 586 is the sole connection of the City of Dunedin to Honeymoon Island State Park and residential living. The bridge is also an evacuation route. The bridge past its design and useful life. Needs replacing. Both bridges were constructed in 1963.	4	$112 Million	$70 Million Unfunded $49 Million Funded FY 24-FY 29	Partially funded Penny for Pinellas	1/22/2025		Joan Rice
1106	PC / Transportation Division of Public Works	San Martin Bridge	The bridge is located over Riviera Bay, from Tallahassee Drive to Weedon Drive in St. Petersburg. The project includes trail improvements to enhance travel for all modes of transportation. Bridge is past its design and useful life. Needs replacing. The bridge was constructed in 1962.	4	Design - $2M Construction - $18M	FY 24-FY 29 Funded	Penny for Pinellas	1/22/2025		Joan Rice
1146	PC / Transportation Division of Public Works	Beckett Bridge	The bridge, located over Whitcomb Bayou in the city of Tarpon Springs, connects residents to the evacuation route of alt U.S. 19. Construction and replacement of bridge that is past its useful life. Originally constructed in1956.	4	$22 Million	FY 24-FY 29 Funded	Impact Fees and Penny for Pinellas	1/22/2025		Joan Rice
1134	PC / Transportation Division of Public Works	13th Street / Sands Point Drive Bridge	The bridge, located in the unincorporated area of Tierra Verde (TV), connects the TV community to the evacuation routes of the Pinellas Bayway (State Highway 679). Bridge its past is design and useful life. Needs replacing. Built in 1957.	4	$11.7 Million	FY 24-FY 29 Funded	Funding could potentially come from the Capital Improvement Program within the Infrastructure Sales Tax (Penny for Pinellas)	1/22/2025		Joan Rice
1134	PC / Transportation Division of Public Works	Madonna Blvd Bridge over Pine Key	The bridge, located in the unincorporated area of Tierra Verde (TV), connects the TV community to the evacuation routes of the Pinellas Bayway (State Highway 679). Bridge its past is design and useful life. Needs replacing. Built in 1957.	4	$12 Million	FY 24-FY 29 Funded	Funding could potentially come from the Capital Improvement Program within the Infrastructure Sales Tax (Penny for Pinellas)	1/22/2025		Joan Rice
1161	PC / Transportation Division of Public Works	Orange Street Bridge	The bridge, located near an evacuation route on Alt. U.S. 19 in the unincorporated area of Palm Harbor, connects Ozona community to the evacuation routes of Alt. U.S. 19 and Tampa Road. The bridge is past its design and useful life. Needs replacing. Built in 1923.	4	$2.5 Million	Currently Unfunded	Funding could potentially come from the Capital Improvement Program within the Infrastructure Sales Tax (Penny for Pinellas)	1/22/2025		Joan Rice
1215	PC / Transportation Division of Public Works	Shore Blvd Bridge	The bridge, located along an evacuation route on S.R. 580 in the city of Safety Harbor, connects the countryside area of the county with Oldsmar and East Lake. The bridge is past its design and useful life. Needs replacing. Built in 1923.	4	$2.5 Million	Currently Unfunded	Funding could potentially come from the Capital Improvement Program within the Infrastructure Sales Tax (Penny for Pinellas)	1/22/2025		Joan Rice
1272	PC / Transportation Division of Public Works	Span Wire Intersection Replacement Program/Traffic Signal Hardening (5 Locations - see project list PDF)	Replacement of existing span wire intersections with mast arms made of galvanized steel. Intersections are along major evacuation routes throughout Pinellas County. 5 intersections in need of funding, at approximately $2.06M per intersection for construction. Estimated completion time: more than 12 months. This project is a countywide benefit; by having a more robust system in place this will improve the safe, efficient flow of traffic countywide in the event of a storm or flood. Traffic signals hung by span wire are susceptible to damage or falling due to strong wind. The fall of span wire results in traffic signals becoming inoperable and potentially blocking vehicle access on the road. Mast arm signals in place of span wire at these intersections located on evacuation routes will allow for the roads to remain open and for emergency personnel to have better access to support citizen needs.	4	Estimated average cost of $2.06M per intersection for construction. (5 total intersections). Total approx. project cost estimate for these intersections that are currently prioritized for implementation - $10.3M.	Currently Unfunded (5 intersections)	Potential match funding from the Capital Improvement Program PID 004152A Intersection Program	1/22/2025	1/2/2025	Joan Rice
1272	PC / Transportation Division of Public Works	Signal Modifications on The Barrier Islands (35 Locations - see project list PDF)	This project will include the modification of approximately 35 traffic signal control cabinets to increase resilience and mitigate flood impacts during storms. Signal cabinets on the barrier islands are extremely vulnerable to flood damage due to their location in low lying areas. The cabinets house sensitive electronic equipment to operate the traffic signals and include a UPS (Uninterruptible Power Supply) to maintain signal operations to support evacuations and emergency response during a power outage. The estimated cost to modify each signal location is $100,000. The modifications will reduce the costs associated with equipment replacement and traffic disruptions while also providing a shorter response and recovery timeline.	4	Estimated average cost of modifications is $100,000. 35 intersections are anticipated for a total approx project cost of $3,500,000.	Currently Unfunded (35 intersections)	Potential match funding from the Capital Improvement Program PID 004152A Intersection Program	1/22/2025	1/2/2025	Joan Rice/Darby Bryant
1325	PC / Transportation Division of Public Works	Building 5 Upgrades at Public Works Campus	Requested funding of $3.75 million to elevate and reconstruct the building as a Category 5 facility that can provide emergency operations countywide and be habitable by staff. Elevating and reconstructing the building will alleviate future repetitive loss.	4	$3.75 Million	Currently Unfunded	Funding could potentially come from the Capital Improvement Program within the Infrastructure Sales Tax (Penny for Pinellas)	1/22/2025		Joan Rice

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1224	Pinellas County Emergency Management	Pinellas County School Board Hurricane Shelters Generator Installs and Update	The Pinellas County School Shelter Generator Program strengthens emergency response by installing generators at 23 school-based hurricane shelters and upgrading end-of-life systems. These improvements ensure reliable backup power to support critical sheltering needs, including for vulnerable populations, during hurricanes and other disasters.	4	$1 million per school, totaling $23 million	Currently Unfunded	HMGP, BRIC, Local	1/22/2025	1/21/2025	Joe Borries
942	Pinellas Park / City of Pinellas Park Public Works Department	Stormwater Project: 60th St Roadway, Utilities & Drainage Improvements	Construction of a drainage improvement project and related infrastructure along 60th Street N. from 102nd Avenue N. to 110th Avenue N., including culverting existing ditches, installing sidewalks, widening the road, adding bike lanes, replacement of an existing asbestos concrete potable water main with a new 6" PVC main, and reconstruction of existing roadway. This project is being moved to funded in the City's upcoming budget for Fiscal Year 2023-2024. /1	1	$3,220,000	Design phase funded FY 22/23. Construction phase currently unfunded.	IST, CDBG, FDEP, Stormwater Utility Fee	1/22/2025	12/10/2018	Lizzy St. Pierre
1199	Pinellas Park /City of Pinellas Park Fire Department	Fire Station 34	Fire Station #34 at its present location cannot effectively service the geographic area which it originally serviced due to unanticipated growth and expansion. It is necessary to either relocate FS 34 or construct another station to serve the western third of the community ./4	4	$5,000,000	Currently unfunded	EMPATF, HMGP; PDM Program; & local funds	1/22/2025	10/24/2017	Lizzy St. Pierre
1199	Pinellas Park /City of Pinellas Park Fire Department	Fire Station 35	Remodel of fire station for training facility ./4	4	$3,000,000	Currently unfunded	IST, Pinellas County, HMGP, FEMA Grant, Local coffers	1/22/2025	12/10/2018	Lizzy St. Pierre
1068	Pinellas Park / City of Pinellas Park Public Works Department	Park Station Hardening and Generator	HMGP 4337-337-R (State ID #588 / Contract #H0486) Park Station is a critical asset to the community and is essential to providing continued services before, during, and after a disaster. In an effort to protect property and become a more disaster resilient community, the proposed project includes hardening of Park Station to include the roof, opening protection, and installation of a permanent generator.	4	$1,404,344	POP Extension and budget revision approved by FDEM; submitted to FEMA for approval.	HMGP, CRA, Local Funds	1/22/2025	12/10/2024	Lizzy St. Pierre
1124	Pinellas Park / City of Pinellas Park Public Works Department	Twelve Public Facilities Wind Retrofit and Generator (formerly Installation of Shutters at City Buildings) (Combined with Barbara S. Ponce Library Hardening and Generator) NOTE: Project Modification - The parameters for this grant have been reduced due to non availability of increased costs. NEW SCOPE: 3 facilities- Fire Station #34, Forbes Recreational Center, and the Community Resources Building.	HMGP 4337-503-R (State ID#589) The proposed project will consist of hardening windows and doors at twelve City-owned properties through the installation of shutters. Additionally, the Barbara S. Ponce Library (formerly a separate project) will undergo hardening to include wind mitigation to the roofing system (anchoring and fastening), water barrier activities, and the installation of a permanent generator. (Separate projects were combined following FDEM and FEMA review: HMGP-4337-589 Shutter Installation and HMGP-4337-590 Barbara S. Ponce Library Retrofit and Generator Installation into the current project HMGP-4337-503-R Twelve Public Facilities Wind Retrofit and Generator.) NOTE: For these three facilities, the City is proposing a materials substitution of impact-resistant windows/opening protection in lieu of the previously identified manual "roll-down" shutters.	2	$1,565,472	POP Extension and budget revision approved by FDEM; submitted to FEMA for approval.	HMGP, Local Funds	1/22/2025	12/10/2024	Lizzy St. Pierre
890	Pinellas Park / City of Pinellas Park Fire Department	Community Emergency Response Team (CERT).	Supply CERT Training to 60 trainees. Estimated completion time: less than 12 months. / 4 ; Project still under consideration. Time frame unknown. To be determined by funding availability and community interest.	4	$30,000	Currently Unfunded. Time frame unknown.	EMPATF, HMGP; PDM Program, and local funds (i.e., Penny for Pinellas)	1/22/2025	11/27/2018	Lizzy St. Pierre
1020	Pinellas Park / City of Pinellas Park Public Works Department	Fairlawn Subdivision Drainage Improvements	(Phase 1 & 2) Install a stormwater collection and conveyance system in a subdivision originally developed in the County in the 1960s and 70s. This would eliminate issues of localized flooding and dangerous stormwater inlets. /1	1	3,500,000	Currently unfunded / FY 21/22 to FY 25/26.	Local Funds, SWFWMD Grant, EMPATF, HMGP; PDM CDBG.	1/22/2025	12/10/2018	Lizzy St. Pierre
816	Pinellas Park / City of Pinellas Park Public Works Department	Jan Cory Subdivision Infrastructure Improvements	Design and construct a drainage system within the subdivision which would include improving rural roads to provide curbing, culverting open conveyance systems, road improvements, sidewalk, and utility relocation and upgrades.	1	$4,580,000	Currently unfunded / FY 21/22 to FY 25/26.	Local Funds, SWFWMD Grant, EMPATF, HMGP; PDM CDBG.	1/22/2025		Lizzy St. Pierre
861	Pinellas Park / City of Pinellas Park Public Works Department	Garnett Subdivision Drainage Improvements (Phase 2)	Garnett & North Disston Subdivisions - 40 acre +/- tract situated between 82nd Avenue 86th Avenue & 46th Street, 49th Street. Phase II project will improve drainage to the Garnett Subdivision and mitigate roadway ponding and flooding that occurs within this subdivision. Project includes 46th Street, 47th Street, 87th Avenue, 87th Terrace, and 88th Avenue; mills and repave 88th Avenue; total rebuild on 46th Street, 47th Street, 87th Avenue and 87th Terrace; update sidewalks to ADA standards in project area. Construction of a drainage improvement project and related infrastructure within the Garnett subdivision. This includes new drainage, utilities, sidewalk, curb, and roadway infrastructure. This project is listed in the LMS with a total project cost of $2,035,000.00. Due to inflation and economic changes in the market, the expected cost of this project is $2,830,000.	1	$2,830,000	Project funded FY 21/22 to FY 25/26 CIP	CDBG, Stormwater fee	1/22/2025	1/3/2025	Tammy Hillier
970	Pinellas Park / City of Pinellas Park Public Works Department	Public Safety Complex - Police and Fire Administration and Emergency Operations Center	Design, engineer, construct and equip Fire and Police Administration Public Safety Complex and Emergency Operations and Command Center. This centralized complex would combine facilities for Police Department and Fire Administration. The structure will be built to withstand natural threats, allow for centralized communications and operations, reduce costs and increase the efficiency of coordination between these entities. The complex will also serve as the first responders Emergency Operations Center and a secondary EOC for city operations.	4	$23,000,000	Design and Site Prep: FY 21-22. Construction phase anticipated FY 22/23.	Bond Funds / Infrastructure Sales Tax	1/22/2025		Lizzy St. Pierre

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1322	Pinellas Suncoast Fire & Rescue District	Generator power for interim EOC	Two of the District's three fire stations are in a Level A evacuation zone in Pinellas County. The fire district does not have an Emergency Operations Center (EOC) and evacuations of fire stations and fire department administration requires all district operations move to a remote site located at the Indian Rocks Christian School. While this site is rated for Category 5 hurricane winds, the site does not have back-up power. The above project will place a generator and automatic power switch will enable uninterrupted emergency operations during and after a storm, making the fire district more disaster resilient.	4	$278,978	Currently Unfunded	HMGP	1/22/2025	5/8/2018	Todd Best, District Chief, Pinellas Suncoast Fire Rescue
1223	Pinellas Suncoast Fire & Rescue District	Construction of new fire station to meet current building standards in alternate location	Current fire station does not meet building standards. Natural disasters, such as hurricanes require district personnel, i.e. firefighters and paramedics to evacuate to a safer location. Evacuation of personnel and equipment significantly delays response to emergencies during and after storms or other disasters. Construction of a fire station meeting current building standards will allow emergency personnel to remain in the fire station during and after a storm, thereby improving response times and service to four barrier island communities and unincorporated mainland area.	4	$4,000,000	Currently Unfunded	PDM	1/22/2025	5/8/2018	
1311	REBUILD Northwest Florida, Innc.	Statewide Residential Wind Retrofit Project	REBUILD proposes to provide wind retrofits include protection for (1) roof-to-wall connections; (2) gable end bracing/sheathing; (3) opening protection and (4) other critical structural strengthening as determined a structural engineer for up to 3,000 homes in Pinellas County	2	$30,000,000	Currently Unfunded	HMGP	1/22/2025	7/13/2018	Chris Moore
929	Redington Beach / Public Works	Rebuild Public Works Facility	The curent Public Works facility does not meet current building codes as it was built in the 1940s. It is not rated for hurricane winds and is in a special flood hazard area. The building is not hardened and has significant space utilization issues. / 1, 2	1	2,500,00	Currently Unfunded	EMPATF, HMGP, Local	1/22/2025		Adriana Nieves
918	Redington Beach /Clerk's Office	Mitigate Repetitive Loss Properties	Requesting funds for the mitigation of noncompliant repetitive loss properties and pre-FIRM structures that are floodprone or at high risk/exposure to being flooded or experience wave action/erosion. / 1	1	$1,500,000	Currently Unfunded	FMA	1/22/2025		Adriana Nieves
783	Redington Beach / Engineering	Underground Utilities	Place underground utilities along the west side of Gulf Boulevard from 155th Ave to 164th Ave. Estimated completion time: more than 12 months. / 2	2	$4,000,000	Currently Unfunded	Penny for Pinellas	1/22/2025		Adriana Nieves
783	Redington Beach / Engineering	Underground Utilities	Place underground utilities along all interior streets east of Gulf Blvd. Estimated completion time: more than 12 months. / 2	2	$2,000,000	Currently Unfunded	Penny for Pinellas	1/22/2025		Adriana Nieves
1146	Redington Beach / Public Works	EOC Generator	Purchase and installation of new portable generator at Redington Beach Town Hall / Emergency Operations Center. The Town of Redington Beach is seeking funds that will provide an alternate electrical power source capable of running Town Hall AC system as well as sufficient outlets to run additional equipment in the event of a power failure.1/2/4	4	$3,000	Currently Unfunded	Local	1/22/2025		Adriana Nieves
782	Redington Beach / Engineering	Road Milling / Resurfacing	Road deterioration causes safety hazards and negatively impacts the attractiveness of the neighborhood. This project includes continuation of street milling and resurfacing, and includes updating the drainage system in the areas resurfaced. / 3	1	$1,200,000	FY 23-24	SWFMD, local, FDOT	1/22/2025		Adriana Nieves
1080	Redington Beach / Public Works	Stormwater Backflow Valve	Minimize flooding in the town's flood - prone areas. These areas frequently flood during major rain events and high tide. Clean stormwater pipes in entire Town, including video and mapping of stormwater pipes. Install backflow valves in the Town's 33 outfalls. Phase 1 complete - 15 valves installed, all pipes clean and mapped.	1	$157,000	FY 24-25	TBEP Grant, Local	1/22/2025		Adriana Nieves
828	Redington Beach / Clerk's Office	Security Improvements to Town Hall	Replace exterior doors at Town Hall and install cameras for improved security. Install telelvision and cable access for increased awareness in the event of weather or security events.	2	$100,000	Currently unfunded	Local	1/22/2025		Adriana Nieves
941	Redington Beach / Engineering	Causeway Improvements	Raise 161st Avenue between Redington Drive and 4th Street to decrease frequency of flooding	1	$2,000,000	Currently unfunded	HMGP, local	1/22/2025		Adriana Nieves
1022	Redington Beach / Public Works	GPS Inventory of Street Signs	Inventory all street and identification signs using GPS technology to facilitate replacement following a storm event. Estimated completion time: more than 12 months./ 4	4	$9,000	Currently Unfunded	Local	1/22/2025		Adriana Nieves
1175	Redington Shores / Public Works	Lift Station Portable Emergency Generators	Lift Station Portable Emergency Generators- Purchase 4 trailer mounted 90k W/3 phase portable generators. These generators would be used to maintain operation of sewer lift stations during power outages. Estimated cost of project: $150,000. Location of the 4 generators are 17595 186th Ave. E., 480 180th Ave E., 181st Ave. W/ Gulf Blvd.,178th Ave W./ Gulf Blvd. /4	4	$114,030	Partial funding from town.	Funding by the City/Town or County, HMGP	1/22/2025	7/17/2024	Mike McGlothlin
1240	Redington Shores / Flood Stormwater Planning	Create a Revised CRS program for the Town	Consultant to review/recommend program upgrades to flood management planning / 1 / 2	4	$8,000	Town Funded	Local	1/22/2025	8/30/2016	Mike McGlothlin
870	Redington Shores / Preservation / Parks area	Create a Beach (Erosion) Management plan.	Provide for plans and specifications to expand existing Dune System and Walkover use. Estimated completion time: more than 12 months. / 2	2	$150,000	Currently Unfunded	CDBG; FMAP; HMGP; Nonpoint Source Implementation Grants; HMGP Planning	1/22/2025	8/30/2016	Mike McGlothlin
820	Redington Shores / Public Works	Underground Utilities	Place underground electrical, telephone and cable utilities to all properties along Gulf Boulevard from 175th Avenue to 83rd Terrace West. Estimated completion time: more than 12 months. / 2	2	$7,500,000	East Side Copleted	CDBG, Penny 4 Pinellas	1/22/2025	12/17/2018	Mike McGlothlin
960	Redington Shores / Public Works	Stomwater master improvement plan	Develop a SLR and master plan for upgrade and improvement of the town's entire stormwater system.	1	$150,000	Town funded	local	1/22/2025	11/1/2021	Mike McGlothlin

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1146	Redington Shores / Public Works	Stormwater Infrastructure Improvements	Stormwater Infrastructure Improvements- In conjunction with developing a SLR and a Stormwater Master Plan for the town's entire stormwater system, upgrade 17 of the town's 216 stormwater outfalls that have been identified as those in most critical need of improvement. Estimated cost of project: $425,000./1	1	$447,504	Currently Unfunded	HMGP, Town of Redington Shores	1/22/2025	7/17/2024	Mike McGlothlin
1140	Safety Harbor / Public Works	Library Lift Station Repair	Complete renovation of Sanitary Sewer Liftstation. Failure of this lift station would not only impact the delivery of sanitary sewer service but could also lead to backup of sewage into homes and overflow into Tampa Bay.	1	$75,000	FY26/27	Local	1/22/2025		Cecilia Chen
1176	Safety Harbor / Public Works	Gulf Machinery Station Repair	Complete Renovation of Sanitary Sewer Lift Station. / 1,2	4	$85,000	FY24/25	Local	1/22/2025		Cecilia Chen

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1270	Safety Harbor / Public Works	Harbor Woods Lift Station Repair	Complete Renovation of Sanitary Sewer Lift Station. / 1,2	4	$85,000	FY24/25	Local	1/22/2025		Cecilia Chen
1007	Safety Harbor / Fire Department	Fire Station Needs Analysis	Conduct a station needs analysis from a reputable third-party to identify short-, mid-, and long-term repair and maintenance plans, as well as remodeling plans, to ensure safe and resilient fire stations for the response community. Such analysis should ascertain strategies to ensure the fire station remains open and useable by response personnel during local disasters such as storms and flooding, as well as to identify code compliance issues and remedies for long term sustainability.	4	$65,000	FY25/26	Local, HMGP	1/22/2025		Cecilia Chen
1142	Safety Harbor / Fire Department	Fire Station Apparatus Bay Door Hardening	Replace all fire station apparatus bay doors with wind-load rated doors, and new components, to assist in continuity of operations for the community. The fire stations in Safety Harbor house needed emergency response units that respond to and assist at medical and fire emergencies within mid- and north-Pinellas County. This project will assist the department in hardening their structures to resist high winds during severe storms.	4	$190,000	FY23-FY28	Local	1/22/2025		Cecilia Chen
1175	Safety Harbor/Fire Department	Station Hardening – Windows	Replace all fire station windows with wind-load rated windows and new components. This will assist with the continuality of services within the community as both fire stations remained staffed during storms. FS53 is also the City EOC which houses additional storm related personnel. This project will assist the department in hardening their structures to resist high winds during severe storms.	4	$150,000	FY25-FY28	Unfunded local	1/22/2025		Cecilia Chen
1175	Safety Harbor/Fire Department	Station Hardening – Rolling Shutters	Install automatic/rolling shutters on both fire stations. This will allow for a quick and reliable hardening of the structures as storms approach. This will assist with the continuality of services within the community as both fire stations remained staffed during storms. FS53 is also the City EOC which houses additional storm related personnel. This project will assist the department in hardening their structures to resist high winds during severe storms.	4	$200,000	FY25-FY28	Unfunded local	1/22/2025		Cecilia Chen
1205	Safety Harbor/Fire Department	Station Hardening – FS53 New Roof	Install a new metal roof that has been updated to the new building code and meets wind ratings. This will assist with the continuality of services within the community as both fire stations remained staffed during storms. FS53 is also the City EOC which houses additional storm related personnel. This project will assist the department in hardening their structures to resist high winds during severe storms.	4	$135,000	FY26/27	Local	1/22/2025		Cecilia Chen
989	Safety Harbor/Public Works	Drainage Operations	Pond and Creek Dredging/Maintenance – Removing heavy sediment to improve stormwater flow and alleviate ponding/flooding./1, 3	4	$50,000	FY23/24	Local	1/22/2025		Cecilia Chen
1176	Safety Harbor/Public Works	Master Lift Station Repair – Pump #2	Replace Pump #2 at the Master Pump Station./1, 4	4	$80,000	FY22/23	Local	1/22/2025		Cecilia Chen
1176	Safety Harbor/Public Works	Master Lift Station Repair – Pump #1	Replace Pump #1 at the Master Pump Station./1, 4	4	$80,000	FY22/23	Local	1/22/2025		Cecilia Chen
1070	Safety Harbor/Public Works	Portable Generator #608	The generator protects spillage of raw sewage.	1	$110,000	FY24/25	Local	1/22/2025		Cecilia Chen
1070	Safety Harbor/Public Works	Stormwater Pipe lining	Pipe Lining: Annual program to replace/line inadequate or deteriorating stormwater conveyance systems. /4	4	$650,000	FY22-FY27	Local	1/22/2025		Cecilia Chen
1029	Safety Harbor/Public Works	Sanitary Sewer Pipe Lining	Pipe Lining: to prevent inflow of stormwater and infiltration of groundwater into infrastructure not designed to accept these flows.	4	$750,000	FY24/25	Local	1/22/2025		Cecilia Chen
1070	Safety Harbor/Public Works	Stormwater Master Plan	Evaluate drainage patterns within watershed; identify flooding locations; develop BMPs to address the issues. / 1, 3	4	$250,000	FY25/26	50%CFI, 50% Local	1/22/2025		Cecilia Chen
933	Safety Harbor/Public Works	Vulnerability Assessment	Evaluate and identify critical assests that are vulnerable to flooding, develop BMP to address issues/1	1	$175,000	FY24/25	100% State	1/22/2025		Cecilia Chen
1062	Safety Harbor/Engineering	6th St N at 6th Ave N Intersection Improvements:	Grade/Pave intersection to alleviate stormwater flooding and create positive drainage toward existing inlet./1	1	$92,000	FY24/25	Local	1/22/2025		Cecilia Chen
948	Safety Harbor/Public Works	Huntington Lift Station Rebuild	Replace Pumps at the Huntington Lift Station.	1	$400,000	FY24/25	Local	1/22/2025		Cecilia Chen
869	Safety Harbor/Engineering	Bishop and Mullet Creek Improvements	Preliminary Design; Permitting and Design Plans; Evaluate and identify critical assests that are vulnerable to flooding and erosion, develop BMPs to address the issues	3	$1,200,000	FY24/25	Local	1/22/2025		Cecilia Chen
941	Safety Harbor/Engineering	2nd St N at 2nd Ave N drainage improvements	Grade/Pave intersection to alleviate stormwater flooding and create positive drainage toward existing inlet. / 1	1	$90,000	FY24/25	Local	1/22/2025		Cecilia Chen
971	Safety Harbor/Engineering	9th Ave S at 2nd St S intersection drainage improvements	Grade/Pave intersection to alleviate stormwater flooding and create positive drainage toward existing inlet. / 1	1	$92,000	FY24/25	Local	1/22/2025		Cecilia Chen
1043	Safety Harbor/Public Works	Teal Terrace and North Bay Hills Blvd. underdrain and stormwater improvements	Teal Terrace and North Bay Hills Blvd. underdrain and stormwater improvements.	1	$1,000,000	FY24/25 (ASAP)	HMGP grant (Applying), Local	1/22/2025		Cecilia Chen
944	Safety Harbor/Public Works	Four (4) new Generators	Adding four (4) new generators to equipment inventory for post-disaster system recovery.	4	$500,000	FY24/25 (ASAP)	Unfunded local	1/22/2025		Cecilia Chen
831	Safety Harbor/Public Works	City Facility Study	Determining the needs of any future building projects or renovations to include any hardening of existing structures.	4	$500,000	FY24/25	Unfunded local	1/22/2025		Cecilia Chen
1094	Safety Harbor/Public Works	Library and Community Center Generator Transfer Switches	Library and Community Center could be utilized as aid stations following hurricanes or other disasters. They do not have an alternate power source nor a way to connect an alternate power source.	4	$250,000	FY24/25	HMGP grant (Applying), Local	1/22/2025		Cecilia Chen
1070	South Pasadena/Fire Department	City Hall Emergency Generator with Transfer Switch and Platfrom	The City of South Pasadena City Hall Complex is currently without emergency backup power. The City Hall Complex is a two-story building with a community center on the first floor and the commission chambers, city server room, administrative offices and elected official offices on the second floor. This project would include the purchase and installation of a permanent diesel- powered emergency generator and automatic transfer switch. The generator and transfer switch would be built on an elevated platform above BFE.	4	$412,500	Application submitted HMGP Ian	Pre-Disaster Mitigation (PDM), Hurricane Program, Penny Sales Tax	1/22/2025		David Mixson

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1029	South Pasadena/Public Works	Public Work Annex Generator and Platform	The City of South Pasadena Public Works Annex Builidng is currently without dedicated emergency backup power. The Public Works Annex Building houses machinery and equipment that is vital for road clearing, debris removal critical infrastructure assessment post storm. This project would include the purchase and installatoin of a permanent diesel powered emergency generator. The generator would be built on an elevated platform above BFE.	4	$275,225	Currently Unfunded; Project for FY 2025	Pre-Disaster Mitigation (PDM), Hurricane Program, Penny Sales Tax	1/22/2025		Teri Sullivan
1284	South Pasadena / Fire Department	Fire Station #20	The City of South Pasadena will construct a new fire station designed to withstand hazards posed by hurricanes, to include wind, storm surge and flooding, as well as threats posed by future sea-level rise. The City of South Pasadena is located in a FEMA AE-12 Flood Zone. The City of South Pasadena per city ordinance has increase the B.F.E. by 2 feet and as such the new fire station shall be constructed at 14 feet above sea level. The new fire station will house apparatus and personnel assigned to both fire suppression and emergency medical response activities. Part of the station design and scope will include an Emergency Operations Center (EOC) for the City of South Pasadena. Natural Hazards Addressed include: 1 - Flooding, 2 - Storm Wind, 4 - All Hazards.	4	$10,200,000	Certificate of Occupancy issued July 2024	Pre-Disaster Mitigation (PDM), Hurricane Program, Penny Sales Tax	1/22/2025	10/10/2017	Terri Sullivan
780	St. Anthony's Hospital / St. Petersburg	Public Education	Develop a community education program to provide a better interface between the City and its stakeholders. Estimated completion time: less than 12 months. / 4	4	$10,000	Currently Unfunded	Residential Construction Mitigation Program; EMPATF, HMGP; PDM Program	1/22/2025		
780	St. Anthony's Hospital / St. Petersburg	ER Retrofit to provide surge capacity for emergencies	Build surge capacity for St. Anthony's Hospital including a new Emergency Dept. Estimated completion time: more than 12 months. / 4	4	$2,000,000	Currently Unfunded	Residential Construction Mitigation Program; EMPATF, HMGP; PDM Program	1/22/2025		
1330	St. Pete Beach	City EOC Retrofit	Provide shutters for the city EOC. Estimated completion time: less than 12 months. / 2	2	$40,000	Currently Unfunded	EMPATF, HMGP; PDM Program	1/22/2025	10/3/2017	Lynn Rosetti
890	St. Pete Beach	Flood Proof Recreation Building	Flood-proof recreation building. Estimated completion time: more than 12 months. / 1	1	$350,000	Currently Unfunded	FMAP; HMGP; PDM Program; EMPATF	1/22/2025	10/3/2017	Lynn Rosetti
1000	St. Pete Beach	Acquisition of Repetitive Loss Properties	Purchase repetitive loss properties to mitigate losses. Estimated completion time: more than 12 months. / 1	1	$1,000,000	Currently Unfunded	EMPATF, HMGP; PDM Program	1/22/2025	10/3/2017	Lynn Rosetti
1220	St. Pete Beach	Dune Creation	Create dunes where there are gaps in the system and restore those which do not meet current FDEP dune standards. This will protect the entire city against the impacts of storms and damage to lives and property. /1,3	3	$500,000	Currently Unfunded	HMGP, Local	1/22/2025	10/3/2017	Lynn Rosetti
1060	St. Pete Beach	Sea Level Rise Study	Identify areas which are particularly vulnerable to sea level rise and which experience frequent flooding and develop an action plan to mitigate future damages. Many areas of the city become inundated with water during storms and greatly affect the welfare of the community. By developing strategies to prevent this, the city will reduces the threat level of flooding and erosion./ 1	1	$40,000	Currently Unfunded	HMGP, Local	1/22/2025	10/3/2017	Lynn Rosetti
1313	St. Pete Beach	Stormwater Improvements per Stormwater Asset Management Plan	Ongoing improvements to the City's stormwater infrastructure. Repair locations are prioritized based on stormwater flooding throughout the City./1	1	$3,000,000	$ 600,000 annually 2018-2022	Stormwater Fund, HGMP, SWFWMD.	1/22/2025	10/3/2017	Lynn Rosetti
1119	St. Pete Beach	Seawall Rehabilitation - Community Center Seawall and Living Shoreline Project	Seawall repair and replacement in accordance with established level of service. City staff review inventory and prioritize project locations annually./3 The purpose of this project is to design and construct a living seawall for the replacement of the seawall located at the St. Pete Beach Community Center - 7701 Boca Ciega Drive, St Pete Beach, FL 33706, within the City of St. Pete Beach limits and Pinellas County. The subject project is located in Pinellas County at Parcel Identification Number 36-31-15-77988-000-0010. The seawall will protect the city, its residents and developed properties from the impacts of sea level rise - including flooding and severe storms. The project includes approximately 960 linear feet of environmental services, shoreline design and construction consisting of a multi-faceted approach to include seawall repairs and living shoreline construction, utilizing a mix of gray materials (rip-rap, repaired seawall, revetments, oyster shells, etc.) and green materials (native coastal plants, mangroves, etc.) that appropriately compliment the site conditions. This project is critical to the City of St. Pete Beach and its residents. The nearly 1000' of seawall that is currently located at the site is not sufficient to protect city resources and will not protect public resources as the area experiences sea level rise. This site is located at the base of the Corey Causeway (75th Ave), which is the main ingress and egress to the City. In a significant storm with high tide and a storm surge, water could easily impact the main roadway to the Island. Further, the seawall is immediately adjacent to the City of St. Pete Beach Community Center where many important city services are provided to residents (after school programs, summer camps and family recreation). The City's police and fire boats are docked at the site. Public Works, with significant heavy equipment necessary to recovery after a storm, is located within one block. The Parks Department keeps heavy equipment at the site too. Flooding is already an issue at the site. Recently the pool at the Community Center was damaged by flooding. Without seawall improvements, flooding will increase and City resources will be at risk. The project will design a living seawall that will protect valuable residential and commercial structures, and the underlying real estate, against damages from rising sea levels and increasing storm intensities. / 1.3	4	$1,500,000	Currently Unfunded	Capital Projects Fund, HMGP	1/22/2025	10/3/2017	Lynn Rosetti
1029	St. Pete Beach	Sub-Aqueous Condition Assessment	Condition assessment of all force mains to plan future maintenance and replacement in order to prevent sanitary sewer overflows (SSOs) into bodies of water that surround the island. Project includes a highly detailed assessment of the force main leading from pump station no. 1./1	1	$175,000	Less than 12 months	Wastewater Fund	1/22/2025	10/3/2017	Lynn Rosetti

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1073	St. Pete Beach	Gulf Boulevard Electric Undergrounding	Undergrounding of electric utility lines adjacent to Gulf Boulevard./2	2	$4,500,000	More than 12 months	Penny for Pinellas, Interlocal Agreement with Pinellas County	1/22/2025	10/3/2017	Lynn Rosetti
1091	St. Pete Beach	Dune Walkover Replacement	Dune walkover replacement at 12th Avenue and 16th Avenue to meet FDEP requirements and increase resiliency by increasing the heighth of the walkover to permit the dunes to grow./1,3	4	$120,000	Less than 12 months	Grant from Pinellas County	1/22/2025	10/3/2017	Lynn Rosetti
1142	St. Pete Beach	Alley Improvements	Replacement of the existing eastern north-south shell alley between 21st and 22nd Avenue in Pass-a-Grille with a new concrete alley, designed to convey stormwater to the newly installed stormwater collection system on Pass-a-Grille Way./1	1	$100,000	18 months	Capital Projects Fund	1/22/2025	10/3/2017	Lynn Rosetti
1169	St. Pete Beach	Blind Pass Stormwater Basin Connections	The Blind Pass Road stormwater system is designed to connect 7 flood control basins. This project will connect the first basin to the new twin 60' stormwater pipes. Anticipated project schedule includes one basin per year for the next 7 years until the project is complete. /1	1	$1,400,000	7 years	Stormwater Fund, SWFWMD	1/22/2025	10/3/2017	Lynn Rosetti
1080	St. Pete Beach	Boca Ciega Drive Street Rehabilitation and Stormwater Improvements	Improvements in stormwater basin 6F identified in the Stormwater Master Plan. This basin contains 5.8 acres in a residential zone and comprises the east end of Boca Ciega Isle./1	1	$350,000	18 months	Stormwater Fund	1/22/2025	10/3/2017	Lynn Rosetti
1152	St. Pete Beach	GIS Integration System	Camera system integrated with GIS mapping for exact pipe and infrastructure location. Software system integrates with the Work Order Management System for mapping maintenance./1	1	$80,000	18 months	Stormwater Fund	1/22/2025	10/3/2017	Lynn Rosetti
1047	St. Pete Beach	Pump Replacement Stock	"Change out" pumps reduce service interruption, the likelihood of SSOs, and the associated emergency maintenance cost. One surplus pump for each of the five different types currently in service will be acquired. /4	4	$120,000	Less than 12 months	Wastewater Fund	1/22/2025	10/3/2017	Lynn Rosetti
1101	St. Pete Beach	Valve Vault Repair	The combined valve vault where the outflow from the Cities of Treasure Island and St. Pete Beach enter the City of St. Petersburg's wastewater system are frozen in the open position. This project will install a new 20-inch valve to help reduce the possibility of SSOs./4	4	$310,000	24 months	Wastewater Fund	1/22/2025	10/3/2017	Lynn Rosetti
966	St. Pete Beach	Wastewater Inflow and Infiltration Repairs	Priority-based improvements to wastewater system infrastructure to help reduce the possibility of SSOs. The City received a system-wide inflow and infiltration study in fiscal year 2017, which prioritizes manhole, lining, and pipe point repairs./4 This program has been highly successful to date, with a 14.9% reduction in sewer flows experienced over the last seven years, reducing wastewater treatment volumes at the City of St. Petersburg's plant and directly reducing volumetric expenditures for the City of St. Pete Beach. Additional funding will help expedite the program and provide for continued improvement. It provides a direct environmental benefit by reducing the potential for sanitary sewer overflows, particularly during high rain events. The project has a regional component due to the fact that the City of St. Petersburg treats the City of St. Pete Beach's wastewater. Continued improvements to the St. Pete Beach collection system will reduce the volume of waste treated at the St. Petersburg plant. /1	1	$4,900,000	5 years	Wastewater Fund, HMGP	1/22/2025	10/3/2017	Vince Tenaglia
1004	St. Pete Beach	E Maritana Living Shoreline Design & Construction	Public/Private partnership with grant funding for 3 properties /1,3	4	$47,000	1 year	Stormwater Fund	1/22/2025		Mike Clarke
909	St. Pete Beach	80th Avenue Seawall Living Shoreline	Seawall and living shoreline project (public)/ 1,3	4	$500,000	5 years	Stormwater Fund, Grant	1/22/2025		Mike Clarke
959	St. Pete Beach	36th Avenue street end living shoreline and street drainage improvements	Living shoreline and drainage improvements /1,3	4	$850,000	1 year	Stormwater Fund, General Fund	1/22/2025		Mike Clarke
941	St. Pete Beach	Seawall rehabilitation projects	29th Ave and Pass-a-Grille Way seawall rehabilitation 1st to 12th Ave, and 17th Ave seawall replacement/ 1,3	4	$3,000,000	1 year	Seawall Funds	1/22/2025		Mike Clarke
960	St. Pete Beach	Don Cesar Neighborhood Pump Station Concept Design	Overall Neighborhood Resiliency Protection concept design w/1 pump station concept design/1	1	$75,000	1 Year	Resiliency Fund	1/22/2025		Mike Clarke
938	St. Pete Beach	Don Cesar Neighborhood Tide Check Valve Installation	Design for Tide Check Valve Installation w/Baffle Box at 3 locations/1	1	$115,000	1 Year	Resiliency Fund	1/22/2025		Mike Clarke
960	St. Pete Beach	Don Cesar Neighborhood Tide Check Valve Retrofit	Design for Tide Check Valve Retrofit at 3 Locations w/Baffle Box/1	1	$18,000	1 Year	Resiliency Fund	1/22/2025		Mike Clarke
1001	St. Pete Beach	Belle Vista Neighborhood Tide Check Valve Retrofit	Tide Check Valve Retrofit /1	1	$18,000	1 Year	Stormwater Fund	1/22/2025		Mike Clarke
842	St. Pete Beach	Gulf Winds Drive street rehabilitation with stormwater improvements	Construction of Street and Stormwater Improvements /1	1	$5,000,000	2 Years	Stormwater Fund, General Fund	1/22/2025		Mike Clarke
869	St. Pete Beach	Gulf Way street repaving with stormwater improvements	Street and stormwater improvements /1	1	$1,500,000	2 Years	General Fund, Stormwater Fund	1/22/2025		Mike Clarke
1001	St. Pete Beach	Bayway rehabilitation of 3 stormwater outfalls	Design phase underway by FDOT w/City Share	1	$100,000	1 Year	Stormwater Fund	1/22/2025		Mike Clarke
933	St. Pete Beach	Don Cesar Boat Ramp Replacement	Design for the Boat Ramp Replacement. The Don Cesar Boat Ramp is approximately 3.5 feet below our seawall height regulation of 5' above MSL (NAVD88). This project proposes to rebuild the boat ramp in one of two potential locations, elevating the area to comply with the 5' elevation requirement. The current boat ramp is so low that it permits high tides to frequently flood the surrounding area and neighborhood. /1	1	$75,000	1 Year	Florida Boating Improvement Grant	1/22/2025		Mike Clarke
944	St. Pete Beach	Lido Neighborhood/45th Ave Stormwater Pump Station	Pump station Design. The current stormwater management system in this neighborhood is undersized and is a frequent cause for flooding. Due to the lack of viable outfall locations and the low elevation of the neighborhood a pump station will be required to pump stormwater out into Boca Ciega Bay. /1	1	$191,000	1 Year	Stormwater Fund	1/22/2025		Mike Clarke

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971	St. Pete Beach	8th Ave and Evander Shell Alley Rehabilitation	Design for Shell Alley Rehabilitation. This alley is frequently reported during heavy rain events to cause flooding in the back yards of neighboring properties. Scope of work for this project includes new surface with geocell underlayment along with regrading for stormwater conveyance away from these properties. /1,3	4	$35,000	1 Year	Shell Alley Fund	1/22/2025		Mike Clarke
1299	St. Pete Beach / Fire	Generator at Station 22	Provide and install 40-kilowatt natural gas-fired generator to be located on the roof in order to meet FEMA regulations at Fire Station 22, including roof engineering and construction as well as running TECO natural gas line to the building in order to ensure Continuity of Operations./4	4	$150,000	2 years	HMGP,Capital Project Funds	1/22/2025	10/23/2017	K.Intzes
1025	St. Petersburg / Baycare, Inc.	Hospital EOC	Construct new EOC. Estimated completion time: more than 12 months. / 4	4	$1,100,000	Currently Unfunded	EMPATF, HMGP; PDM Program	1/22/2025		
1150	St. Petersburg / Bayfront Medical Center	Harden Window and Roof - Building C Center	Harden the exterior including hurricane-rated windows and roofing system to protect against high wind velocity events. Estimated completion time: more than 12 months. / 2	2	$2,789,889	Currently Unfunded	EMPATF, HMGP; PDM Program	1/22/2025		
1150	St. Petersburg / Bayfront Medical Center	Harden Window and Roof - Building C South	Harden the exterior including hurricane-rated windows and roofing system to protect against high wind velocity events. Estimated completion time: more than 12 months. / 2	2	$4,575,295	Currently Unfunded	EMPATF, HMGP; PDM Program	1/22/2025		
1150	St. Petersburg / Bayfront Medical Center	Harden Window and Roof - Building C North	Harden the exterior including hurricane-rated windows and roofing system to protect against high wind velocity events. Estimated completion time: more than 12 months. / 2	2	$4,646,281	Currently Unfunded	EMPATF, HMGP; PDM Program	1/22/2025		
1090	St. Petersburg / Bayfront Medical Center	Harden Cancer Care Center	Harden the exterior including the roof, windows and walls to ensure continuity of operations. Estimated completion time: more than 12 months. / 2	2	$430,003	Currently Unfunded	EMPATF, HMGP; PDM Program	1/22/2025		
1070	St. Petersburg / Bayfront Medical Center	Harden West Lobby	Harden the roof and curtainwall window assembly to protect against high wind velocity events. Estimated completion time: more than 12 months. / 2	2	$1,250,200	Currently Unfunded	EMPATF, HMGP; PDM Program	1/22/2025		
1000	St. Petersburg / Bayfront Medical Center	Harden Mechanical Room & Medical Gas Enclosure - Building B/C	The Mechanical Room and a fenced lean to will be hardened. Estimated completion time: more than 12 months. / 2	2	$1,000,000	Currently Unfunded	Emergency Management, Preparedness and Assistance Trust Fund, HMGP; PDM Program	1/22/2025		
995	St. Petersburg / Bayfront Medical Center	Building C Boiler / Chiller Plant Hardening & Rooftop Equipment Mitigation	The hospital's boiler & chiller plant needs hardening for severe weather mitigation. Estimated completion time; More than 12 months. / 2	2	$1,000,000	Currently Unfunded	Emergency Management, Preparedness and Assistance Trust Fund, HMGP; PDM Program	1/22/2025		
995	St. Petersburg / Bayfront Medical Center	Tank Farm Enclosure	On the South side of Building C, the Oxygen Tank Farm will be hardened. Estimated completion time; more than 12 months. / 2	2	$1,000,000	Currently Unfunded	Emergency Management, Preparedness and Assistance Trust Fund, HMGP; PDM Program	1/22/2025		
995	St. Petersburg / Bayfront Medical Center	Life Services Building Window, Door & Wall Hardening	The Life Services Building needs windows, doors and walls hardened for protection against high wind velocity and severe weather events. Estimated completion time; more than 12 months. / 2	2	$1,000,000	Currently Unfunded	Emergency Management, Preparedness and Assistance Trust Fund, HMGP; PDM Program	1/22/2025		
990	St. Petersburg / Bayfront Medical Center	Child Development Center Wind, Door & Roof Hardening	Harden windows, doors and roof for hurricane and severe weather mitigation. Estimated completion time: more than 12 months. / 2	2	$1,000,000	Currently Unfunded	Emergency Management, Preparedness and Assistance Trust Fund, HMGP; PDM Program	1/22/2025		
980	St. Petersburg / Bayfront Medical Center	Family Health Center Structural Hardening	Harden walls and roof to mitigate high wind velocity. Estimated time of completion: 12 months. / 2	2	$1,000,000	Currently Unfunded	Emergency Management, Preparedness and Assistance Trust Fund, HMGP; PDM Program	1/22/2025		
980	St. Petersburg / Bayfront Medical Center	Haden Exterior - Building C East - Area 4	Harden the exterior of Building C East - including hurricane-rated windows, walls, doors and roofing system to protect against high wind velocity events. / 2	2	$3,070,827	Currently Unfunded	Emergency Management, Preparedness and Assistance Trust Fund, HMGP; PDM Program	1/22/2025		
1150	St. Petersburg / Bayfront Medical Center	Harden Window Openings - Building A	Harden the exterior of Building A and install new hurricane-rated windows. Estimated completion time: more than 12 months. / 2	2	$1,217,370	Currently Unfunded	EMPATF, HMGP; PDM Program	1/22/2025		
845	St. Petersburg / City of St. Petersburg/ City Development Department - Planning & Development Services	Acquisition of Repetitive Loss Properties	Acquire repetitive loss properties to mitigate real property vulnerabilities. Estimated completion time: more than 12 months. / 1	1	$1,000,000	Currently Unfunded	Residential Construction Mitigation Program; EMPATF, HMGP; PDM Program	1/22/2025	9/26/2016	Noah Taylor
1107	St. Petersburg / City of St. Petersburg/ Engineering and Capital Improvements Department	Stormwater, Pavement and Traffic Operations Facility	This Project involves replacement of existing Stormwater, Pavement, and Traffic Operations facilities located at 1744 9th Avenue North which serve for pre- and post emergency operations to repair, service, traffic signals, roadway signage, Right of Way Repairs (including seawalls, roads, etc). The existing system is structurally deficient and may not be operatiponal following a major storm event risking the City's ability to be responsive for emergency response.	4	$30,000,000	Currently Unfunded	Local funding, HMGP	1/22/2025		Raul Quintana

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1098	St. Petersburg / City of St. Petersburg/ Engineering and Capital Improvements Department	Shore Acres and Riviera Bay Backflow Prevention Vaults	Hurricane Idalia subjected various communities throughout St. Petersburg to major storm surge particularly in the Shore Acres and Riviera Bay Neighborhoods. Residential housing was not only flooded, but due to the inability of fire and safety officials to enter the areas, were then subjected to electrical fires that destroyed two homes. Residents were displaced from their homes for months due to this storm, as well as other high tide wet weather events throughout the next few months which impacted approximately 70% of the homes in this area. Due to these low lying areas, the continued potential for severe wet weather damage is iminent. These low-lying elevation areas experience frequent flooding due to sea level rise and tidal inundation which is exacerbated during rain events. There are approximately 218 outfalls within these areas that discharge to tidally influenced canals that ultimately discharge to Tampa Bay. Of these, only one-fourth contain some form of backflow prevention measures; most of which are beyond their useful life. During high tide and storm surges, saltwater often inundates through the storm sewers and floods streets and homes. This project will support the installation of various stormwater backflow prevention devices throughout these areas. Devices previously used and planned to be installed as part of this project include concrete vaults with trash racks and WaStop® Inline Check Valves. Other means of preventing backflow of salt water into the stormwater system, such as gates and valves, may also be implemented as part of this project. Approximately 162 outfall locations will be utilized for backflow preventers to be installed. Vaults will be installed strategically throughout Shore Acres and Riviera Bay Areas in order to provide the most protection to areas with the highest risk of tidal flooding. Installation of new backflow prevention vaults will significantly reduce the frequency and severity of flooding caused by tidal inundation. In addition, this project will support the daily local and regional commercial and private vehicular traffic as well as the Pinellas Suncoast Transit Authority's (PSTA) Bus services connecting downtown St Petersburg to downtown Tampa and activity centers in between. This includes potential inoperability of PSTA's 12th most popular route carrying approximately 370k bus riders per year (serving our low income and vulnerable populations), and 5,900 traffic vehicles on average per day. When these roadways become inoperable due to wet weather events, the corridor would have inaccessibility to Goodwill Industries /Gateway Mall/Koger Office Center/Certegy/FIS Merchant Services/ Gandy Boulevard/Britton Plaza Tampa and more areas in downtown Tampa. This is the only route operated by PSTA from this area. Additionally, this roadway service is used as a biking connection from the Pinellas Trail to Gandy Blvd/Tampa.	1	$14,353,080	Currently Unfunded	Local funding, HMGP	1/22/2025	5/20/2024	Hannah J. Rebholz, CFM
1070	St. Petersburg / City of St. Petersburg/ Engineering and Capital Improvements Department	Backflow Prevention Valves for Tidal Flood Mitigation	Several neighborhoods in the City of St. Petersburg, including but not limited to Shore Acres and Riviera Bay, are particularly prone to flooding. Over the last few years, additional areas citywide have also begun to experience localized flooding due to increased wet weather events and tidal surges. These areas have suffered numerous repetitive loss events per the National Flood Insurance Program (NFIP) standards. Their low-lying elevation and location along Tampa Bay make them susceptible to extreme weather and flooding conditions, including hurricanes and storm surges. Recent events like Hurricane Idalia caused significant damage, with hundreds of structures in these neighborhoods experiencing minor or major damage. Flooding in these neighborhoods occurs frequently, even outside of major storm events. High water events, which are becoming more common, cause widespread flooding and damage. These events impact citizen safety and accessibility, inundating major thoroughfares and hindering emergency response and public transportation. For instance, during a December 2023 flood event, all routes into and out of Shore Acres were flooded for about eight hours, preventing residents from accessing or leaving their homes. Flooded roadways also impede emergency vehicles and public transportation, as seen after Hurricane Idalia when emergency services couldn't reach homes due to inundated roads. The City of St. Petersburg plans to install backflow preventers across the city in a strategic and programmatic approach to mitigate frequent flooding.	1	$14,000,000	Currently Unfunded	Local funding, HMGP	1/22/2025	9/23/2024	Angela Miller
1044	St. Petersburg / City of St. Petersburg/ Engineering and Capital Improvements Department	Shore Acres Phase 2 Pump Station	This project is in the lowest-lying hydraulically constrained area of the City Of St. Petersburg and is currently impacted by stormwater outfalls which are tidally impacted and capacity-constrained. As a result, residents of this area experience frequent flooding, compounded by sea level rise and the increased intensity of rain events. The extent of flooding is intensified when rain events occur during high tide. This project provides funding for developing and implementing infrastructure improvements to mitigate these impacts.	1	$52,500,000	Currently Unfunded	CIP,Local funding, HMGP, Federal	1/22/2025	12/5/2024	
1044	St. Petersburg / City of St. Petersburg/ Engineering and Capital Improvements Department	Perry Bayview and Vicinity Improvements	This location is currently impacted by stormwater outfalls which are tidally impacted and capacity constrained. As a result, residents of this area experience frequent flooding, compounded by sea level rise and the increased intensity of rain events. The extent of flooding is intensified when rain events occur during high tide. This project provides funding for developing and implementing infrastructure improvements to mitigate these impacts.	1	$26,500,000	Currently Unfunded	CIP,Local funding, HMGP, Federal	1/22/2025	12/5/2024	
1086	St. Petersburg / City of St. Petersburg/ Engineering and Capital Improvements Department	Lake Maggiore Secondary Outfall	This project is in a low-lying hydraulically constrained area of the City Of St. Petersburg's Stormwater floodplain. The watershed draining to Lake Maggiore is extensive and discharges through one, hydraulically constrained conveyance. This project provides funding for developing and implementing infrastructure improvements to provide a secondary outfall from Lake Maggiore, reducing flood stage and duration to the surrounding area.	1	$34,000,000	Currently Unfunded	CIP,Local funding, HMGP, Federal	1/22/2025	12/5/2024	
1086	St. Petersburg / City of St. Petersburg/ Engineering and Capital Improvements Department	Bear Creek Wet Weather Stormwater Treatment Area and Infrastructure	This project is in a low-lying hydraulically constrained area of the City Of St. Petersburg's Stormwater floodplain. This project provides funding for developing and implementing infrastructure improvements to provide additional water quality and flood protection benefits.	1	$24,000,000	Currently Unfunded	CIP,Local funding, HMGP, Federal	1/22/2025	12/5/2024	
1086	St. Petersburg / City of St. Petersburg/ Engineering and Capital Improvements Department	Jorgenson Lake Wet Weather Stormwater Infrastructure	This project is in a low-lying hydraulically constrained area of the City Of St. Petersburg's Stormwater floodplain. This project provides funding for developing and implementing infrastructure improvements to mitigate these impacts.	1	$4,000,000	Currently Unfunded	CIP,Local funding, HMGP, Federal	1/22/2025	12/5/2024	
1086	St. Petersburg / City of St. Petersburg/ Engineering and Capital Improvements Department	Lake Magoire Wet Weather Stormwater Infrastructure	This project is in a low-lying hydraulically constrained area of the City Of St. Petersburg's Stormwater floodplain. This project provides funding for developing and implementing infrastructure improvements to mitigate these impacts.	1	$8,000,000	Currently Unfunded	CIP,Local funding, HMGP, Federal	1/22/2025	12/5/2024	
1086	St. Petersburg / City of St. Petersburg/ Engineering and Capital Improvements Department	Northwest Wet Weather Stormwater Infrastructure	This project is in a low-lying hydraulically constrained area of the City Of St. Petersburg's Stormwater floodplain. This project provides funding for developing and implementing infrastructure improvements to mitigate these impacts.	1	$7,500,000	Currently Unfunded	CIP,Local funding, HMGP, Federal	1/22/2025	12/5/2024	
1086	St. Petersburg / City of St. Petersburg/ Engineering and Capital Improvements Department	Edgemoor Wet Weather Stormwater Infrastructure	This project is in a low-lying hydraulically constrained area of the City Of St. Petersburg's Stormwater floodplain. This project provides funding for developing and implementing infrastructure improvements to mitigate these impacts.	1	$7,500,000	Currently Unfunded	CIP,Local funding, HMGP, Federal	1/22/2025	12/5/2024	
1086	St. Petersburg / City of St. Petersburg/ Engineering and Capital Improvements Department	Emerald Lake Wet Weather Stormwater Infrastructure	This project is in a low-lying hydraulically constrained area of the City Of St. Petersburg's Stormwater floodplain. This project provides funding for developing and implementing infrastructure improvements to mitigate these impacts.	1	$7,500,000	Currently Unfunded	CIP,Local funding, HMGP, Federal	1/22/2025	12/5/2024	
1022	St. Petersburg / City of St. Petersburg/ Engineering and Capital Improvements Department	62nd Ave N Stormwater System Resiliency Imps	This project provides funding for Stormwater System Resiliency Improvements on 62nd Avenue North, an area with frequent flooding and modeling results to confirm level of servie and structure vulnerability challenges. The proposed improvements will focus on providing optimal roadway alignment and stormwater conveyance; Reducing flood stages and providing for a more resilient system.	1	$11,500,000	Currently Unfunded	CIP,Local funding, HMGP, Federal	1/22/2025	12/5/2024	
965	St. Petersburg / City of St. Petersburg/ Engineering and Capital Improvements Department	Shore Acres Flood Gate System	Due to sea level rise and the increased intensity of rain events, the surge results in street flooding within the Shore Acres neighborhood. Furthermore, due to the elevated tides, this prohibits stormwater from being conveyed from the streets, further exacerbating the impacts. This project provides funding for developing and implementing infrastructure to mitigate the impacts of elevated tides and storm surge in the form of tidal gates.	1	$23,000,000	Currently Unfunded	CIP,Local funding, HMGP, Federal	1/22/2025	12/5/2024	

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1044	St. Petersburg / City of St. Petersburg/ Engineering and Capital Improvements Department	Shore Acres Arizona SDI	This location is currently impacted by a stormwater outfall which is tidally impacted and as a result of sea level rise and the increased intensity of rain events, residents are often impacted by frequent street flooding. The extent of flooding is intensified when rain events occur during high tide. This project provides funding for developing and implementing infrastructure improvements to mitigate these impacts. This project is identified in the draft Stormwater Master Plan and will result in removing approximately 45 properties from the 100-year floodplain.	1	$9,000,000	Currently Unfunded	CIP,Local funding, HMGP, Federal	1/22/2025	12/5/2024	
1044	St. Petersburg / City of St. Petersburg/ Engineering and Capital Improvements Department	88th Avenue North SDI	This location is currently impacted by a stormwater outfall which is tidally impacted and as a result of sea level rise and the increased intensity of rain events, residents are often impacted by frequent street flooding. The extent of flooding is intensified when rain events occur during high tide. This project provides funding for developing and implementing infrastructure improvements to mitigate these impacts. This project is identified in the draft Stormwater Master Plan and will result in removing approximately 46 properties from the 100-year floodplain.	1	$10,000,000	Currently Unfunded	CIP,Local funding, HMGP, Federal	1/22/2025	12/5/2024	
1370	St. Petersburg / City of St. Petersburg/ Fire Rescue Department - Operations Division	Generator for St. Petersburg Fire Rescue Headquarters	This project would fund the replacement of the current generator at Fire Headquarters. The funding would provide for a new 200kw diesel generator as well as a fuel tank, generator enclosure and ATS with freight to the location, a crane to off load new equipment, removal of the old generator and start up. Funds would also provide for a rental generator for the duration of the installation. The St. Petersburg Fire Rescue headquarters building is a critical facility at all times and especially during disasters and emergency events as it is home to the sub-Emergency Operations Center for the City. During Hurricane Irma, headquarters had to utilize the current generator to fully power the building for over two weeks. During this time, power constantly flickered to the building as the generator was overloaded. A review of the current generator was recently completed by Paramount Power which stated that "with the unit being so heavily loaded and having been in service for so long, it is only a matter of time before this condition causes damage and possible catastrophic failure to the tail section or whole unit." Replacement of the current generator would ensure that the building is fully powered and able to function as normal during any hazard that would cause a potential loss of power.	4	$185,100	Currently Unfunded	HMGP	1/22/2025	5/8/2018	
1289	St. Petersburg / City of St. Petersburg/ Leisure Services Department - Libraries	James Weldon Johnson Library Generator	The aim of this project is to strengthen this building's infrastructure where the Library systems technological hub is located. It will fortify the building's ability to serve as a Disaster Recovery Center as well as an alternate Emergency Operations Center. This will also ensure the Libraries ability to serve the public system wide provided there aren't any extenuating circumstances with the local power company. This project will also protect the Libraries collections from damage from humidity as well as component damage to servers due to partial power.	4	$250,000	Planning	CIP	1/22/2025		Matthew Holthusen
941	St. Petersburg / City of St. Petersburg/ Leisure Services Department - Parks & Recreation	Leisure Services Complex Wind Retrofit	The City of St. Petersburg Parks and Recreation Leisure Services Complex requires a wind retrofit to withstand a Category 3-5 Rating. This building serves as the primary administrative building for the Parks and Recreation Department and a command center and shelter for department staff during hurricane events. Currently, the building cannot withstand high category hurricanes or fulfill its purpose as a command center and shelter safely. This project will replace the existing roof and retrofit the roof and building envelope to mitigate the impacts of winds. This project directly addresses the LMS goal of "Minimize Storm Wind Losses in the County" through protecting a facility which benefits the general public.	2	$500,000	Currently Unfunded	HMGP	1/22/2025	5/8/2018	
1223	St. Petersburg / City of St. Petersburg/ Water Resources Department	SW Water Reclamation Facility Building Replacements	This project provides for the replacement of operation/lab/maintenance buildings located in an Evacuation Zone A with buildings constructed to meet latest hurricane and flood codes. The existing buildings are not structurally sufficient to provide shelter of emergency critical staff during, and remain operational after, a hurricane.	4	$20,000,000	Currently Unfunded	Bond CIP Funded	1/22/2025	10/24/2017	Ivy Drexler
1223	St. Petersburg / City of St. Petersburg/ Water Resources Department	NE Water Reclamation Facility Building Replacements	This project provides for the replacement of operation/lab/maintenance buildings to meet latest hurricane and flood codes. The existing buildings are not structurally sufficient to provide shelter of emergency critical staff during, and remain operational after, a hurricane.	4	$14,000,000	Currently Unfunded	Bond CIP Funded	1/22/2025	10/24/2017	Ivy Drexler
1223	St. Petersburg / City of St. Petersburg/ Water Resources Department	NW Water Reclamation Facility Building Replacements	This project provides for the replacement of operation/lab/maintenance buildings to meet latest hurricane and flood codes. The existing buildings are not structurally sufficient to provide shelter of emergency critical staff during, and remain operational after, a hurricane.	4	$14,000,000	Currently Unfunded	Bond CIP Funded	1/22/2025	10/24/2017	Ivy Drexler
1368	St. Petersburg / City of St. Petersburg/ Water Resources Department	Sanitary Sewer Inflow and Infiltration Reduction Improvements	This project includes construction projects that will reduce inflow and infiltration (rain and ground water) into the City's sanitary sewer system by repairing and replacing old sewer collection system infrastructure. Inflow and Infiltration during wet weather periods has increased flow rates above the capacities of the collection system and treatment plants resulting in sewage discharges into the bay.	1	$25,000,000	Currently Unfunded	Penny for Pinellas Local Option Sales Tax	1/22/2025	10/24/2017	Ivy Drexler
1200	St. Petersburg / City of St. Petersburg/ Water Resources Department	City of St. Petersburg Infrastructure Resilience - Lift Station Hardening	The City of St Petersburg proposes to enhance the resilience of critical lift stations within the City, specifically focusing on the hardening of lift stations and the implementation of flood damage mitigation measures. This project will be implemented in accordance with FEMA Hazard Mitigation Assistance Guidance, where the City completes the project design and permitting and constructs the solution within the 36 month period of performance. This project will allow us to implement critical upgrades to 8-10 lift stations, such as waterproofing electrical systems, elevating key mechanical and electrical equipment, installing backup power generators, tightening wet wells, and improving flood defenses. The City has identified vulnerable lift stations from historical experience, data collected (such as pump run times), and a survey recently conducted to find the low-lying stations. The project will bring the last out-of-compliance lift station in line with Class I Reliability, and upgrade others to the same standard. Flood protection measures and elevation of mechanical and electrical infrastructure will be designed to meet Federal Flood Risk Management Standards at each site, including considerations for future conditions, where site constraints allow.	1	$12,000,000	Currently Unfunded	FEMA - BRIC, HGMP	1/22/2025	9/23/2024	Ivy Drexler

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1340	St. Petersburg / City of St. Petersburg/ Water Resources Department	Cosme Water Treatment Plant Emergency Operations Center Code Plus Project	The City of St. Petersburg (City) proposes to implement a Code Plus project through construction of a new emergency operations center building at the Cosme Water Treatment Plant (WTP). The WTP was originally constructed in 1930 and has an operating permit for production up to 68 million gallons per day (MGD) but normal operations have a throughput of 28-33 MGD. The City purchases water from Tampa Bay Water, which is supplied from the Cosme-Odessa well field. Water supply enters the plant from Tampa Bay Water through three individual lines, is treated, and potable water is distributed to the entire City of St Petersburg plus the City of Gulfport, a total of 273,673 people according to 2019 census data. As the only occupied parcel the City owns outside of the City limits, this site provides a geographically higher location less vulnerable to potential storm events, and provides an opportunity to enhance City emergency operations functions. The Code Plus project will design the new structure to harden the facility against hurricanes, severe storms, and power outages to ensure continuity of City emergency response operations at the Cosme WTP during and after such events. This will be achieved by incorporating higher standards above Florida Building Code and ASCE-7 minimum requirements and designing the facility to withstand 150 mile-per-hour wind speeds. The City will consider the following elements from FEMA 453 - Design Guide for Improving Critical Facility Safety from Flooding and High Winds and FEMA P-1019 Emergency Power Systems for Critical Facilities that are eligible under a Code Plus project: hurricane doors and windows with impact-resistant glass, exterior wall protection from water infiltration, weatherstripping, roof and truss system including gravity-support brackets for gutters, and an on-site permanent generator as a redundant power source. The permanent generator will specifically provide redundancy to the WTP's service lines that pump water from Tampa Bay Water's well fields, which currently operate on grid power only with no backup. If the well fields are not powered due to grid failure from a severe storm or hurricane, potable water storage will provide adequate supply for a few days until they are depleted. If the power grid is disrupted for more than a few days and the City's stored water supply is depleted, potable water service would be lost throughout the entire City and Gulfport. Therefore, the proposed Code Plus project will not only ensure continued emergency operational capacity for the City during and after a severe storm or hurricane, but will also secure access to potable water through short and long-term power outages that affect the Cosme WTP. Additionally, during the City will design safe rooms, as part of the EOC, that provide near-absolute life-safety protection during a hurricane to the critical and essential services personnel that must remain in the EOC during a hazard event (approximately 30 staff members). This will be achieved by ensuring the room is designed to withstand at least 180 mph winds as outlined in ICC 500. The City will follow all guidelines and standards laid out in FEMA P-361, Safe Rooms for Tornadoes and Hurricanes (2021) and ICC 500 Standard for the Design and Construction of Storm Shelters (2020) in the design of the room. This includes the following eligible activities: Foundation and safe room anchoring, access and egress, emergency escape openings, latching, safe room signage, fire safety features, protection of critical support systems, lavatories, ventilation, and standby power and lighting. The proposed project is expected to cost $4 million, based on preliminary estimates and structure specifications. The City proposes to implement the Code Plus project as a Phased Project in accordance with FEMA Hazard Mitigation Assistance (HMA) Unified Guidance. Phase 1 will include engineering, design, permitting, final estimated costs, and environmental review required for the project, along with a second benefit-cost analysis and eligibility review to confirm project compliance with FEMA HMA guidance. Upon Florida Division of Emergency	4	$4,399,429.75	The HMGP grant was awarded on January 11, 2023 to the city. Funds are being disbursed in partial amounts as the project progresses. To date, the city has received $ 443,650.00 for the design stage of the project.	HMGP	1/22/2025		Kira Barrera
1196	St. Petersburg / City of St. Petersburg/ Water Resources Department	City of St. Petersburg Infrastructure Resilience - Wet Weather Storage Tank	The City of St. Petersburg (City) owns and operates wastewater collection facilities for the entire city, much of which was initially designed and constructed in the early 1900s. The wastewater collection system collects wastewater throughout the city and conveys it to one of three Water Reclamation Facilities for treatment through a series of force mains and lift stations. The increasing frequency and intensity of precipitation events, coupled with population growth, has taxed the collection and treatment system resulting in wastewater flow volumes that can exceed system capacity during wet weather events. When system capacity is exceeded, some areas of the city experience overflowing manholes and surcharged sewers that can potentially inundate connected buildings. Existing wet weather flow equalization (emergency storage) capabilities are not sufficient to collect and store excess flows currently received during precipitation events. The City of St. Petersburg proposes to implement two emergency wet weather storage tanks at the decommissioned Albert Whitted Water Reclamation Facility to permanently manage up to 15 million gallons of raw wastewater during peak flows when the Southwest Water Reclamation Facility is at its capacity. This will be implemented as a phased project, in accordance with FEMA Hazard Mitigation Assistance Guidance, where the City completes the project design and permitting in Phase 1 and constructs the solution in Phase 2. The proposed infrastructure resilience improvements will increase the overall capacity of the wastewater conveyance and treatment system to handle peak flows during tropical storms and severe precipitation events. This will not only reduce the likelihood of overflows due to overflowing manholes and surcharged sewers, but it will also increase operational efficiency during severe storms and allow operations and maintenance staff to focus on emergency repairs that may be needed in other areas of the wastewater system.	4	$26,900,000	Currently Unfunded	HMGP	1/22/2025		Ivy Drexler
1032	St. Petersburg / City of St. Petersburg/ Water Resources Department	WRD EOC Emergency Power Consolidation Generator (FY2025)	Generator: This project provides funding for increased capacity, redundancy, and distribution grid for emergency power at the WRD Campus in conjunction with the construction of new facilities as part of the Facilities Master plan. In order to accommodate the increased complexity of infrastructure as outlined in the Facilities Master Plan, hardening, consolidation, and improvement for emergency power distribution should be reviewed and improved.	4	$5,500,000	Currently Unfunded	Local funding, HMGP	1/22/2025		R. Quintana/L. Denzer
1196	St. Petersburg / City of St. Petersburg/ Water Resources Department	WRD Lift Station Engineering Upgrades	Structure Elevation & Mitigation UPgrades: The City owns and operates over 80 lift stations which pump wastewater to the water reclamation facilities. Upgrades are necessary to keep the lift stations in good working condition. The lift stations are prioritized based on condition assessments and tracked in the asset management system. The plan to touch every lift station during a 20 year cycle which coincides with each system's useful life. Funding includes cost assessments to account for the planning, design and delivery of sustainable, long-term infrastructure. Implementation and execution of the city's sustainability and resiliency initiatives will align with the Envision sustainable infrastructure framework, including third-party verification of completed projects.	4	$29,450,000	Crrently Unfunded	Local funding, HMGP	1/22/2025		Ivy Drexler
1271	St. Petersburg / City of St. Petersburg/ Water Resources Department	Install or Replace Lift Station Stationary Generators	Generators: This project provides funding to replace four stationary lift station generators. They are used to power up the wastewater pump stations during power outages. This project is recommended by the master plan based on the results of the LST R&R Model (FP Table 5-6). Funding would be used to bring one lift station that does not currently have a stationary generator into compliance with 62-604.400(2)(a)(1) "Pump stations that receive flow from one or more pump stations through a force main or pump stations discharging through pipes 12 inches or larger shall provide for uninterrupted pumping capabilities, including an in-place emergency generator.four	4	$1,250,000	Crrently Unfunded	Local funding, HMGP	1/22/2025		Ivy Drexler
959	St. Petersburg / City of St. Petersburg/ Water Resources Department	FAC WRD Main Campus Reconfiguration	Structure Elevation: This project provides funding for the next phase of the Integrated campus master plan. The goal is to provide centralized hurricane rated facilities for emergency critical operations as well as parking for the complex. This project proposes to construct a new parking structure for the WRD Main Campus on the area currently occupied by the lab building. We would also like to include a photovoltaic electrical generation system and additional charging stations for our growing fleet of electric vehicles. In order to build a parking structure in this location, there post be coordinated efforts with Duke to relocate the power structure located next to the current lab building. The funding is spread to first cover design, then cover relocation of existing assets in conflict with the needed footprint, then cover construction. The Funding indicates WRD Contribution of 50%.	4	$20,500,000	Currently Unfunded	Local funding, HMGP	1/22/2025		Raul Quintana

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1091	St. Petersburg / City of St. Petersburg/ Water Resources Department	NE Sludge Pumping Station	This project will provide funding for the replacement of NEWRF clarifiers 3 & 4 pump station components. The existing pump station has reached its useful life. The pump station conveys flow from two clarifiers to the filters. Fill dirt will elevate the pump station to raise vulnerable mechanical and electrical equipment to two feet above the Base Flood Elevation. Buried isolation valves will be raised above grade for easier operation and maintenance and longer equipment longevity. This project is recommended by the master plan based upon the results of the NEWRF Renewal and Replacement model (Final FP Table 7-28), labeled project NEFP-25 in the Facility Plan.	4	$5,262,000	Currently Unfunded	HMGP,Capital Project Funds	1/22/2025		Ivy Drexler
1175	St. Petersburg / City of St. Petersburg/ Water Resources Department	LS 85 Operations Bldg	The proposed infrastructure resilience improvements include the construction of an administration building built to Category 5 flooding and wind impacts to house operations and maintenance staff in emergency situations. The new safer building will increase operational efficiency during severe storms and allow operations and maintenance staff to focus on emergency repairs that may be needed in other areas of the wastewater system.	4	$10,000,000	Currently Unfunded	HMGP,Capital Project Funds	1/22/2025		
1215	St. Petersburg / City of St. Petersburg/ Water Resources Department	SW Inplant LS Improvements	The City of St Petersburg proposes to replace existing pumps in Lift Station number one and have the wet well recoated. This project was recommended by the master plan based on the results of the SWWRF R&R Model. The two pumps in service are already 10 years old and service process drains from multiple structures as well as the deep sand bed filters. The pumps have reached the end of their useful life and the wet well needs to be recoated to protect the structural integrity of the vault. During the rehabilitation, electrical and mechanical equipment will be raised, at minimum 2', above base flood elevation.	4	$1,500,000	Crrently Unfunded	Local funding, HMGP	1/22/2025		Ivy Drexler
1263	St. Petersburg / City of St. Petersburg/ Water Resources Department	SW Thickening Improvements	This project provides for the upgrade to the SWWRF Gravity Belt Thickners (GBT). The SWWRF processes the solids from the NW and the NE WRFs. The GBTs are required to increase the solids from approximately 1% to 6% in order to limit the volume of water entereing the digester and maximize the volatile solids in biogas production. The increased solids loading from the NE and NW WRFs is challenging the existing GBTs and requiring all units to run continuously. This limits the solids dewatering capacity creating a potential single point of failure. To address this challenge, this project will add additional thickening equipment, which will be elevated 2' above base flood elevation to provide the necessary reliability and resiliency. Work will include structural, mechanical, instrumentation and electrical.	4	$13,000,000	Currently Unfunded	Local funding, HMGP	1/22/2025		
1271	St. Petersburg / City of St. Petersburg/ Water Resources Department	SW Resiliency Improvements	This project provides for upgrades to protect critically vulnerabe assets at the SWWRF from flooding from storm events. Hardening for critical buildings includes replacing doors with flood proof doors, deployable flood barriers, using concrete sealant to harden buildings, protecting conduit feeds to MCCs, and raising other vulnerable equipment (control panels, motors, etc.).	4	$4,500,000	Currently Unfunded	Local funding, HMGP	1/22/2025		
1220	St. Petersburg / City of St. Petersburg/ Water Resources Department	NE Resiliency Improvements	This project provides for upgrades to protect critically vulnerable assests at the NEWRF from flooding from storm events. Currently, two large projects are underway that the NEWRF, one to upgrade the distribution pump station and another project to replace existing powr distribution and electrical equipment plantwide. This project may include providing back up power to critcal plant MCCs until the new electrical equipment, including new generators, are online. Additional hardening for critical buildings includes replacing doors with flood proof doors, deployable flood barriers, using concrete sealant to harden buildings, protecting conduit feeds to MCCs, and raising other vulnerable equipment (control panels, motors, etc.).	4	$2,000,000	Currently Unfunded	Local funding, HMGP	1/22/2025		
1166	City of St. Petersburg/Fleet Management	City of St. Petersburg Fleet Facility Resilience - Emergency Generator	The City of St. Petersburg (City) proposes to implement an emergency generator at the Fleet Management Facility. The St. Petersburg Fleet Management Facility is a critical services facility that encompasses approximately eight acres within an industrially zoned area in the center of the City. The facility provides for the maintenance and repair of the City's fleet of over 3,300 vehicles including public safety, light and heavy duty trucks, trailers, emergency vehicles, public works vehicles and other equipment necessary to support the City's response to disasters and emergencies. Crucially, the facility provides fuel services to fuel the ground fleet and back-up generators in preparation for, and during the recovery from, emergency events. This is the only city facility that is capable of dispensing unleaded fuel, which is the fuel source for most of the police and rescue vehicles in the City. Without power to ensure these vehicles are fueled, these vital rescue services will be hindered during and after an emergency event. In addition to these services, the Fleet facility also includes the repair and maintenance of radio communication equipment for public and non-public safety which are crucial to maintain emergency services. While a generator is not needed to run the radios, the generator does run the back-up encryption for the system in case the radio should go out. Finally, the facility also serves as a sub-emergency operations center (EOC) for the City. Fleet staff use the facility building as an EOC to maintain operations until wind reaches a sustained speed of 45 mph when they must evacuate. In addition to the City of St. Petersburg, the facility also provides services to the University of South Florida, St. Petersburg (University) and the City of Gulfport. The facility maintains the University's vehicle fleet. The facility also provides services for the City of Gulfport during emergency situations, including sharing fuel. During disaster events, the Fleet Facility requires functional operations to continue without outside assistance for at least seven days. This includes back-up power generation. The current generator at the facility is unreliable during an emergency, and does not have an invertor. This renders the generator incapable of working with the site's electronics or sensitive components. These issues were made evident during Hurricane Ian when storm damages required the use of the site's current generator. When the generator worked it damaged computer boards for the electronic fuel station and the facility. This generator failed after the first day on generator power and the City was forced to rent an additional generator for 10 days before power was restored at the site. Additionally, the current generator is not big enough to serve the entire Fleet Facility. In order to ensure that the Fleet Facility has the necessary electrical power to maintain continuity of emergency operations, the City proposes to install a 600-kW diesel fueled emergency generator that will serve as a source of redundant power in the event of a power failure. The generator will be able to directly connect to the existing systems so that when power is lost, the generator can immediately and directly provide power to necessary elements within the facility. Additionally, the proposed generator will be larger than the current model, ensuring the entire facility, and any future updates, can maintain power during emergencies. The proposed project is expected to cost $750,000, based on preliminary estimates.	4	$691,599	Currently Unfunded	HMGP	1/22/2025		Dr. Shrimatee Ojah Maharaj, AICP, Grants Officer City of St Petersburg Tel: 727-892-5180
1010	St. Petersburg / City of St. Petersburg/ Fleet Management	Fleet Facility and Emergency Operations Center	This Project involves replacement of existing Fleet buildings which serve for pre- and post emergency operations to repair, service, fuel police, fire, and other emergency response vehicles. This location also administers the radio communications and repairs. The esiting system is structurally deficient and may not be operatiponal following a major storm event risking the City's ability to be responsive for emergency response	4	$50,000,000	Currently Unfunded	Local funding, HMGP	1/22/2025		Raul Quintana
970	St. Petersburg / Eckerd College	Building Flood/Wind Retrofit	Retrofit priority support building to address vulnerabilities to high winds and/or flooding based on engineering evaluation. Estimated completion time: more than 12 months. / 1, 2	4	$50,000	Currently Unfunded	EMPATF, HMGP; PDM Program	1/22/2025	10/24/2016	Lisa Mets
940	St. Petersburg / Eckerd College	Building Flood/Wind Retrofit	Retrofit academic building to address vulnerabilities to high winds and/or flooding based on engineering evaluation. Estimated completion time: more than 12 months. / 1, 2	4	$250,000	Currently Unfunded	EMPATF, HMGP; PDM Program	1/22/2025	10/24/2016	Lisa Mets
780	St. Petersburg / St. Anthony's Hospital	Public Education	Develop a community education program to provide a better interface between the City and its stakeholders. Estimated completion time: less than 12 months. / 4	4	$10,000	Currently Unfunded	Residential Construction Mitigation Program; EMPATF, HMGP; PDM Program	1/22/2025		

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780	St. Petersburg / St. Anthony's Hospital	ER Retrofit to provide surge capacity for emergencies	Build surge capacity for St. Anthony's Hospital including a new Emergency Dept. Estimated completion time: more than 12 months. / 4	4	$2,000,000	Currently Unfunded	Residential Construction Mitigation Program; EMPATF, HMGP; PDM Program	1/22/2025		
1130	Tampa Bay Regional Planning Council / Pinellas County	Regional Public Education Initiative	With Pinellas County Emergency Management develop a county-wide public education program to address preparation and mitigation actions for all hazards related to hurricanes. All jurisdictions will benefit from this effort. Estimated completion time: less than 12 months. / 4	4	$75,000	Currently Unfunded	EMPATF, HMGP, PDM Program	1/22/2025		
940	Tampa Bay Regional Planning Council / Pinellas County	Post-Storm Evaluation of the Regional Evacuation Study	Evaluate the evacuation study to identify any discrepancies in the predicted and observed elements of the Regional Plan. Estimated completion time: less than 12 months. / 4	4	$90,000	Currently Unfunded	EMPATF, HMGP; PDM Program	1/22/2025		
1166	Tarpon Springs Housing Authority	Emergency Operations Generator	Emergency generator to allow operations during state of emergency, power outages or other events of power loss. 1 & 2	4	$64,200	Currently Unfunded	CDBG, HUD	1/22/2025		Michael Denehy
800	Tarpon Springs Housing Authority	Landscape Restoration	Trimming of Palm, Planting of Sod & Shrubs, Repair of Erosion and Control of Runoff	3	$56,640	Currently Unfunded	CDBG, HUD	1/22/2025		Michael Denehy
1160	Tarpon Springs / Housing Authority	Door & Window Upgrades	Replacement of all original doors and windows to meet Forida building codes, Miami-Dade wind codes, and impact resistant ratings.	2	$96	Currently Unfunded	CDBG, HUD	1/22/2025		Michael Denehy
850	Tarpon Springs / IT Division	Fiber	Run fiber from City Hall to Dixie Highway then to Reverse Osmosis Plant	4	$300,000	Currently Unfunded	General funds	1/22/2025		Thomas Kiger
1017	Tarpon Springs / Public Services Department	Reverse Osmosis Water Facility 2nd Generator	Project to provide full power back up for the City's water supply facility to support public water supply treatment and distribution in the event of a power outage or interruption in service	4	$2,000,000	Currently Unfunded	Water and Sewer Enterprise Fund	1/22/2025		Thomas Kiger
1200	Tarpon Springs / Streets & Stormwater Division	SAP	Stormwater Capital Improvement plan. (SAP-Stormwater Action Plan) Estimated completion time: Ongoing. / 4	4	$150,000 Annually	Currently funded	Stormwater Tax Assessment	1/22/2025		Renea Vincent
993	Tarpon Springs / Streets & Stormwater Division	Vehicles	Purchase CAT Mini Excavator & Trailer for in-house construction and maintenance of Stormwater infrastructure. Estimated completion time: Ongoing. / 1,3	4	$89,000	Purchasing	Stormwater Tax Assessment	1/22/2025		Renea Vincent
1170	Tarpon Springs / Streets & Stormwater Division	Spruce Street flood abatement SAP 29	Project to reduce/eliminate localized flooding and emergency vehicle access.	1	$151,230	Currently Funded & Included in the Pent/Grosse Project	Stormwater Tax Assessment, EMPATF, HMGP; PDM Program	1/22/2025		Renea Vincent
1260	Tarpon Springs / Streets & Stormwater Division	Pent/Grosse flood abatement SAP 5	Project to reduce/eliminate localized flooding and emergency vehicle access.	1	$2,183,614	Construction Contract Awareded/ Estimated Completion Jan 2022	Stormwater Tax Assessment, SWFWMD Cooperative Funding Initiative (50% Match)	1/22/2025		Bob Robertson
1190	Tarpon Springs / Streets & Stormwater Division	Jasmine/Highland flood abatement SAP 5 & 33	Project to reduce/eliminate localized flooding and emergency vehicle access.	1	$993,382	Design Completion - Awaiting Funding	Stormwater Tax Assessment, SWFWMD Cooperative Funding Initiative (50% Match) - Not resubmitted for CFI at this time???	1/22/2025		Renea Vincent
1170	Tarpon Springs / Streets & Stormwater Division	Avokca Drive flood abatement SAP 74	Project to reduce/eliminate localized flooding and emergency vehicle access.	1	$255,600	Currently Unfunded	Stormwater Tax Assessment, EMPATF, HMGP; PDM Program	1/22/2025		Renea Vincent
1140	Tarpon Springs / Streets & Stormwater Division	Mango Street & Mango Circle flood abatement SAP 102	Project to reduce/eliminate localized flooding and emergency vehicle access.	1	$840,000	Construction Award 10/2020, complete 11/2021???	Stormwater Tax Assessment, EMPATF, HMGP; PDM Program	1/22/2025		Bob Robertson
1058	Tarpon Springs / Streets & Stormwater Division	Grandview Dr - Drainage Improvements	Project to reduce/eliminate localized flooding and emergency vehicle access.	1	Design WIP Estimated $63,000	Design Phase & Easement Acquisition Process	Stormwater Tax Assessment, EMPATF, HMGP; PDM Program	1/22/2025		Anthony "Tony" Mannello - CTS - Public Works - Streets & Stormwater Supervisor
1068	Tarpon Springs / Streets & Stormwater Division	Pinellas Trail Culvert at Meres Crossing - Drainage Improvements	Project to reduce/eliminate localized flooding and emergency vehicle access.	1	Design WIP Estimated $43,000	Design Phase Alternatives being considered	Stormwater Tax Assessment, EMPATF, HMGP; PDM Program	1/22/2025		Anthony "Tony" Mannello - CTS - Public Works - Streets & Stormwater Supervisor
1194	Tarpon Springs / Streets & Stormwater Division	Roosevelt Blvd & Canal St - Drainage Improvements	Project to reduce/eliminate localized flooding and emergency vehicle access.	1	Design $52,000	Design Phase	Stormwater Tax Assessment, EMPATF, HMGP; PDM Program	1/22/2025		Anthony "Tony" Mannello - CTS - Public Works - Streets & Stormwater Supervisor
1160	Tarpon Springs / Streets & Stormwater Division	Coburn Drive flood abatement SAP 39	Project to reduce/eliminate localized flooding and emergency vehicle access.	1	$210,040	Currently Unfunded	Stormwater Tax Assessment, EMPATF, HMGP; PDM Program	1/22/2025		Renea Vincent
1160	Tarpon Springs / Streets & Stormwater Division	Levis between Lime & Oakwood flood abatement SAP 25	Project to reduce/eliminate localized flooding and emergency vehicle access.	1	$248,638	Currently Unfunded	Stormwater Tax Assessment, EMPATF, HMGP; PDM Program	1/22/2025		Renea Vincent
1190	Tarpon Springs / Streets & Stormwater Division	Kenneth Way & Seaside flood abatement SAP 57	Project to reduce/eliminate localized flooding and emergency vehicle access.	1	$91,000	Currently Unfunded	Stormwater Tax Assessment, EMPATF, HMGP; PDM Program	1/22/2025		Renea Vincent
950	Tarpon Springs/Streets & Stormwater Division	Whitcomb Bayou Coastal Resiliency Project (DESIGN ONLY)	Project to reduce/eliminate localized flooding and to stabilize the shoreline by raising the shoreline elvation with combination of T-walls, Berms, and Seawalls. Multi-jurisdictional project will require coordination with Pinellas County.	1	$605,000	Preliminary Design and Grant Funding Evaluation and Applications	HMGP for Phase 1 (design and permitting)	1/22/2025		Bob Robertson

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Total Score	Jurisdiction and Department/ Organization	Project Name	Project Description	Hazards Mitigated - Natural Hazard Addressed (Key: 1=Flooding; 2=Storm Wind; 3=Erosion; 4=Combination of 1, 2 and/or 3 Hazard Types; 5 - Other Hazards)	Est. Cost	Timeframe / Status	Possible Funding Sources	Date Last Reviewed	Date Last Updated	Updated By
740	Tarpon Springs/Streets & Stormwater Division	Whitcomb Bayou Coastal Resiliency Project (CONSTRUCTION ONLY0	Project to reduce/eliminate localized flooding and to stabilize the shoreline by raising the shoreline elvation with combination of T-walls, Berms, and Seawalls. Multi-jurisdictional project will require coordination with Pinellas County.	1	$15,000,000	Currently Unfunded	BRIC, HMGP, other	1/22/2025		Bob Robertson

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963	Tarpon Springs / Utilities	Afraras Lift Station Replacement	Project to replace aging wastewater lift station that is a pumping station to Sponge Docks.	1	$1,250,000	Currently Unfunded	CDBG Mitigation Grant; Water Sewer Enterprise Fund	1/22/2025		Megan Araya / Thomas Kiger
1071	Tarpon Springs / Utilities	Dewatering Building Hardening	Project to harden the dewatering buiding at Advanced Wastewater Treatment Facility against windstorm damage for continued operations during hurricanes.	2	$2,400,000	Currently Unfunded	CDBG Mitigation Grant; Water Sewer Enterprise Fund	1/22/2025		Megan Araya / Thomas Kiger
1112	Tarpon Springs / Utilities	Operations Building Hardening	Project to harden the operations building at the CTS Advanced Waterwater Treatment Facility against flooding damage to ensure continued operations during hurricanes.	2	$3,060,000	Partially funded at $1.2M / Design to begin in FY2023	CDBG Mitigation Grant; Water Sewer Enterprise Fund	1/22/2025		Megan Araya / Thomas Kiger
993	Tarpon Springs / Utilities	Lime and Huey Lift Station Replacement	Project to replace the aging Lime and Huey wastewater lift station which provides a low-income area of TS with wastewater service.	1	$1,900,000	30% Design Complete / Construction start in CY 2023	CDBG Mitigation Grant; Water Sewer Enterprise Fund; Water Sewer Impact Fees	1/22/2025		Megan Araya / Thomas Kiger
1149	Tarpon Springs / Utilities	RO Plant Generator Capacity	Project to install permanent generators at the water production wells for the TS RO Plant. Currently have 7 wells w/ no funded plan for permanent backup power supply.	4	$210,000	Funded / award 9-2020 / completion 7-2021	CDBG Mitigation Grant; Water Sewer Enterprise Fund	1/22/2025		Megan Araya / Thomas Kiger
897	Tarpon Springs / Utilities	Wastewater Treatment Facility Nutrient Removal Process Improvements	Project to upgrade the nutrient removal process at the CTS Advanced Wastewater Treatment Facility to improve nutrient removal and energy efficiency.	1	$3,300,000	Currently Unfunded	CDBG Mitigation Grant; Water Sewer Enterprise Fund	1/22/2025		Megan Araya / Thomas Kiger
1154	Tarpon Springs / Utilities	Tarpon Springs Sponge Docks Flooding Abatement	Tarpon Springs wishes to implement a stormwater flood and water quality improvement project to mitigate flooding in the Sponge Docks area of the City. The City operates with an undersized stormwater collection system with a normal high tide tailwater that is exacerbated during high tide events. This project allows for an updated systm to significantly reduce the amount of flooding taking place in these areas as well as treatment of stormwater prior to discharge into the Anclote River. Essentially, it will implement a new stormwater pump station and check valve system to prevent tidal backflow and landward rainwater flooding during high tide events. During Hurricane Idalia, this area flooded excessively making the area unable to be traveled. With the level of flooding that occurred during Idalia, it was impossible to safely navigate the Sponge Docks area whatsoever. As the financial center of Tarpon Springs economy through the tourism industry, having that area inaccessible created a financial hardship on the approximately 115 businesses located in the Sponge Docks. Until the Sponge Docks can be fitted with a new stormwater collection system to account for high tide events, especially those occuring during hurricanes such as Idalia, this area will continue to flood immensely, creating both safety hazards and financial hardships in a City that has been unable to financially and adequately keep up with the rising sea levels and flooding./1	1	$4,881,230	Currently Unfunded (local match available)	Local, HMGP	1/22/2025	2/2/2024	Bob Robertson
843	Tarpon Springs / Streets & Stormwater Division	Craig Park/Spring Bayou Seawall and Sidewalk Repair and Resiliency Upgrade Phase 2	This project is phase 2 of a resiliency project at Craig Park and Spring Bayou in the City of Tarpon Springs. Phase 2 will continue the repair and resiliency of the sidewalks in Craig Park and by raising the seawall to protect the park and bayou.	4	$3,000,000	Currently Unfunded (local match available)	City of Tarpon Springs/HMGP/Pinellas County	1/22/2025	9/23/2024	P.J. Harbert
1014	Tarpon Springs/Streets & Stormwater Division	City of Tarpon Springs Watershed Management Plan	The City of Tarpon Springs Watershed Management Planning project is the development of a City-wide Watershed Management Plan for the various drainage basins (Lake Tarpon, Anclote River and St. Joseph Sound) and sub-basins located in the City of Tarpon Springs. The watershed management plans for Lake Tarpon and the Anclote River were recently completed. The purpose of this project is to begin planning and designing stormwater system improvements based on the Best Management Practices (BMPs) identified in the Watershed Plans to address flooding, water quality, infrastructure rehabilitation, and meet regulatory requirements. This project will contribute to compliance with the City's National Pollutant Discharge Elimination System (NPDES) stormwater permit and pending Total Maximum Daily Loads (TMDL's) regulations which are administered by the Florida Department of Environmental Protection.	5	200,000	Currently Unfunded (local match available)	City of Tarpon Springs/FDEM/Pinellas County, BRIC	1/22/2025	1/10/2025	P.J. Harbert
1077	The Pinellas Suncoast Transit Authority (PSTA)	Solar and battery energy storage system infrastructure	The Pinellas Suncoast Transit Authority (PSTA) seeks to purchase and install the solar and battery energy storage system infrastructure required to support 100% of PSTA's power needs during an outage in Pinellas County from a hazard event such as flooding or a hurricane. This solar and battery infrastructure would allow PSTA operations to function autonomously "off-the-grid", as well as power their electric bus fleet for any power-outage event. This would mitigate the risk of any fuel shortage that could impact The Authority during emergency times, as well as allow any number of the electric bus fleet to be energized and dispatched throughout the county to serve as power generators for electrical infrastructure deemed critical in Pinellas during a power outage.	4	$22,439,312	Currently Unfunded	HMGP	1/22/2025		Robert J. Gavin, PE
903	Town of Belleair / Water Treatment Plant	Water Wells back up power generator	Supply back up power generation and new pumps to RTW water supply wells for potable water generation.	4	$114,000	Currently Unfunded	HMGP	1/22/2025	5/8/2018	
971	Town of Belleair / Building Maintence	Emergency employee shelter, life support services retrofit	During preparation for hurricane Irma in the fall of 2017, it was noted that several key life support functions were not connected to back up generator or functioning properly, LMS funds are needed to connect/repair these key elements in the town's employee emergency shelter	4	$21,000	Currently Unfunded	HMGP	1/22/2025	5/8/2018	
1083	Town of Belleair / Building Department	Town Hall/Police Department facility hardening, critical facility	Upgrade to town hall/PD critical facility roof for more secure facility during hurricane or other disasters.	4	$150,000	Currently Unfunded	HMGP	1/22/2025	5/8/2018	
1083	Town of Belleair/ Streets and Stormwater	Bridge scour protection for island bridges	Install scour protection at 2 bridges in town. (North Pine Circle, and Winston Drive)	1	$85,000	Currently Unfunded	HMGP	1/22/2025	5/8/2018	

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1065	Town of Belleair / Building Maintence	Water Plant Hazardous materials mitigate response kits	Buy new breathing apparatus, chemical spill kits, and chemical starter for security measures.	5	$31,500	Currently Unfunded	HMGP	1/22/2025	5/8/2018	
926	Town of Belleair / Building Maintence	Town of Belleair's Water plant , Secure facilities	Install 10 cameras and install 4 door locks to protect facility from attacks	5	$15,786	Currently Unfunded	HMGP	1/22/2025	5/8/2018	
1119	Town of Belleair / Building Department	Town Hall/Police Department security measure for critical facility	Install 2 pull down shutters for door ways to secure town hall and police department	5	$6,000	Currently Unfunded	HMGP	1/22/2025	5/8/2018	
1270	Town of Belleair / Building Department	Generator Installation Town Hall/Police Department	1, 2	4	$138,476	6 months	HMGP Hurricane Hermine	1/22/2025	4/24/2017	Greg Lauda
980	Town of Belleair / Support Services	Town Hall Storm Mitigation	Mitigate town hall (901 Ponce de Leon Blvd.). Estimated completion time: more than 12 months. / 2	2	$40,000	Currently Unfunded	EMPATF, HMGP; PDM Program	1/22/2025		
	Town of Belleair/Public Works	Ponce De Leon and Osceola, Street and Drainage improvements.	Phase 3 and 4 of Ponce De Leon and Osceola, Street and Drainage improvements.	1	$2,700,000	Currently Unfunded	HMGP	1/22/2025		Greg Lauda
	Town of Belleair/Public Works	Palmetto Street Drainage improvements	Final Phase of Palmetto Street drainage improvements	1	$1,400,000	Currently Unfunded	HMGP	1/22/2025		Gregg Lauda
917	Town of Belleair/Public Works	Carl & Shirley Roadway / Drainage Improvements	Construction of a drainage improvement project and related infrastructure. This project includes new drainage, utilities, sidewalk, curb, and roadway infrastructure. The projected total project cost is $2,196,113.85.	1	2.19 Million	Currently Unfunded	Local, HMGP	1/22/2025		Ashley Bernal / Adam Klinstiver
1086	Town of Belleair/Public Works	Indian Rocks Road Project	.0539 miles of new storm water underground drainage, this project will relieve Indian Rocks Road form being in future flooding events	1	4.8 Million	Currently Unfunded	HMGP	1/22/2025		Gregg Lauda
1079	Town of Belleair/Public Works	Harold's Lake and Rattlesnake Creek Sediment Removal and Design Criteria Restoration- System	This project, Harold's Lake and Rattlesnake Creek Drainage Restoration, proposes to dredge sediment and restore design functions for the lake and associated surface water(s) to original design capacities and functions. The Harold's Lake and Rattlesnake Creek System receives stormwaters from the Town of Belleair, unincorporated Pinellas County, City of Clearwater and City of Largo. The projected total project cost is $2,400,000.	4	2.4 Million	Currently Unfunded	Local, HMGP	1/22/2025	3/21/2024	Al Furney/Ashley Bernal
834	Treasure Island / Public Works	Reconstruct Public Works Garage and Yard	Rebuild the public works service facility, hardening it to withstand modern windload standards and elevate it to address sea level rise and meet FEMA standards for structures in a Special Flood Hazard Area. /4	4	$6.1 Million	Funded FY24 by planned issuance of debt	HMGP; HMGP Planning, local funds	1/22/2025		Jesse Miller
1710	Treasure Island / Public Works	Citywide Seawall Repair for Locations NOT listed as a separate project (street ends, etc.)	Citywide Seawall repair/replacement. Estimated completion time: ongoing. / 4	4	$1.2 Million	Funded FY25 - FY28 by annual appropriation	EMPATF, HMGP; PDM Program; CDBG, Local Funds (Penny for Pinellas)	1/22/2025	10/30/2017	Jesse Miller
1060	Treasure Island / Public Works	Public Works Seawall Replacement	Replace and elevate the seawall adjacent to the new Public Works facility: Estimated completion time: less than 12 months (2025). / 3	3	$460,000	Funded FY25 by City	EMPATF, HMGP; PDM Program; CDBG	1/22/2025	10/30/2017	Jesse Miller
970	Treasure Island / Public Works	Kingfish Park Seawall Rehabilitation	Repair/replace seawall and failing infrastructure: Estimated completion time: less than 12 months. / 3	4	$500,000	Funded FY24 by City for emergency design and repair efforts.	EMPATF, HMGP; PDM Program; CDBG	1/22/2025	10/30/2017	Jesse Miller
1292	City of Treasure Island/Public Works	Public Safety Complex & EOC	New Police and Fire Building with an Emergency Operations Center to be reconstructed in the new downtown City Center area for enhanced presence. Facility will be elevated and constructed for resiliency. The existing Public Safety building has been rendered inoperable due to hurricane damage. Fire and Police departments are operating out of mobile offices.	4	$12,000,000	City funding design and partial construction, seeking grants and/or debt for remaining construction cost.	HMGP, BRIC, Local Funding	1/22/2025	1/17/2025	Jesse Miller
New Projects										
Projects Related to HMGP-Idalia										
Projects Related to HMGP-Ian										
Projects Related to HMGP-Nicole or BRIC										

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Municipality / Entity	Project	Est. Cost	Status	Funding	Date Last Reviewed	Date Last Updated	Updated By
Belleair Beach	Master Stormwater Plan for city-wide stormwater improvements and flood prevention	$55,000	Completed 2016	Currently Budgeted Local	1/22/2025	8/17/2017	Lynn Rives
Belleair Beach	Harbor Dr. & 1st Street	$381,000	Completed	Local	1/22/2025	9/5/2019	Lynn Rives
Belleair Beach	Harrison Avenue Bridge Repair	$160,000	Completed	Local	1/22/2025	11/8/2018	Lynn Rives
Belleair Beach	Belle Isle Stormwater Improvement	$122,000	Completed	Local	1/22/2025	12/6/2018	Lynn Rives
Belleair Beach	Belle Isle Avenue Seawall Repair	$329,000	Completed	Local	1/22/2025	12/6/2018	Lynn Rives
Belleair Beach	Harbor Drive & 2nd Street	$185,000	Completed	Local	1/22/2025	11/8/2018	Lynn Rives
Belleair Beach	Harrison Avenue Seawall	$105,000	Completed	Local	1/22/2025	11/8/2018	Lynn Rives
Belleair Beach	Master Drainage Plan	$50,000	Completed	Local	1/22/2025	9/5/2019	Lynn Rives
Belleair Beach	Traffic Light Mitigation	$447,000	Completed	EMPATF, HMGP; PDM Program Penny for Pinellas	1/22/2025	9/5/2019	Lynn Rives
Belleair Beach	3rd-6th St - Drainage Improvement Plan - to prevent High Tide Flooding 3rd-6th Street	$356,000	Completed	Local	1/22/2025	11/9/2020	Lynn Rives
Belleair Beach	7th-8th Street Drainage Improvement Plan	$305,000	Completed	Local	1/22/2025	9/27/2021	Kyle Riefler
Belleair Beach	Stormwater Management - Stormwater repairs, improvements, and replacing curb work. Replace valley curbs Estimated completion time: more than 12 months. / 1	$172,292	Completed	Local Funds	1/22/2025	9/27/2021	Kyle Riefler
Belleair Beach	Gulf Blvd. Utility Undergrounding Phase 0 - Undergrounded overhead utilities and equipment to build resiliency and improve aesthetics in Belleair Beach. Phase included west side of Gulf Blvd. with crosswires and City Marina.	$1,727,398	Completed	Penny IV, Local Funds	1/22/2025	9/11/2022	Kyle Riefler
Belleair Beach	12th St., 13th St., and Bay Dr. (BMP 7 & 8) Stormwater Drainage Improvement Project - Prevent high tide flooding on these roads.	$717,350	Completed	Local Funds	1/22/2025	11/19/2023	Kyle Riefler
Belleair Beach	Renovate 7th and 16th seawalls.	$159,500	Completed	Local Funds	1/22/2025	11/19/2023	Kyle Riefler
Belleair Bluffs	City Hall Generator Replacement - A fully operational gas line operated building generator for use during any outages, storms, storm preparations. It is imperative that the public works facility be ready to mitigate storm risks at all times for residents, businesses, major street clearance. There is currently NO generator at the facility; therefore all preparations have to be prepared Prior to the storm as well as getting all vehicles, machinery, tools ready. This would be a replacement generator from the one that was installed when the building was completed in 2002. The maintenance costs are becoming insurmountable and the need is urgent.	100000 (Actual Cost =$100,826.41)	Completed	Local - City funds that have been reserved or/and reallocated from the Capital Fund	1/22/2025	11/26/2024	Russ Schmader
Clearwater	Former Clearwater Christian College Property Acquisition	$1,300,000	Project complete (2016)	Local	1/22/2025	10/4/2016	Sarah Kessler
Clearwater	Fire Station 45 and EOC	$10,500,000	Construction complete (2016)	Local and State	1/22/2025	10/4/2016	Sarah Kessler
Clearwater	Fire Station 50	$3,814,740	Completed (2017)	Local and State	1/22/2025	12/19/2018	Sarah Kessler
Clearwater	Gas Complex	$13,000,000	Completed	EMPATF, HMGP; PDM Program	1/22/2025	10/23/2019	Sarah Kessler
Clearwater	Police Shooting Range	$2,382,819	Complete (2017)	Local and State	1/22/2025	12/19/2018	Sarah Kessler
Clearwater	Public Works Complex – Phase I Street Sweeping Facility	$1,975,349	Design Complete	Local and State	1/22/2025	12/19/2018	Sarah Kessler
Clearwater	Berkley Place Drainage Improvements	$360,000	Project complete in 2016	Local and State	1/22/2025	10/4/2016	Sarah Kessler
Clearwater	Lower Spring Branch Stormwater Improvements	$1,800,000	Currently in Design (2016)	Local and State	1/22/2025	10/4/2016	Sarah Kessler
Clearwater	Byram Ditch Bank Stablization	$330,000	Project complete in 2015.	Local and State	1/22/2025	10/4/2016	Sarah Kessler
Clearwater	Druid Road Stormwater Improvements	$2,825,000	Currently in Construction (2016)	Local and State	1/22/2025	10/4/2016	Sarah Kessler
Clearwater	Mango Avenue Stormwater Improvements	$1,600,000	Completed (2017)	Local and State	1/22/2025	12/19/2018	Sarah Kessler
Clearwater	Glen Oaks Stormwater Improvement Project	$2,500,000	Project completed in 2006.	Local and State	1/22/2025	10/4/2016	Sarah Kessler
Clearwater	Lake Bellevue Stormwater Improvements	$1,300,000	Project complete in 2007	Local and State	1/22/2025	10/4/2016	Sarah Kessler
Clearwater	Woodlawn Terrace Stormwater Improvements	$800,000	Project complete in 2015	Local and State	1/22/2025	10/4/2016	Sarah Kessler
Clearwater	Hillcrest Avenue Bypass Culvert	$3,900,00	Currently in Construction (2018)	Local and State	1/22/2025	12/19/2018	Sarah Kessler
Clearwater	East Gateway Stormwater Improvements	$12,000,000	Currently in Construction (2018)	Local and State	1/22/2025	12/19/2018	Sarah Kessler
Clearwater	Solid Waste Transfer Facility	$18,000,000	Currently in Construction (2018)	Local and State	1/22/2025	12/19/2018	Sarah Kessler
Clearwater	Cooper’s Point Master Plan	$200,000	Project complete in 2017	Local and State	1/22/2025	12/19/2018	Sarah Kessler

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Clearwater	Renovations to Beach Marina Buiding	$2,500,000	Project complete (2016)	Private and Local	1/22/2025	10/4/2016	Sarah Kessler
Clearwater	Purchase Friendly Village of Kapok Mobile Home Park to eliminate repetitive flood losses. A nature park was created on the site along with storm water improvements for the area to prevent flooding.	$17,000,000	Complete	Local and State	1/22/2025	10/4/2016	Sarah Kessler
Clearwater	Replace seawalls throughout Clearwater Beach. Estimated completion time: more than 12 months.	$5,000,000	Ongoing	EMPATF, HMGP; PDM Program	1/22/2025	12/19/2018	Sarah Kessler
Clearwater	Develop a CERT that is trained on How to Educate Homeowners on Mitigation Techniques.	$37,000	Complete	Local and State	1/22/2025	10/4/2016	Sarah Kessler
Clearwater	Purchase 2000Kw mobile generator	$375,000	Complete (2018)	Local and State	1/22/2025	12/19/2018	Sarah Kessler
Clearwater	Jeffords Street Outfall	$1,000,000	Complete (2018)	Local and State	1/22/2025	12/19/2018	Sarah Kessler
Clearwater	Magnolia Street Outfall	$4,000,000	Completed (2017)	Local and State	1/22/2025	12/19/2018	Sarah Kessler
Clearwater	Woodlawn Terrace Floodplain Storage	$1,000,000	Completed (2017)	Local and State	1/22/2025	12/19/2018	Sarah Kessler
Clearwater	Smallwood Circle Drainage Improvements	$1,500,000	Completed (2017)	Local and State	1/22/2025	12/19/2018	Sarah Kessler
Clearwater	Clearwater Gas Complex	$23,300,000	Currently under Construction	Local and State	1/22/2025	12/19/2018	Sarah Kessler
Clearwater	**Elevate 9 Clearwater Beach lift stations** - This project includes elevating nine (9) lift stations on Clearwater Beach. The lift station telemetry, control, and power connections would be elevated at least two feet above the base flood elevation and storm surge height. Elevating the lift stations reduces the likelihood that they would damaged by a storm and prevents sanitary sewer overflows. This cost of preventative measure is $77,000 per elevated lift station. The estimated construction length would be 6 months.	$616,000	Complete	HMGP	1/22/2025	12/16/2022	Sarah Kessler
Clearwater	**Purchase 2 mounted power stations** - This project is for the purchase of two (2) portable 419KW trailer mounted power stations. Although the City's reclamation and water production facilities are on Duke Energy's critical facilities list, power outages due to storm damage can occur at Public Utilities facilities. The trailer mounted power stations allow for flexibility of redundant power supply that can be transported to any of the City's three (3) reclamation facilities. Having emergency power at facilities can prevent a sanitary sewer overflow. The cost of this preventative measure is $150,000 per power station. The estimated length of time to acquire equipment is 90 days.	$300,000	Complete	HMGP	1/22/2025	12/17/2022	Sarah Kessler
Clearwater	**Purchase 7 mounted generators** - This project is the purchase of seven (7) portable 90kW trailer mounted generators. These generators would only be used to maintain lift stations operations during power outages, often associated with extreme weather. The generators would allow lift station without power to temporarily pump the waste water collection system. Maintaining power at a lift station prevents sanitary sewer overflows. The cost of this preventative measure is $70,000 per generator. The estimated length of time to acquire equipment is 90 days.	$490,000	Complete	HMGP	1/22/2025	12/18/2022	Sarah Kessler
Clearwater	**Fire Station 46** – Mandalay - Construction of a new fire station to meet current building standards. Added 2016 /4	$4,305,560	Complete	EMPATF, HMGP; PDM Program	1/22/2025	12/19/2022	Sarah Kessler
Clearwater	**District 3 Headquarters** - Rebuild Police Station to be resilient and address site flooding Added 2016 /4	$3,505,000	Complete	EMPATF, HMGP; PDM Program	1/22/2025	12/20/2022	Sarah Kessler
Dunedin	Lake Earl to Skyeloch Piping.	$35,000	Complete	State	1/22/2025		
Dunedin	Lake Sperry pipe lining.	$150,000	Complete	State	1/22/2025		
Dunedin	Elevated five (5) repetitive loss structures	$307,268	Complete	State	1/22/2025		
Dunedin	Retrofit 2 structures to reduce flood damage potential	$174,872	Underway	State	1/22/2025		
Dunedin	Rebuild 1 Structure	$119,746	Complete	State	1/22/2025		
Dunedin	Storm Shutters for Municipal Services Building, 750 Milwaukee Ave.; City Hall, 542 Main St., and the Sheriff's North County Sub-station, 737 Louden Ave.	$25,000	Municipal Services Building and Sheriff's North County Sub-statioin Projects completed with HMGP funds in 2007. City Hall Project found to be infeasible and was deleted.	HMGP and Local	1/22/2025		
Eckerd College	Project: Construction of a new Center for Molecular and Life Sciences	$25,000,000	Completed 2013	Local	1/22/2025	10/4/2016	Lisa Mets
Eckerd College	Project: Hardening envelope (roof, windows) Sheen Science Center (3 buildings)	$7,500,000	2013/14	Local	1/22/2025	10/4/2016	Lisa Mets
Eckerd College	Nielsen Center for Visual Arts. (Project entailed demolition of vulnerable arts buildings and studios, and construction of new hardened, storm-resistant Center for Visual Arts.	$17,000,000	Completed in 2018	Local	1/22/2025	12/14/2018	Lisa Mets
Eckerd College	Project: Hardening envelope of McArthur Gymnasium	$194,000	Completed in 2020	State HLMP	1/22/2025	10/29/2020	Lisa Mets

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Gulfport	Retrofit City Hall: Harden skylights in City Hall to withstand hurricane force winds (2401 - 53rd Street South)	$1,000	Completed 2000/2001	Local	1/22/2025	10/27/2017	Michael Taylor
Gulfport	Thermal Imaging Camera: Purchase Thermal Imaging camera for post-storm search and rescue, and hazard abatement.	$10,000	Completed 2004	Local	1/22/2025	10/27/2017	Michael Taylor
Gulfport	Retrofit City Hall: Install window protection devices (shutters) at City Hall, Fire Station, and Community Development buildings (2401 - 53rd Street South, 5314 - 23rd Avenue South, and 5330 – 23rd Avenue South, respectively)	$25,000	Completed 2008	HMGP and Local	1/22/2025	10/27/2017	Michael Taylor
Gulfport	Fire Station Wind Retrofit: Harden Fire Station 17 overhead apparatus bay doors, and exterior doors of Fire Administration Building to withstand 125 mph + winds (5314 – 23rd Avenue South).	$100,000	Completed 2008	Local	1/22/2025	10/27/2017	Michael Taylor
Gulfport	Thermal Imaging Camera: Purchase Thermal Imaging camera for post-storm search and rescue, and hazard abatement.	$7,000	Completed 2014	Local	1/22/2025	10/27/2017	Michael Taylor
Gulfport	Hardening of Critical Facilities: 2 lift stations - Install hurricane resistant windows, window protection devices, storm resistant exterior doors, and remove louveres in exterior walls and infill with concrete block.	$15,000	Completed 2015	Local	1/22/2025	10/27/2017	Michael Taylor
Indian Rocks Beach	Demolished ten (10) pre-FIRM non-conforming structures and replaced them with conforming structures	$2,432,000	Complete	Private	1/22/2025	10/9/2017	Dean Scharmen
Indian Rocks Beach	27th Ave. and 1st St. drainage project to mitigate local flooding and provide treatment of local storm water runnoff.	$260,000	Complete	Local and State	1/22/2025	10/9/2017	Dean Scharmen
Indian Rocks Beach	Design 11th Ave. through 13th Ave. drainage project to mitigate local flooding.	$290,000	Complete	Local	1/22/2025	10/9/2017	Dean Scharmen
Indian Rocks Beach	Reclamation of 1.2 acres of wetlands to act as a flood buffer.	$100,000	Complete	Local	1/22/2025	10/9/2017	Dean Scharmen
Indian Rocks Beach	Dune Walkovers	$114,00	Complete	Local	1/22/2025	10/9/2017	Dean Scharmen
Indian Rocks Beach	Small Basin Reconstruction	$375,000	Complete	Local	1/22/2025	10/9/2017	Dean Scharmen
Indian Rocks Beach	Stormwater Reconstruction	$160,000	Complete	Local	1/22/2025	10/9/2017	Dean Scharmen
Indian Rocks Beach	20th Avenue Stormwater Improvements	$231,024	Complete	SWFWMD grant, IRB CIP	1/22/2025	10/9/2017	Dean Scharmen
Indian Rocks Beach	Street Resurfacing	$420,305	Complete	CIP, SWFMD	1/22/2025	10/9/2017	Dean Scharmen
Indian Rocks Beach	Flood Mitigation Buyout - Provide a grant of up to $15,000 per structure for the removal of noncompliant repetitive loss properties and pre-FIRM structures that are floodprone or at high risk/exposure to being flooded or experience wave action/erosion. / 1	$150,000	Complete	FMAP; HMGP; PDM Program, Penny for Pinellas, CDBG, Nonpoint Source Implementation Grants, Residential Construction Mitigation Program	1/22/2025	1/6/2022	Dean Scharmen
Indian Rocks Beach	Gulf Blvd Utility Undergrounding - Phase I. To make aesthetic and safety improvements along Gulf Blvd, including the undergrounding of the Gulf Blvd overhead utilities and equipment. Phase 1 of the project, about $4 million in cost would start at the southern boundary of the City (Whitehurst) and continue north to State Road 688. /4	$4,120,180	Complete. Phase 1 Undergrounding Project is completed.		1/22/2025	11/30/2022	Dean Scharmen
Indian Shores	Storm water management in redevelopment area to control and mitigate flooding. FY97/98	$60,000	Complete	Local and State	1/22/2025		
Indian Shores	FMAP elevation of existing repetitive loss struture. FY97/98	$22,500	Complete	Private and State	1/22/2025		
Indian Shores	FMAP acquisition and demolition of repetitive loss structure. FY97/98	$26,797	Complete	Local and State	1/22/2025		
Indian Shores	Installed new seawall to mitigate flooding. FY97/98	$16,770	Complete	Local and State	1/22/2025		
Indian Shores	Installed new seawall and replaced seawall cap. FY97/98	$5,080	Complete	Local	1/22/2025		
Indian Shores	Storm water management at 19305 Gulf Blvd. (Town Hall complex) FY97/98	$80,000	Complete	Local and State	1/22/2025		
Indian Shores	FMAP elevation of repetitive loss existing structure. FY00/01	$41,683	Complete	Local and State	1/22/2025		
Indian Shores	Development of Town master drainage plan. FY01/02	$80,000	Complete	Local and State	1/22/2025		
Indian Shores	Purchase property in redevelopment area for potential site of future retention pond. FY01/02	$40,000	Complete	Local	1/22/2025		
Indian Shores	Implement Town-wide storm water master plan. FY02/03	$300,000	Underway	Local and State	1/22/2025		
Indian Shores	Purchase and installation of an auxiliary generator for the Critical Facility, Town Hall, 19305 Gulf Blvd.	$33,455	Complete	HMGP and Local	1/22/2025		
Kenneth City	In 2015, the Town completed a $1.2M repair to a tributary of Joe's Creek, whereby a semi-collapsed open ditch was replaced with an underground culvert/CMU box culvert system.	$600,000	Completed	($600K secured through SWFWMD cooperative funding)	1/22/2025		
Kenneth City	Necessary repairs were completed to the Town's underground fuel storage tank, along with the acquisition of an emergency generator to supply back-up power in the event of an emergency in 2015				1/22/2025		
Kenneth City	Retrofit of Critical Facility/Storm shutters on PD and City Hall	$46,000	Completed	EMPATF;HMGP; PDM Program	1/22/2025		
Kenneth City	Repairs to existing stormwater lines damaged by July Rain event		Underway	Local	1/22/2025		
Kenneth City	Re-sheathing of Public Works Building with wind-loaded exterior	$400,000	Underway	Local	1/22/2025		
Largo	Initiative: Hardening the new Public Works administration building by adding storm shutters and installing emergency generators. This facility contains the Public Works Emergency Operations Center. Benefit: Averting wind damage would minimize or eliminate post-disaster disruption of municipal services. The Public Works administration structure is valued at $1.1 million.	$89,151	Completed		1/22/2025	9/16/2016	Matthew DiFiore

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Largo	Initiative: Hardening the new Environmental Services (sewer) administration building by adding storm shutters and installing emergency generators. This facility contains the Environmental Services Emergency Operations Center. Benefit: Averting wind damage would minimize or eliminate post-disaster disruption of municipal services. The Environmental Services administration structure is valued at $1.8 milllion.	$89,151	Completed		1/22/2025	9/16/2016	Matthew DiFiore
Largo	Initiative: Installing an emergency generator at the new administration building for the Wastewater Treatment Plant. The generator will insure the Plant's ability to provide continuous service during power failures. Benefit: Keeping the WWTP fully operational would help avoid sanitary sewer conveyance system backup that could cause significant damage to private properties in the event of a power failure caused by a natural or man-made disaster event.	$859,072	Completed	Local	1/22/2025	9/16/2016	Matthew DiFiore
Largo	Initiative: Hardening the Largo City Hall, Police, and Emergency Operations Center buildings by adding storm shutters, removing abandoned air conditioning equipment from the roof, and installing emergency generators. In addition to housing the administrations of more than half of the City's departments, this facility contains the City's centralized telephone, computer, and broadcasting systems. Benefit: Averting wind damage would minimize or eliminate post-disaster disruption of municipal services, including the EOC, police, fire, permitting, and planning operations. The Largo Municipal Complex structures are valued at $10.9 million.	$321,285	Completed		1/22/2025	9/16/2016	Matthew DiFiore
Largo	Hardening the new Environmental services (sewer) administration building by adding storm shutters and installing emergency generators. This facility contains the Environmental Services EOC	$89,151	Project Completed.	HMGP/Local	1/22/2025	9/16/2016	Matthew DiFiore
Largo	Channel 1 Drainage/Infrastructure Plan	$1,919,213	Completed 2007	Local	1/22/2025	9/16/2016	Matthew DiFiore
Largo	Suncoast Manor Drainage//Old Valencia Blvd. Plan	$274,132	Completed 2007	Local	1/22/2025	9/16/2016	Matthew DiFiore
Largo	McKay Creek Drainage Improvement Plan	$1,549,460	Completed 2006	Local	1/22/2025	9/16/2016	Matthew DiFiore
Largo	Purchasing and Demolition of Repetitive Loss Properties: 132 Gatewood Drive	$149,000	Completed 2003	Local	1/22/2025	9/16/2016	Matthew DiFiore
Largo	Purchasing and Demolition of Repetitive Loss Properties: 198 Gatewood Drive	$190,000	Completed 2003	Local	1/22/2025	9/16/2016	Matthew DiFiore
Largo	Purchasing and Demolition of Repetitive Loss Properties: 71 East Overbrook Drive	$177,000	Completed 2005	Local	1/22/2025	9/16/2016	Matthew DiFiore
Largo	Purchasing and Demolition of Repetitive Loss Properties: 2463 19th Place SW	$127,500	Completed 2005	Local	1/22/2025	9/16/2016	Matthew DiFiore
Largo	Rain Gauge Monitoring System Base Unit (32 units at $1800 per unit)	$57,600	Completed 1995-2007 (more added as budget permits)	Local	1/22/2025	9/16/2016	Matthew DiFiore
Largo	Base Level Monitoring System for Rain Gauge System, 24 hours a day service (2 units), $6,000 per unit	$12,000	Completed 1995-2007 (more added as budget permits)	Local	1/22/2025	9/16/2016	Matthew DiFiore
Largo	SCADA System for remote monitoring	$1,350,000	Competed 2004	Local	1/22/2025	9/16/2016	Matthew DiFiore
Largo	Fire Station Bay Doors	$144,710	Completed	General, (Local Fund)	1/22/2025	9/16/2016	Matthew DiFiore
Largo	Waste Water Reclamation Facility Warehouse	$3,426,795	Completed	Wastewater (Local Fund)	1/22/2025	9/16/2016	Matthew DiFiore
Largo	IT Data Center	$3,189,569	Completed	LOST	1/22/2025	9/16/2016	Matthew DiFiore
Largo	Community Center	$10,918,386	Completed	LOST	1/22/2025	9/16/2016	Matthew DiFiore
Largo	Stormwater Program Update	$250,000	Completed	Stormwater (Local Fund)	1/22/2025	10/25/2017	Jerald Woloszynski
Madeira Beach	13001 Boca Avenue - Mitigation of SRL Property 13001 Boca Avenue	$200,000	Completed	HMGP/Local	1/22/2025	11.17.2020	Tamara Harvie
Madeira Beach	Stormwater Master Plan Improvements	$218,429	Completed	Local	1/22/2025	11.17.2020	Tamara Harvie
Madeira Beach	Beach Groin Rehabilitation Project – Repair and maintain the City's existing beach groin system. (This system was installed in the 1950's. Because of the effectiveness of this system, Madeira Beach has not required other beach renourishment efforts.)	$275,000	Completed 2013/14	Local	1/22/2025	11.17.2020	Tamara Harvie
Madeira Beach	Storm Drainage and Roadway Improvements Relating to Drainage – Normandy Road	$1,180,000	Completed 2018	Local /Applied for Matching SWFWMD Cooperative Funding	1/22/2025	11.17.2020	Tamara Harvie
Madeira Beach	Storm Drainage and Roadway Improvements Relating to Drainage – Engineering Study – Boca Ciega Drive	$80,000	Completed 2017	Local (including a portion by Local Option Sales Tax)	1/22/2025	11.17.2020	Tamara Harvie
Madeira Beach	Municipal Complex Reconstruction (City Hall, Fire Station, Recreation Center and related outside activity areas)	$8,630,000	Completed - 2015	Localoldsmar	1/22/2025	11.17.2020	Tamara Harvie
Madeira Beach	Stormwater Outfall Cleaning	$180,000	Completed - 2016	Local	1/22/2025	10/5/2016	Tamara Harvie
Madeira Beach	Boca Ciega roadway and Drainage Improvement Project (Address deteriorating roads, aging drainage infrastructure, store related flooding and pollutant discharge into Boca Ciega Bay)	$3,927,000	Completed - 2017	City and SWFWMD	1/22/2025	11.17.2020	Michelle Orton
Madeira Beach	140th Ave E & Bayshore Drive North Drainage Improvement (Install a new storm grate, baffle box and a pipe outfall to Boca Ciega Bay)	$86,800	Completed - 2015	City and SFWMD	1/22/2025	11.17.2020	Michelle Orton
Madeira Beach	American Legion Drive Drainage Improvement (Construct stormwater inlets and pipes to meet the 10 year MB design standards and install a BMP treatment train.)	$600,000	On-going	City and SFWMD	1/22/2025	11.17.2020	Michelle Orton
Madeira Beach	Rex Place Drainage Improvement (Alleviate flooding problems, treat water prior to discharge)	$600,000	Complete	City and SWFMD	1/22/2025	11.17.2020	Michelle Orton
Madeira Beach	137th Avenue Circle Drainage Improvements (Upsize existing stormwater inlets and pipes to meet 10 year design standards. Installing pervious pavement, nutrient separating baffle box.)	$935,000	Complete	City and SWFMD	1/22/2025	11.17.2020	Michelle Orton
Madeira Beach	860 Bay Point (Mitigation of RL Property-Construction Plan s submitted for review and permitting)	$210,000	Complete	HMGP & Private	1/22/2025	11.16.2020	Tamara Harvie
Madeira Beach	914 Bay Point (Mitigation of RL Property- Property sold, new owners reside out of state, yet to complete paperwork for the FEMA grant)	$211,000	Complete	HMGP & Private	1/22/2025	11.16.2020	Tamara Harvie
Madeira Beach	13101 4th Street (Mitigation of SRL property - Demolition in progress construction plans being prepared)	$210,000	Complete	HMGP & Private	1/22/2025	11.16.2020	Tamara Harvie

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Madeira Beach	882 Bay Point Mitigation of SRL property – Design and construction plans in progress)	$226,000	No change	HMGP & Private	1/22/2025	11.16.2020	Michelle Orton
Madeira Beach	905 Bay Point Drive (Mitigation of SRL property – Ground floor under construction)	$200,000	Complete	HMGP & Private	1/22/2025	11.16.2020	Tamara Harvie
Madeira Beach / Administration	Emergency Operations Generator - Emergency Operations Generator at City Hall to allow operations during state of emergency, power outages or other events of power loss.	$180,000 Structure. $95,000 Generator	Under construction. Completion date estimated 11.16.2020	FEMA Grant - General Fund	1/22/2025		Tamara Harvie
Madeira Beach	Emergency Operations Generator - Emergency Operations Generator to allow operations during state of emergency, power outages or other events of power loss. (Fire)	$95,000	Funding Approved; Contract Executed	The funding will be a combination of HGMP grant and local funds.	1/22/2025	11/30/2021	Susan Portal
Madeira Beach / Community Development	Drainage Basin E- As depicted in the Stormwater Master Plan - Stormwater system upgrades to address flooding and tide control devices	$3,500,000	Competed 2016	EMPATF; HMGP; PDM Program	1/22/2025		Tamara Harvie
Madeira Beach	Portions of Drainage Basin D - D8-D19 in the Stormwater Master Plan	$12,068	Stormwater fund Proj started 3/2020 schedule complete 3/2021	EMPATF; HMGP; PDM Program	1/22/2025		Tamara Harvie
Madeira Beach/Public Works	Crystal Island Roadway & Drainage Improvement	$12,000,000	Completed June, 2021	HMGP	1/22/2025	11/30/2021	Susan Portal
Madeira Beach / Community Development	Drainage Basin A5-A6 As depicted in the Stormwater Master Plan - Stormwater system upgrades to address flooding and tide control devices	$2,142,000	Completed in 2018	EMPATF; HMGP; PDM Program	1/22/2025	1/12/2022	Susan Portal
Madeira Beach / Community Development	Drainage Basin D – As depicted in the Stormwater Master Plan - Stormwater system upgrades to address flooding and tide control devices	$4,360,000	Completed	EMPATF; HMGP; PDM Program	1/22/2025	1/12/2022	Susan Portal
Madeira Beach/Fire Department	Aerial Apparatus Replacement - Replace 2004 Pierce with new aerial 78-foot ladder truck - moved to Accomplishments sheet	$900,000	Completed		1/22/2025	12/6/2022	Susan Portal
Madeira Beach/Fire Department	Rescue Boat - Replace jet skis that are at the end of their service life with 2022 Zodiac 21-foot rescue boat - Moved to Accomplishments	$65,000	Recently purchased	Budget	1/22/2025	12/6/2022	Susan Portal
Madeira Beach/Fire Department	SCBA Air Compressor - Replace old air compressor to fill SCBA and SCUBA bottles. - Moved to Accomplishments	$30,000	Recently purchased	Budget	1/22/2025	12/6/2022	Susan Portal
Madeira Beach/Fire Department	Addition of concrete pad and aluminum cover at fire station to allow for more storage and vehicle parking	$50,000	completed	ARPA	1/22/2025	1/17/2025	Jenny Rowan
Madeira Beach/Public Works	Gulf Lane and Beach Access Roadway and drainage improvements	$2,500,000	completed	Budget	1/22/2025	1/17/2025	Jenny Rowan
Madeira Beach/Fire Department	Quick Response Vehicle	Purchase of QRV to assist with call volume.	Completed 2023	Unfunded	1/22/2025	11/30/2023	Purchased 2023
North Redington Beach	SEWER - North Redington Beach provides sewer service for Redington Shores and NRB. Raise main lift station electrical and controls above flood plain ($75,000). Raise emergency generator and fuel tank above flood plain ($50,000).	Unknown	Completed, November 2008	Local/County	1/22/2025		
North Redington Beach	Stormwater Management #1 - Install storm water sewer valve to prevent storm water/tidal backup into the streets. Estimated completion time: less than 12 months. / 1	$25,000	Completed	FMAP/HMGP/Local	1/22/2025	9/10/2019	Michelle Orton
North Redington Beach	Underground utilities throughout the side streets of NRB. This includes all streets except Gulf Boulevard.	$2,000,000	Completed	Local	1/22/2025		
Oldsmar	Hurricane Wind Hardening Retrofit of Municipal Services Facility.	$103,723	Complete	HMGP/Local	1/22/2025	10/31/2016	Steve Everitt
Oldsmar	Hurricane Wind Hardening Retrofit of City Hall windows.	$145,214	Complete	Local	1/22/2025	12/14/2017	Steve Everitt
Oldsmar / Public Works; Storm Water	Mitigation/ Response/ Recovery Equipment - Purchase vacuum excavation system for the maintenance and recovery of all storm water inlets and structures. Estimated completion time: less than 12 months. / 1	$50,000	Complete	HMGP/Local/State	1/22/2025	1/24/2019	Steven Everitt

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Oldsmar / Public Works; Engineering	Storm Water Management Plan - Prepare a citywide drainage plan to minimize flooding throughout the City. Estimated completion time: more than 12 months. / 1	$100,000	Complete	FMAP; HMGP; PDM Program	1/22/2025	12/11/2019	Tatiana Childress
Oldsmar / Public Works; Facilities	Critical Facility Generator Retrofit - Replace electrical generating equipment at Water Reclamation Facility. Estimated completion time: less than 12 months. / 4	$1,200,000	Complete	State Revolving Funds, CDBGs; FMAP; HMGP; HMGP Planning	1/22/2025	12/11/2019	Tatiana Childress
Oldsmar/ Public Works	Climate Resiliency Plan	$200,000	Complete	Local, FDEP Coastal Resilience grant	1/22/2025	11/3/2022	Ashlee Painter
Oldsmar/Fire Rescue	Radio Communications System-UHF frequncy radio system consisting of two repeaters and ten handheld radios to serve as back up communications during storm events. The system will allow for EOC to field communications during emergency events should cellular and broadband communication fail.	$25,000	Completed	Local	1/22/2025	10/21/2021	Jason Schwabe
Oldsmar/Public Works	Portable solar variable message board. Message board necessary to communicate with drivers during an emergency, and to alert changing road conditions	$15,000	Complete	Local	1/22/2025	11/8/2023	Ashlee Painter
Oldsmar/Public Works	Skid Loader. This machine is highly useful in emergency clean-up situations to quickly clean the city. Also, due to its compact design, this is the machine of choice to access rear easements in residential lots. The city has a brush attachment and can use this to clear debris off of streets after hurricane	$60,000	Complete	Local	1/22/2025	11/8/2023	Ashlee Painter
Oldsmar/ Public Works	Wind Mitigation Study	$60,000	Completed	Local	1/22/2025	9/29/2023	Ashlee Painter
Oldsmar/Public Works	Crane Truck with hydraulic outrigger - As the Reverse Osmosis Plant ages there is greater demand for repair equipment. A second crane trucks for will provide some redundancy as much of the equipment at LS's and treatment facilities requires mechanical lifting capabilities. This will also provide backup for extreme weather events. Crane trucks are necessary for replacement of heavy components in lift stations	$100,000	Completed	Local	1/22/2025	11/8/2023	Ashlee Painter
Pinellas County	Sediment/erosion control, sediment removal, and/or stream bank/ channel stabilization for flood control purposes		Ongoing and completed	State and Local	1/22/2025	10/26/2017	David Talhouk
Pinellas County	1) Bee Branch	$6,570,900	Phase 2 complete, phase 1 in progress	Penny for Pinellas; SWFWMD; Grant	1/22/2025	10/26/2017	David Talhouk
Pinellas County	2) Bear Creek Channel Improvements	$8,301,120	FY2014 Complete	Penny for Pinellas; SWFWMD	1/22/2025	10/26/2017	David Talhouk (corrected funding)
Pinellas County	3) Curlew Creek Channel A Improvements	$7,115,800	Completed	Penny for Pinellas; SWFWMD	1/22/2025	10/26/2017	David Talhouk
Pinellas County	Animal Services Building Storm Hardening	$256,670	Completed	HM Allocation/Local	1/22/2025	10/26/2016	
Pinellas County	Belleair Elementary School Storm Retrofit; new classroom will gain 783 shelter spaces	$44,100	Completed	Local	1/22/2025	10/26/2016	
Pinellas County	Emergency Communications upgrade of radio system to SmartZone technology.	$17,500,000	Complete	CIP/grants	1/22/2025	10/26/2016	
Pinellas County	EMS hardening of Sunstar Communications Center north wall and south alleyway enclosed.	$310,000	Complete	General Fund	1/22/2025	10/26/2016	
Pinellas County	EMS A/C replacement for the radio and server room.	$300,000	Complete	General Fund	1/22/2025	10/26/2016	
Pinellas County	EMS Sunstar Communications Center and radio room roof replacement.	$150,000	Complete	General Fund	1/22/2025	10/26/2016	
Pinellas County	EMS Building Storm Hardening	$272,294	Completed	HM Allocation/Local	1/22/2025	10/26/2016	
Pinellas County	High Point Elementary School Retrofit	$6,002	Project Completed	Local	1/22/2025	10/26/2016	
Pinellas County	Medical Examiner/Forensics Building Storm Hardening	$347,607	Completed	HM Allocation/Local	1/22/2025	10/26/2016	
Pinellas County	New Heights Elementary School Door Replacements in Building 2	$33,927	Project Completed	Local	1/22/2025	10/26/2016	
Pinellas County	Public Works Storm Hardening - Generator Bldg., Traffic Bldg, Survey Bldg.	$49,422	Completed	HM Allocation/Local	1/22/2025	10/26/2016	
Pinellas County	Ross Norton Community Center - Generator	$70,322	Project Completed	Local	1/22/2025	10/26/2016	

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Municipality / Entity	Project	Est. Cost	Status	Funding	Date Last Reviewed	Date Last Updated	Updated By
Pinellas County	Skycrest Elementary School Storm Retrofit; new classroom will gain 783 shelter spaces	$44,100	Completed	Local	1/22/2025	10/26/2016	
Pinellas County	Supervisor of Elections Building Storm Hardening (Starkey Rd)	$98,271	Completed	HM Allocation/Local	1/22/2025	10/26/2016	
Pinellas County	Post-Disaster Redevelopment Plan, including Health/Human Services Component	$120,000	Project completed; to be reviewed by BCC	CPI/Local	1/22/2025	10/26/2016	
Pinellas County	Post-Disaster Redevelopment Plan - Health/Human Services Component	$40,000	Project completed; to be reviewed by BCC	HMGP/Local	1/22/2025	10/26/2016	
Pinellas County	Comprehensive Land Development Regulations Update - includes updating floodplain management regulations		Project in progress		1/22/2025	10/26/2016	
Pinellas County	Homeless Emergency Project was awarded for 4 single-family home roof replacements	$38,000.00	Roof replaced with current building code standards.	CDBG	1/22/2025	10/26/2016	
Pinellas County	Religious Community Services, Inc. (RCS) was awarded for roof replacement at the Food Bank.	$40,000.00	Roof replaced with current building code standards.	CDBG	1/22/2025	10/26/2016	
Pinellas County	Pinellas County Community Development Low Interest Loan	$1.4M	81 Single family homes received a Low Interest Loan from Pinellas County for hurricane mitigation.	CDBG; State Housing Initiatives Partners (SHIP); Housing Trust Fund (HFT)	1/22/2025	10/26/2016	
Pinellas County	Neighborhood Stabilization Program NSP	$20,400 (est.)	10 homes remodeled, 2 with impact windows, 4 with metal storm panels	NSP 1	1/22/2025	10/26/2016	
Pinellas County	Neighborhood Stabilization Program NSP2	$43,300 (est.)	13 homes remodeled, 4 with impact windows, 9 with metal storm panels	NSP2	1/22/2025	10/26/2016	
Pinellas County	Neighborhood-based education and outreach on County issues of concern (i.e. hurricane preparedness, mosquito prevention, surface water quality, etc.).		Ongoing project in progress	CDBG	1/22/2025	10/26/2016	
Pinellas County	The Glades Drainage Assessment	$1,089,200	Completed	Penny for Pinellas/ Local	1/22/2025	10/26/2016	
Pinellas County	Cross Bayou Watershed Plan (132A)	$514,600	Completed FY2013	Penny for Pinellas	1/22/2025	10/26/2017	Reviewed by: David Talhouk
Pinellas County	Keystone Road Reconstruction	$16,805,900	Completed FY2013	Penny for Pinellas	1/22/2025	10/26/2016	
Pinellas County	Bryan Dairy Road - Starkey to 72nd St.	$9,275,400	Completed FY2013	Penny for Pinellas; Grants	1/22/2025	10/26/2016	
Pinellas County	Cross Bayou Watershed Plan	$252,310	Completed FY2013	Penny for Pinellas; SWFWMD; Grant	1/22/2025	10/26/2016	
Pinellas County	Starkey Basin Watershed Mgt. Plan	$607,200	Completed FY2013	Penny for Pinellas; SWFMD; Gov't Reimbursement	1/22/2025	10/26/2016	
Pinellas County	Public Safety Facilities & Centralized Communications Center	$72,981,800	Completed	Penny for Pinellas	1/22/2025	10/26/2016	
Pinellas County	Sea Level Rise: Implemented mulit-departmental County Climate Team; joined efforts with TBRPC; contracted with UF/Sea Grant Program to initiate sea level rise conversations with municipalities	$15,000	Ongoing	General Fund	1/22/2025	10/26/2016	
Pinellas County	Lealman Area Drainage Improvements (1628)	$881,930	FY2012 to FY2014 Completed	Penny for Pinellas	1/22/2025	10/26/2016	

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Pinellas County	Lealman Central Area Drainage Improvements (2027) Preliminary engineering for master drainage plan.	$150,000	Completed	CDBG	1/22/2025	10/26/2016	
Pinellas County	Government Facilities Remodel & Renovation (1633)	12,275,500	Completed	Penny for Pinellas	1/22/2025	10/26/2016	
Pinellas County	Community Buildings Emergency Shelter Project (1843)	6,950,000	Completed	Penny for Pinellas	1/22/2025	10/26/2016	
Pinellas County	Allens Creek Watershed Management Plan	$575,000	Complete	Surface Water Assessement Fee	1/22/2025	10/27/2016	Added by Rahim Harji
Pinellas County	McKay Creek Watershed Management Plan	$730,000	Complete	Surface Water Assessment Fee	1/22/2025	10/27/2016	Added by Rahim Harji
Pinellas County	Joe's Creek Watershed Management Plan (WMP)	$500,000	Complete	Surface Water Utility Fund and SWFWMD CFI Grant	1/22/2025	10/1/2019	Rhonda Bowman
Pinellas County	118th Avenue Expressway (1618). Built east-west evacuation route parallel to Ulmerton Rd.	$55,750,000	Complete	Penny for Pinellas	1/22/2025	11/8/2017	Added by Gina Harvey
Pinellas County	Antilles/Oakhurst Drainage Improvements (1820). Improvements to alleviate street flooding.	$3,160,000	Complete	Penny for Pinellas	1/22/2025	10/27/2017	Added by David Talhouk
Pinellas County Public Works	Mast Arm Hardening: Installation and/or upgrade of Mast Arms at 16 locations throughout the county located on hurricane evacuation routes.This will help improve the safe, efficient flow of traffic countywide in the event of an emergency event or hurricane. During Hurricane Irma in September 2017, traffic signals hung by span wire fell or became damaged from storm force winds. The fall of span wire could result in traffic signals becoming inoperable, potentially blocking access on the roadway and creating what could be a dangerous situation; even more so when located on an evacuation route that is used by hundreds of thousands of citizens seeking safety. Mast Arm signals in place of span wire at these evacuation route locations will ensure that these evacuation routes remain open and emergency personnel have access to the main roadways post-storm.	$6,000,000	In Design	HMGP	1/22/2025		
PC Public Works	Pinellas Trail - 54th Ave Drainage	$3,297,000	FY21 Complete	Penny for Pinellas, SWFWMD CFI Grant	1/22/2025	12/30/2021	Anita Wang
PC Public Works	McKay Creek Water Quality Improvement Project	$1,097,000	FY21 Complete	Penny for Pinellas, SWFMWD CFI Grant, FDOT Grant	1/22/2025	12/30/2021	Anita Wang
PC Public Works	22nd Avenue S Drainage Improvements from 51st Street to 55th Street (002508A): Drainage system modification to eliminate street flooding on 22nd Avenue South between 51st Street and 55th Street South. / 1	$1,750,000	Construction Completed FY18-FY19	Penny for Pinellas	1/22/2025		Rhonda Bowman
PC Public Works	Highland Avenue Pipe Replacement from Jeffords Street to Pine Street (002308A): Pipe replacement to address flooding / 1	$2,273,500	Construction Completed FY19-FY20	Penny for Pinellas	1/22/2025		Rhonda Bowman
PC Public Works	Bee Branch Drainage Improvements Phase I (002121A): Bank stabilization, erosion control, and drainage structure replacement. / 3	$1,135,600	Construction Completed	Penny for Pinellas; SWFWMD CFI Grant	1/22/2025		Rhonda Bowman
PC Public Works	Georgia Avenue Drainage from Seaford Avenue to Disston Street (002116A): Drainage improvement to alleviate street, yard, and structural flooding. / 1	$833,000	Construction Completed FY19-FY20	Penny for Pinellas	1/22/2025		Rhonda Bowman
PC Public Works	Pinellas County Stormwater Facilities (Countywide) - Stormwater Infrastructure Program (000207A): Annually funded program to rehabilitate stormwater infrastructure to address flooding. / 1, 3	$2,492,000	Program ends FY19. New program begins FY20	Penny for Pinellas	1/22/2025		Rhonda Bowman
PC Public Works	Drainage Pond Compliance Program (1629) - Drainage Pond Compliance Program (000969A) Annually funded program to improve existing stormwater management facilities. / 1, 3	$299,500	Program ends FY19.	Penny for Pinellas, Possible SWFWMD CFI Grant	1/22/2025		Rhonda Bowman
PC Public Works	Curlew Creek and Smith Bayou Watershed Mangement Plan	$ 850,000	Complete	Surface Water Utility Fund, SWFWMD	1/22/2025	11/30/2020	Rhonda Bowman

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PC Public Works	Lakeshore Estates Phase I	$ 3,038,000	Complete	Penny for Pinellas	1/22/2025	11/30/2020	Rhonda Bowman
PC Public Works	Replace Radio Shelters - Replace seven (7) existing radio shelters housing the infrastructure of Pinellas County's 800 MHz Intergovernmental Public Safety Radio System serving over 10,000 responders to meet national standards and practices as defined by the Association of Public Safety Communication Officials (APCO) and local building codes. Shelter structures must be constructed to eliminate the threat of flooding with elevated platforms and drainage, while protecting against hurricane force winds. The hardening of sites is one of the most critical elements in the construction of a reliable communications system to prevent radio communication failure and better serve public safety responders and the public during routine incidents and major disasters. Public safety grade shelters are imperative to ensure the ability of public safety users to communicate at all times.	$15,130,000	COMPLETED 10/31/2022	Penny for Pinellas	1/22/2025	10/4/2022	Donna Beim
PC Public Works	N Highland Drainage Improvements - N Highland Ave Drainage Improvements (1333A) / 1, 3	$2,260,000	CONSTRUCTION COMPLETE	Penny for Pinellas	1/22/2025	12/14/2023	Anita Wang
PC Public Works	South Myrtle Avenue Drainage Improvements from Clearwater Largo Road to Belleair Road - South Myrtle Avenue Drainage Improvements from Clearwater Largo Road to Belleair Road (002434A): Inadequate roadway drainage results in ponding of stormwater on the road. / 1	$1,410,000	COMPLETED FY23	Penny for Pinellas	1/22/2025	12/14/2023	Anita Wang
PC Public Works	MSTU Crystal Beach Paving & Drainage Improvements (002932A)	$1,500,000	COMPLETED FY23	Penny for Pinellas	1/22/2025	12/14/2023	Anita Wang
PC Public Works	Lakeshore Estates Phase 2 Roadway and Drainage Improvements (001177B): Improvements to the existing stormwater system and road are required to alleviate flooding in portions of Lakeshore Estates. / 1	$4,517,000	COMPLETED FY23	Penny for Pinellas	1/22/2025	12/14/2023	Anita Wang

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Pinellas County / Public Works	Curlew Creek and Smith Bayou Watershed Management Plan - Evaluate drainage patterns within watershed; identify flooding locations; develop BMPs to address the issues. / 1, 3	$850,000	COMPLETED 2024	Surface Water Utility Fund and SWFWMD CFI Grant	1/22/2025	10/28/2024	Paul Miselis
Pinellas County / Public Works	Anclote River Watershed Management Plan - Evaluate drainage patterns within watershed; identify flooding locations; develop BMPs to address the issues. / 1, 3	$800,000	COMPLETED 2024	Surface Water Utility Fund and SWFWMD CFI Grant	1/22/2025	10/28/2024	Paul Miselis
Pinellas County / Public Works	Lake Tarpon Watershed Management Plan (Floodplain Mapping) - Evaluate drainage patterns within watershed; identify flooding locations; develop BMPs to address the issues. / 1, 3	$500,000	COMPLETED 2024	Surface Water Utility Fund and SWFWMD CFI Grant	1/22/2025	10/28/2024	Paul Miselis
Pinellas County / Public Works	Brooker Creek Watershed Management Plan - Evaluate drainage patterns within watershed; identify flooding locations; develop BMPs to address the issues. / 1, 3	$1,050,000	COMPLETED 2024	Surface Water Utility Fund and SWFWMD CFI Grant	1/22/2025	10/28/2024	Paul Miselis
Pinellas County / Public Works	Taylor Lake Seawall Replacement - Taylor Lake Seawall Replacement (002228A): Replace failing seawall along the south side of 8th Avenue SW, repair and replace pedestrian facilities, provide drainage improvements and erosion control measures along roadway and in the vicinity of the weir structure. / 1, 3, 4	$4,496,400	COMPLETED 2024	Penny for Pinellas, Grants	1/22/2025	10/28/2024	Amber Hauser
Pinellas Park	Basin 4A Drainage Improvement - Culvert replacements and ditch regrading within the Channel 4A area from 58th Street to a point upstream of the 53rd Street Culvert. This would be done after the Pinellas Poark Water Management District upgrades Channel 41 from 58th Street to a proposed pond south of 62nd Avenue.	$487,250	Completed in 2004	Local	1/22/2025	10/24/2017	Tiffany Menard
Pinellas Park	Park Blvd Drainage Improvement Phase I, Basin B - Improve drainage along Park Boulevard corridor between US 19 and 66th Street. Improve each drainage network in the area as recommended by the 1998 Park Boulevard Master Drainage Plan. Basin B is located between the CSX Railroad line and 49th Street.	$5,364,000	Completed in 2006	Local, State, and Federal	1/22/2025	10/24/2017	Tiffany Menard
Pinellas Park	Park Blvd Drainage Improvement Phase II, Basin A - Improve drainage along Park Boulevard corridor between US 19 and 66th Street. Improve each drainage network in the area as recommended by the 1998 Park Boulevard Master Drainage Plan. Basin A is located between 65th Way to the CSX Railroad line.	$10,000,000	Completed in 2008	Local, State, and Federal	1/22/2025	10/24/2017	Tiffany Menard
Pinellas Park	Park Blvd Drainage Improvement Phase III, Basin C - Improve drainage along Park Boulevard corridor between US 19 and 66th Street. Improve each drainage network in the area as recommended by the 1998 Park Boulevard Master Drainage Plan. Basin C is located between US 19 and east of 49th Street.	$14,530,000	The drainage project was completed in FY10/11	Local, County, State, and Federal	1/22/2025	10/24/2017	Tiffany Menard
Pinellas Park	Helen Howarth Park Drainage Basin Evaluation - Provide survey, conceptual-level modeling, data collection, and preparation of report to recommend possible improvements in drainage basin.	$32,500	Study completed in 2005	Local	1/22/2025	10/24/2017	Tiffany Menard
Pinellas Park	Homeland Drainage Improvement District Drainage Study - Determine improvement area through completion of a drainage study, including surveying, modeling and laternative evaluation.	$55,000	Study completed in 2005	Local	1/22/2025	10/24/2017	Tiffany Menard
Pinellas Park	Stormwater Rehabilitation Program - Install and line galvanized culvert pipe through the City.	$500,000	This is an annual ongoing project.	Local	1/22/2025	10/24/2017	Tiffany Menard
Pinellas Park	NFIP Map Update - This project involved an outreach to property owners of potential changes and included use of websites, a TV show, public service announcements through the Government Affairs Department, and displays at the Library, City Hall, and at Park Station. The NFIP anticipates the maps becoming effective in September 2009.		Completed. The maps became effective August 18, 2009.	Local	1/22/2025	10/24/2017	Tiffany Menard
Pinellas Park	Home Disaster Mitigation Handbook - This document is currently being produced. It is an easy to read and understand booklet that explains the basic means to protect homes and can help homeowner's mitigate from those storms events common to central Florida. This document will be produced in a CD-ROM format for other communities to replicate.	$50,000	Completed	State	1/22/2025	10/24/2017	Tiffany Menard
Pinellas Park	Purchase of Land for Drainage Retention. The City has entered into a contract to purchase property near Park Blvd and 40th St. N. The property will be used for storm water retention at Park Blvd and 43rd St. N.	$796,000	Completed	Local	1/22/2025	10/24/2017	Tiffany Menard

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Pinellas Park	94th Avenue N. widening: This is a roadway project with a drainage component. A collector road is to be widened to a two lane divided facility between 58th St. N. and 49th St. N. It has been designed to address local drainage issues and those of the surrounding neighborhoods. Completion is anticipated in FY 03/04.	$2,200,000	Completed	Local	1/22/2025	10/24/2017	Tiffany Menard
Pinellas Park	60th St. N. ditch mitigation project is to install a major box culvert system along 60th St. N. between 70th Avenue N. and the Pinellas Park Water Management District Channel 4. This project will promote a greater flow of storm water from the secondary drainage system into the primary drainage facility and reduce localized street and structure flooding and eliminate a dangerous open ditch situation that currently exists.	$1,067,000	Completed	Local	1/22/2025	10/24/2017	Tiffany Menard
Pinellas Park	Park Blvd/66th St. N. intersection improvement. Florida Department of Transportation has recently completed this project which included a drainage component to address flooding up to a 25 year storm event.	$1,600,000	Completed	State and Federal	1/22/2025	10/24/2017	Tiffany Menard
Pinellas Park	Homeland Drainage Improvement District Drainage Study - Determine improvement area through completion of a drainage study, including surveying, modeling and alternative evaluation.	$3,750,000	Completed 2012	Local	1/22/2025	10/24/2017	Tiffany Menard
Pinellas Park	Annual Sanitary Sewer Rehabilitiation & Relining - This program is an ongoing program that reduces the seepage of sewerage into the soils and water table as well as prohibit the infiltration of stormwater into the lines. This latter activity reduces the likilyhood of line surcharge, line failure, and capacity at the treatment plant.	$550,000 annually	Annual Project Ongoing	Local	1/22/2025	10/24/2017	Tiffany Menard
Pinellas Park	Longhill Drive Drainage Improvements - Project included the culverting of 1,200 LF of open ditch to eliminate erosion and discharge into yards and structures. Project decreased flooding but also included water quality imiprovements prior to discharge into Cross Bayou Canal.	$1,176,680	Completed FY13-14	Local and SWFWMD Grant	1/22/2025	10/24/2017	Tiffany Menard
Pinellas Park	Emergency Generator Installation LS 27 to maintain service	$70,000	Completed FY13-14	Local	1/22/2025	10/24/2017	Tiffany Menard
Pinellas Park	Emergency Generator Installation LS1 to maintain service	$115,000	Completed FY13-14	Local	1/22/2025	10/24/2017	Tiffany Menard
Pinellas Park	(Phase 1) Garnett & North Disston Subdivisions - 40 acre +/- tract situated between 82nd Avenue 86th Avenue & 46th Street, 49th Street-Install a stormwater collection and conveyance system in a subdivision originally developed in the 1960's and '70's. This would eliminate issues of localized flooding and dangerous stormwater inlets.	$4,700,000	Phase 1 completed 2017. Phase 2- FY 2021-22	SWFWMD Grant, FDOT Grant, FDEP Grant, TIF, Pinellas Park Water & Sewer Fund, IST.	1/22/2025	11/28/2018	Tiffany Menard
Pinellas Park	Design and construct drainage features and sidewalks on 90th Ave to provide better drainage to Jan Cory Subdivision	$170,069	Completed 2017	IST, Utility Fee	1/22/2025	10/24/2017	Tiffany Menard
Pinellas Park	98th Avenue Pond Improvements Improvement of wet pond to increase drainage capability for several single family subdivisions and a 60 acre park	$95,000	Completed FY 2016-2017.	FDEP Grant and Pinellas Park Utility fees	1/22/2025	11/27/2018	Tiffany Menard
Pinellas Park	Technical Services Pond Improvements Restoration of a 9,095 s.f. dry pond, to improve environmental conditions (pond now wet) and increase drainage capability of an area serving mobile home parks and industrial uses	$30,445	Completed FY 2016-2017	FDEP Grant and Pinellas Park Utility fees	1/22/2025	11/27/2018	Tiffany Menard
Pinellas Park	64th Way and 70th Avenue Pond Improvements include maintenance on a dry pond to bring it back to its original site plan specifications; replacing a failed underdrain system.	$54,200	In progress. Completion FY 2018-2019.	Stormwater Fees	1/22/2025	11/27/2018	Tiffany Menard
Pinellas Park	Pinebook Estates Unit 4 and Unit 5 Pond Improvements include dredging and maintenance on a wet pond to bring it back to the original site plan specifications.	$620,000	In progress. Completion FY 2018-2019.	City general fund and FDEP grant (received)	1/22/2025	11/27/2018	Tiffany Menard
Pinellas Park	England Brothers Park Drainage and Water Quality Improvements to increase drainage capability and water quality for a 42.5 acre drainage area that flows through Channel One into Cross Bayou.	$768,125	Completed FY 2017-2018	SWFWMD Grant and Pinellas Park Utility Fees	1/22/2025	11/27/2018	Tiffany Menard

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Pinellas Park	Generator for Public Works Operations Center (PWOC). This building is hardened for a Category 3 storm and is the central location for all storm and stormwater equipment and personnel that are activated before, during and after the storm. The generator is necessary to ensure protection from flooding by providing continuity of operations.	$225,000	Completed FY 2017-2018	Local funding, HMGP.	1/22/2025	11/27/2018	Tiffany Menard
Pinellas Park	Replace Generator at Technical Services Building - Emergency Generator Installation to Maintain Service / 4	$225,000	Completed FY 18/19	Local coffers	1/22/2025	1/10/2018	Tiffany Menard
Pinellas Park	Boardwalk and Restoration of Wetlands - Performing Arts Center/England Brothers Park - Design for boardwalk and restoration of wetlands to improve drainage and natural functions of floodplain and create public passive recreation area adjacent to Performing Arts Center and England Brothers Park. Design work / 1	$100,000	Completed FY 18/19	CRA/TIF/City	1/22/2025	1/10/2018	Tiffany Menard
Pinellas Park / City of Pinellas Park Public Works Department	Pond Improvements: 58th Street & 78th AvenuePerform maintenance on a dry pond and bring it back to the original site plan specifications and replace a failed underdrain system.	$48,825	Completed March 6, 2020	Infrastructure Sales Tax	1/22/2025	9/29/2020	Tiffany Menard
Pinellas Park / City of Pinellas Park Public Works Department	Pond Improvements: 64th Way & 102nd AvenuePerform maintenance on a wet pond and bring it back to the original site plan specifications and dredge.	$134,075	Completed January 3, 2020	Infrastructure Sales Tax	1/22/2025	9/29/2020	Tiffany Menard
Pinellas Park / City of Pinellas Park Public Works Department	Pond Improvements: 46th Street & 76th Avenue.Perform maintenance on a wet pond and bring it back to the original site plan specifications and dredge.	$100,000	Project completed.	Infrastructure Sales Tax	1/22/2025	11/23/2021	Tiffany Menard
Pinellas Park / City of Pinellas Park Public Works Department	Fire Station 35 Fuel Tank Replacement - Convault Tank Installation for Emergency Generator to Maintain Service / 4	$35,000	Project Completed September 2021	Infrastructure Sales Tax	1/22/2025	11/23/2021	Tiffany Menard
Pinellas Park/Fire Department	Fire Station 36 (Mainlands/Gateway) - Construction of new 3-bay fire station to serve the Mainlands/Gateway at 4050 80th Avenue. /4	$5,000,000	Project completed May 2022	IST/Penny bond funds/Pinellas County Fire District	1/22/2025	9/5/2022	Tiffany Menard
Redington Beach	Improvement of storm drainage to have the remainder of the Town's storm sewer system upgraded and add on to serve growth in the community.	$5,000,000	Completed 2009	SWFWMD/Local	1/22/2025	8/19/2016	Adriana Nieves
Redington Beach	Flood mitigation of town streets and roads, milling & resurfacing	$2,000,000	Completed in 2012	Local	1/22/2025	8/19/2016	Adriana Nieves
Redington Beach	Replace intracoastal causeway north side seawall	$175,000	Completed in 2015	Local	1/22/2025	8/19/2016	Adriana Nieves
Redington Beach / Engineering	Underground Utilities - Place underground utilities along the east side of Gulf Boulevard from 155th Ave to 164th Ave. Estimated completion time: more than 12 months. / 2	$1,500,000	Completed	Funded by Pinellas County; Penny for Pinellas	1/22/2025	12/19/2022	Adriana Nieves
Redington Shores	Elevated Town Hall / EOC Building. Constructed on fill to elevation 12.0 NGVD. Zone AE.	$600,000	Complete 2001	Local	1/22/2025	8/30/2016	Steve Andrews
Redington Shores	Storm water retrofit project for areas east of Gulf Blvd. Water quality improvement by filtering street rainfall run-off.	$3,100,000	Complete 2010	Local and State	1/22/2025	8/30/2016	Steve Andrews
Redington Shores	TV / Media Upgrades :CATV broadcasting equipment emergency replacement for public education & awareness to provide up to date info re:Evacuation & shelters, flood mitigation programs & projects prior to emergencies.	$35,000	Complete 2013	Local	1/22/2025	8/30/2016	Steve Andrews

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Redington Shores	Kayak Ramp : ShorelineProtection to provide erosion control of park open shore due to 4 foot change in grade within 30 feet of top of bank ACOE and FDEP approved 5 foot wide concrete ramp and planting of Red Mangroves in unstabilized areas.	$8,500	Complete 2013	Local	1/22/2025	8/30/2016	Steve Andrews
Redington Shores	T.S. Debby : Emergency response to Town Infrastructure due to wind, erosion, and flooding Re; Debris Removal, Sewer, Street, Parks and Roof Repairs.	$12,625	Complete 2013	Local and State	1/22/2025	8/30/2016	Steve Andrews
Redington Shores	Town Hall / EOC Impact Shutters revised to impact windows	$15,000	Complete	Local	1/22/2025	12/17/2018	Steve Andrews
Redington Shores	LED Warning Sign - The goal of the LED sign is to notify visitors and residents of important messages before, during and after storm. This includes evacuation orders, warnings, hazards, etc.	$40,000	Complete	Local/Federal	1/22/2025	5/8/2018	Steve Andrews
Redington Shores / Emergency Management	Impact Windows for Town Hall EOC (Critical Facility) - Town Hall /EOC updates to existing for expedited response to emergency by reducing labor commitment and with revised Wind & Impact loads per current codes, located at 17425 Gulf Blvd. Estimated completion time: less than 12 months.	$15,000	Complete	Local	1/22/2025	5/8/2018	Steve Andrews
Redington Shores / Public Works	Stormwater Backflow Valve - Minimize flodding in the town's lowest lying areas. These areas flood during major rain events and high tide	$24,000	Complete	Local	1/22/2025	10/29/2020	Cheri Zindars
Redington Shores / Emergency Management	TV - Media Upgrades - CATV broadcasting equipment emergency replacement for public education & awareness to provide up to date info re: evacuation & shelters, flood mitigation programs & projects prior to emergencies.	$35,000	Complete	Local	1/22/2025	10/29/2020	Cheri Zindars
Redington Shores / Public Works	Rebuild stormwater drainage system in the last three (3) phases. Two phases were completed early 2006.	$3,100,000	Complete	SWFWMD Grant & Town CIP	1/22/2025	10/29/2020	Steve Andrews
Safety Harbor	Public Works dewatering pump replacement	$18,000	Complete	Local	1/22/2025	10/21/2016	Michael Schoderbock
Safety Harbor	Harden Safety Harbor EOC – Impact resistant windows and doors.	$15,000	Complete	Federal, State, Local	1/22/2025	10/21/2016	Michael Schoderbock
Safety Harbor	Harden Fire Station #52 – Impact resistant windows, doors, garage doors.	$110,000	Complete	Federal, State, Local	1/22/2025	10/21/2016	Michael Schoderbock
Safety Harbor	Harden Fire Station #53 and upgrade EOC	$250,000	Complete	Local	1/22/2025	10/21/2016	Michael Schoderbock
Safety Harbor	East Gate Drainage Improvements	$1,442,811	Complete	Local and State	1/22/2025	10/21/2016	Michael Schoderbock
Safety Harbor	South Green Springs - Improvements to minimize street flooding.	$1,500,000	Complete	Local	1/22/2025	10/21/2016	Michael Schoderbock
Safety Harbor	11th Ave. S. Brick Street & Drainage Improvements	$701,339	Complete	Local and State	1/22/2025	10/21/2016	Michael Schoderbock
Safety Harbor	Street and Yard Flooding - 2nd Ave. N.	$1,300,000	Complete	Local	1/22/2025	10/21/2016	Michael Schoderbock
Safety Harbor	Rigsby Center/Hurricane Shutters Installed	$1,438	Complete	Local	1/22/2025	10/21/2016	Michael Schoderbock
Safety Harbor	Parks & Bldg. Maintenance/Hurricane Shuitters and Wind rated Bay/Garage doors installed.	$4,021	Complete	Local	1/22/2025	10/21/2016	Michael Schoderbock
Safety Harbor	Street Flooding Improvements - Bailey Street	$430,000	Complete	Local	1/22/2025	10/21/2016	Michael Schoderbock
Safety Harbor	Bishop Creek Erosion and Storm Water Control, Harbor Woods	$906,857	Complete	Local and State	1/22/2025	10/21/2016	Michael Schoderbock
Safety Harbor	Fire Station #53, Replace Ladder Truck and special Equipment	$510,000	Complete	Local	1/22/2025	10/21/2016	Michael Schoderbock
Safety Harbor	Bishop Creek Erosion and Storm Water Control, Rainbow Farms Ph 1.	$1,300,000	Complete	Local and State	1/22/2025	10/21/2016	Michael Schoderbock
Safety Harbor	Library/Hurricane Shutters for existing building	$7,058	Complete	Local	1/22/2025	10/21/2016	Michael Schoderbock
Safety Harbor	Daisy Douglas Park/Wind rated garage doors installed.	$1,464	Complete	Local	1/22/2025	10/21/2016	Michael Schoderbock
Safety Harbor	Fire Station #53/hurricane shutters installed	$1,398	Complete	Local	1/22/2025	10/21/2016	Michael Schoderbock
Safety Harbor	Public Works Office Facility/Hurricane shutters installed	$1,538	Complete	Local	1/22/2025	10/21/2016	Michael Schoderbock
Safety Harbor	North City Park/Wind rated garage doors installed	$1,392	Complete	Local	1/22/2025	10/21/2016	Michael Schoderbock

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Safety Harbor	Master Lift Station: new generator and pumps	$70,000	Complete	Local	1/22/2025	10/21/2016	Michael Schoderbock
Safety Harbor	Fire Station #52: New generator	$75,000	Complete	Local	1/22/2025	10/21/2016	Michael Schoderbock
Safety Harbor	Fire Station #53: New generator	$60,000	Complete	Local	1/22/2025	10/21/2016	Michael Schoderbock
Safety Harbor	Fire Station #53: Building to house new generator	$50,000	Complete	Local	1/22/2025	10/21/2016	Michael Schoderbock
Safety Harbor	Public Works replacement of a generator	$40,000	Complete	Local	1/22/2025	10/21/2016	Michael Schoderbock
Safety Harbor	South Bayshore Drainage/Water Quality Improvements	$2,289,313	Completed	Federal, State, Local	1/22/2025	10/21/2016	Michael Schoderbock
Safety Harbor	Cypress Trace Lift Station	$60,000	Completed	Local	1/22/2025	10/21/2016	Michael Schoderbock
Safety Harbor	Briar Creek Lift Station	$70,000	Completed	Local	1/22/2025	10/21/2016	Michael Schoderbock
Safety Harbor	Amber Glades Lift Station Repair	$90,000	Completed	Local	1/22/2025	10/21/2016	Michael Schoderbock
Safety Harbor	Highlands Lift Station	$60,000	Completed	Local	1/22/2025	12/18/2018	Brandon Henry
Safety Harbor	South Bayshore Lift Station and Generator	$125,000	Completed	Local	1/22/2025	12/18/2018	Brandon Henry
Safety Harbor	North Bayshore Lift Station	$60,000	Completed	Local	1/22/2025	11/30/2020	Brandon Henry
Safety Harbor	Cypress Hollow Lift Station Repair	$60,000	Completed	Local	1/22/2025	11/30/2020	Brandon Henry
Safety Harbor	Baytown West Lift Station	$60,000	Completed	Local	1/22/2025	11/30/2021	Bill Blair
Safety Harbor	Coventry E. Cul de Sac	$65,000	Completed	Local	1/22/2025	11/30/2021	Bill Blair
Safety Harbor	2nd St. S/6th Ave. S Improvements	$100,000	Completed	Local	1/22/2025	11/19/2024	Cecilia Chen
Safety Harbor	Portable Generator #617, protects spillage of raw sewage.	$26,300	Completed	Local	1/22/2025	11/19/2024	Cecilia Chen
Safety Harbor	Portable Generator #631, protects spillage of raw sewage.	$75,000	Completed	Local	1/22/2025	11/19/2024	Cecilia Chen
Seminole	Construct emergency operations center and public works garage. Estimated completion time: more than 12 months.	$6,500,000	Complete 2013	Local	1/22/2025		
South Pasadena	Storm shutters on public works building	$16,500	Complete	HMGP	1/22/2025		David Mixson
South Pasadena	Generator switch at joint EOC	$15,000	Complete	Local	1/22/2025		David Mixson
South Pasadena	Hardened fire station and construct addition	$43,000	Complete	HMGP $5,000/ Local $38,000	1/22/2025		David Mixson
South Pasadena	Purchased 80KW generator for public works building	$39,000	Complete	Local	1/22/2025		David Mixson
South Pasadena	City Hall Window Protection - Install protective window film on all windows in City Hall. Estimated completion time: less than 12 months. / 2	$50,000	Complete	Local	1/22/2025		David Mixson
South Pasadena	Finish Mast Arms on Evac Route - Install mast arms at 3 remaining locations on Pasadena Avenue. Estimated completion time: less than 12 months. / 2	$1,500,000	Complete	Local	1/22/2025		David Mixson
South Pasadena	Installed two (2) UV lights in supply duct for Fire Station 20 HVAC System	$1,500	Complete	CARES	1/22/2025		David Mixson
South Pasadena	Installed three (3) portable Smart Air Purifier units in Fire Sation 20	$1,725	Complete	CARES	1/22/2025		David Mixson
South Pasadena	Installed three (3) portable Smart Air Purifier units in City Hall	$1,725	Complete	CARES	1/22/2025		David Mixson
South Pasadena	Installed two (2) portable Smart Air Purifier units in Public Works Annex	$1,150	Complete	CARES	1/22/2025		David Mixson
South Pasadena	Installed two (2) portable Smart Air Purifier units in Community Improvement Annex	$1,150	Complete	CARES	1/22/2025		David Mixson
South Pasadena	Purchase of 2022 Freightliner M2 Wheeled Coach Transport Capable FD Rescue Unit	$224,917	Complete	EMS Authority	1/22/2025		David Mixson
South Pasadena	Purchase of 2022 Sutphen SP70 Aeriel Platform Quint Fire Apparatus	$1,022,585	Complete	Penney for Pinellas/Local	1/22/2025	9/12/2023	David Mixson

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South Pasadena	Purchase of MSA G1 Self Contained Breathing Apparatus (SCBA)	$130,060	Complete	Penney for Pinellas/Local	1/22/2025	11/21/2023	David Mixson
St. Petersburg	Mitigated 3 waterfront properties on Bayou Grande Blvd. NE to prevent damage from flooding.	$289,237	Complete	Federal and Local	1/22/2025	9/26/2017	Noah Taylor
St. Petersburg	1st St. N. storm water project	$5,788,000	Complete	Local	1/22/2025	9/26/2017	Noah Taylor
St. Petersburg	Highland St. storm water project.	$844,000	Complete	Local	1/22/2025	9/26/2017	Noah Taylor
St. Petersburg	Nebraska Ave. NE storm water project.	$200,000	Complete	Local	1/22/2025	9/26/2017	Noah Taylor
St. Petersburg	3rd St. Bayboro storm water project.	$3,668,000	Complete	Local	1/22/2025	9/26/2017	Noah Taylor
St. Petersburg	4th St. S. Bayboro storm water project.	$2,369,000	Complete	Local	1/22/2025	9/26/2017	Noah Taylor
St. Petersburg	Floral Lake storm water project	$308,000	Complete	Local	1/22/2025	9/26/2017	Noah Taylor
St. Petersburg	Mirror Lake alum injection system.	$553,000	Complete	Local	1/22/2025	9/26/2017	Noah Taylor
St. Petersburg	Booker Creek Maintenance at Tropicana Dome.	$203,000	Complete	Local	1/22/2025	9/26/2017	Noah Taylor
St. Petersburg	8th St. drain storm water project.	$2,558,000	Complete	Local	1/22/2025	9/26/2017	Noah Taylor
St. Petersburg	67th St. drain storm water project.	$681,000	Complete	Local	1/22/2025	9/26/2017	Noah Taylor
St. Petersburg	Lake Winston storm water project.	$2,261,000	Complete	Local	1/22/2025	9/26/2017	Noah Taylor
St. Petersburg	31st St. S storm water project.	$576,000	Complete	Local	1/22/2025	9/26/2017	Noah Taylor
St. Petersburg	Tinney Creek rehab. project.	$194,000	Complete	Local	1/22/2025	9/26/2017	Noah Taylor
St. Petersburg	Ponds Ditch rehab. project.	$30,000	Complete	Local	1/22/2025	9/26/2017	Noah Taylor
St. Petersburg	Clam Bayou retrofit project	$286,000	Complete	Local	1/22/2025	9/26/2017	Noah Taylor
St. Petersburg	Ditch piping project - 4 locations throughout the city.	$3,578,000	Complete	Local	1/22/2025	9/26/2017	Noah Taylor
St. Petersburg	Bayou Grande Blvd. NE project.	$398,000	Complete	Local	1/22/2025	9/26/2017	Noah Taylor
St. Petersburg	Roser Park Creek project.	$1,000,000	Complete	Local	1/22/2025	9/26/2017	Noah Taylor
St. Petersburg	King St. N. drainage improvements	$2,966,000	Complete	Local	1/22/2025	9/26/2017	Noah Taylor
St. Petersburg	Oak St. NE drainage improvements	$344,000	Complete	Local	1/22/2025	9/26/2017	Noah Taylor
St. Petersburg	Riviera Bay & Snell Isle Stormwater Vaults	$1,400,000	Complete	Penney for Pinellas/Local	1/22/2025	9/26/2017	Noah Taylor
St. Petersburg	MLK Street N. Part 2 Storm Drainage Improvements	$5,958,000	Complete	SWFWMD/Local	1/22/2025	9/26/2017	Noah Taylor
St. Petersburg	Golf Creek, 13th A/N & Vicinity Stormwater Improvements	$1,600,000	Complete	SWFWMD/Local	1/22/2025	9/26/2017	Noah Taylor
St. Petersburg	Jungle Lake Outfall Storm Drainage Improvements	$2,980,000	Complete	SWFWMD/Local	1/22/2025	9/26/2017	Noah Taylor
St. Petersburg	Jungle Lake Northeast Basin Storm drainage Improvements	$3,557,000	Complete	SWFWMD/Local	1/22/2025	9/26/2017	Noah Taylor
St. Petersburg	94th Ave. at Tinney Creek Storm Drainage Improvements	$1,500.00	Complete	Penney for Pinellas/SWFWMD/Local	1/22/2025	9/26/2017	Noah Taylor

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St. Petersburg	Fire Station Window and Door Storm Protection. This project will retrofit nine fire stations to protect against storm impacts by providing window protection and replacing vulnerable overhead doors. Downtown Master Fire Station, 455 8th St. S.; Palmetto Park Station #3, 3101 5th Ave. S.; North Shore Station #4, 2501 4th St. N.; Fossil Park Station #7, 975 9th St. N.; Lake Maggiore Station #8, 4701 Martin Luther King St. S.; Lake Pasadena Station #9, 475 66th St. N.; Ponce de Leon Station #10, 2800 30th Ave. N.; Lakewood Station #11, 5050 31st St. S.; Gateway Station #13, 11600 Roosevelt Blvd.	$250,000	All projects completed using local funds except for Ponce de Leon Station #10. the work on that station is currently underway and is being funded by HMGP and a local share match.	HMGP/Local	1/22/2025	9/26/2017	Noah Taylor
St. Petersburg	Backflow Prevention Stormwater Vaults. Project design, permitting and construction of flood protection vaults for City repetitive loss neighborhood. 47 vaults are planned for installation.	$2,855,000	Complete	PDM Program	1/22/2025	9/26/2017	Noah Taylor
St. Petersburg	Flood and Wind Retrofit of Municipal Buildings	$310,000	Complete	Federal and Local	1/22/2025	9/26/2017	Noah Taylor
St. Petersburg	EOC. Design construct and equip a municipal Emergency Operations Center Facility	$3,500,000	Complete	Penny for Pinellas/Local	1/22/2025	9/26/2017	Noah Taylor
St. Petersburg	94th Ave. at Tinney Creek Storm Drainage Improvements. Project will construct large conveyance piping to reduce street and property flooding.	$1,500,000	Complete	Penny for Pinellas/Local	1/22/2025	9/26/2017	Noah Taylor
St. Petersburg	4th St & 14th Ave N to Crescent Lake Storm Drainage Improvements. Design and construct larger conveyance piping to reduce street flooding.	$1,900,000	In Progress	Penny for Pinellas/Local	1/22/2025	9/26/2017	Noah Taylor
St. Petersburg	8th Ave. S. & 44th St. S. Storm Drainage Improvements. Project will construct large conveyance piping to reduce street and property flooding.	$4,500,000	In Progress	Penny for Pinellas/Local	1/22/2025	9/26/2017	Noah Taylor
St. Petersburg	Stormwater Management Master Plan Update - Update 1994 Stormwater Management Master Plan utilizing SWFWMD criteria. /1	$1,800,000	Nearing Completion	SWFWMD/Local	1/22/2025	11/6/2023	Angela Miller
St. Petersburg	Main Laboratory Replacement - Replace the Water Resources Department main Laboratory Building with a modern laboratory sufficient to conduct accurate analysis of samples taken at water reclamation and potable water treatment plant and other locations throughout the city. The existing building is not structurally sufficient to provide shelter of emergency critical staff and remain operational during and after a hurricane.	$4,400,000	Nearing Completion	Bond CIP Funded	1/22/2025	11/6/2023	Angela Miller
St. Petersburg	Bartlett Park Area Storm Drainage Improvements - This project includes construction of stormwater improvements to alleviate heavy flooding along Bartlett Park area and into recreation center in the neighborhood. Existing flooding is severe enough to reduce functionality of public park and services as well as endanger public safety.	$1,400,000	Complete	Bond CIP Funded	1/22/2025	11/6/2023	Angela Miller
St. Petersburg	Broadwater at 42nd Ave S and 37th St/S Storm Drainage Improvements - This project includes construction of stormwater improvements to alleviate heavy flooding along in the Broadwater Neighborhood. Current flooding has caused repetitive loss to vehicle and encroached on house structures as well as impeding road travel evacuating the neighborhood.	$1,200,000	Complete	Bond CIP Funded	1/22/2025	11/6/2023	Angela Miller
St. Pete Beach	SCADA System / Lift Stations (Purchase a SCADA system for 17 wastewater pump/lift stations.)	$90,000	Complete	City funds	1/22/2025	11/1/2016	Chelsey Welden
St. Pete Beach	Generators for Lift Stations (Procure emergency generators and electrical equipment for lift stations #2 and #3.)	$100,000	Complete	City funds	1/22/2025	11/1/2016	Chelsey Welden
St. Pete Beach	Egan Park Improvements: Water Quality Detention Basin/1	$50,000	Complete	SWFWMD Grant	1/22/2025	10/3/2017	C.W. Porter
St. Pete Beach	GIS/ Computer Hardware and Software Enhancement: Develop work order system w/GIS enhancements./4	$35,000	Complete	Local	1/22/2025	10/3/2017	C.W. Porter
St. Pete Beach	Repairs: Wastewater Inflow and Infiltration FY2016: Priority-based improvements to wastewater system infrastructure to help reduce the possibility of SSOs/4	$500,000	Complete	Wastewater Fund	1/22/2025	10/3/2017	C.W. Porter
St. Pete Beach	Stormwater Improvements to Pass-a-Grille Way (Reconstruction Phase I)./1	$843,525	Complete	Stormwater Fund	1/22/2025	10/3/2017	C.W. Porter
St. Pete Beach	Repairs: Wastewater Inflow and Infiltration FY2017: Priority-based improvements to wastewater system infrastructure to help reduce the possibility of SSOs./4	$2,300,000	Complete	Wastewater Fund	1/22/2025	10/3/2017	C.W. Porter

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St. Pete Beach	Wastewater Improvements to Pass-a-Grille Way (Reconstruction Phase I)./4	$2,210,325	Complete	Wastewater Fund	1/22/2025	10/3/2017	C.W. Porter
St. Pete Beach / Fire	Fire Department Dock - Infrastructure improvements to the City-owned area at 7701 Boca Ciega Dr to facilitate the operation of Fire Boat 22 (100% County-funded vessel). Improvements include a dock, boat lift, and all required electrical equipment.	$35,000	Complete	Capital Projects Fund	1/22/2025	1/18/2023	Kelly Intzes
Tarpon Springs	Riverside and Hillside Drive Stormwater Improvements	$67,000	Completed	Stormwater Utility	1/22/2025	12/15/2018	Renea Vincent
Tarpon Springs	Pent Street/Grosse Avenue Flooding Abatement Project Flooding/Drainage Improvements	$3,400,000	Construction Underway	Stormwater Utility & Approved SWFWMD CFI	1/22/2025	12/15/2018	R. Robertson
Tarpon Springs	Disston and Tarpon Ave Evac Route SW Improvements	$428,000	Design Complete	Stormwater Utility	1/22/2025	12/15/2018	Renea Vincent
Tarpon Springs	Kenneth Way Flooding/Drainage Improvements	$91,000	Conceptual Design	Stormwater Utility	1/22/2025	12/15/2018	Renea Vincent
Tarpon Springs	Center Street at Disston Ave Flooding/Drainage Improvements	$573,000	Alternatives Analysis Underway	Stormwater Utility	1/22/2025	12/15/2018	Renea Vincent
Tarpon Springs	Athens St. and Dodecenase Sponge Docks Flooding/Drainage Imp.	$27,000	Phase 1 Construction Nearly Complete	Stormwater Utility	1/22/2025	12/15/2018	Anthony Mannello
Tarpon Springs	Palm Avenue Flooding/Drainage Improvements	$728,000	Complete	Stormwater Utility & CFI Application Submitted	1/22/2025	12/15/2018	Anthony Mannello
Tarpon Springs	Highland Ave. & Vista Pl./Jasmine Ave. & Lime St.Flooding/Drainage Improvements	$161,500	Permitting Complete, Pending Funding	Stormwater Utility & Approved SWFWMD CFI	1/22/2025	12/15/2018	Renea Vincent
Tarpon Springs	Disston Ave between Spruce and Live Oak Flooding/Drainage Imp	$581,000	Conceptual Design	Stormwater Utility	1/22/2025	12/15/2018	Renea Vincent
Tarpon Springs	Fire Station #71 – Construct a new Fire Station to reach the community during an emergency for a more rapid response time	$2,700,000	Completed	City of Tarpon Springs and Penny for Pinellas	1/22/2025	12/15/2018	Megan Araya
Tarpon Springs	Mango Street Roadway and Stormwater Improvements	$917,000	Construction Underway	City of Tarpon Springs and Penny for Pinellas	1/22/2025	9/16/2021	R.Robertson
Tarpon Springs	Window replacement, roof replacement, pointing of the brick and waterproofing City Hall.	$2,100,000	Completed	City of Tarpon Springs and Penny for Pinellas	1/22/2025	12/15/2018	Megan Araya
Tarpon Springs	Riverside/Hillside Drive Flooding Abatement	$56,000	Completed	Stormwater Utility	1/22/2025	12/15/2018	Renea Vincent
Tarpon Springs	Bath St./Shaddock Ave. Alley	$9,870	Completed	Stormwater Utility	1/22/2025	12/15/2018	Renea Vincent
Tarpon Springs	Stormwater Infrastructure (GIS) Assessment Project	$200,000	Completed	Stormwater Utility & CFI Application Submitted	1/22/2025	12/15/2018	Renea Vincent
Tarpon Springs	Purchase Johnson Street Sweeper for in-house removal of roadside sediment & debris that would otherwise get into our stormwater system. Estimated completion time: Ongoing. / 1,3	$240,000	Purchased	Stormwater Tax Assessment	1/22/2025	12/15/2018	Renea Vincent
Tarpon Springs	Purchase Aquatech VacCon for in-house removal of sediment & debris that cause blockages of our stormwater system. Estimated completion time: Ongoing. / 1,3	$350,000	Purchased	Stormwater Tax Assessment	1/22/2025	12/15/2018	Renea Vincent
Tarpon Springs	Purchase 15 new portable generators	$459,000	Purchased	City of Tarpon Springs Utilities	1/22/2025	12/15/2018	R. Robertson
Tarpon Springs	Purchase Tennant Mini Street Sweeper for removal of sidewalk and roadside sediment, fertilizer & debris that would otherwise get into our bayou system.	$16,000	Purchased	Stormwater Tax Assessment	1/22/2025	11/13/2018	Renea Vincent
Tarpon Springs	Cedar Street Roadway/Infrastructure Upgrades	$300,000	Complete	SW Utility and Penny for Pinellas	1/22/2025	9/21/2022	Bob Robertson
Treasure Island	Elevated three structures above the base floor elevation	$100,000	Complete	Private	1/22/2025	10/31/2017	R.G. Bray, Jr.

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Treasure Island	Demolished three structures and replaced with conforming structures.	$1,500,000	Complete	Private	1/22/2025	10/31/2017	R.G. Bray, Jr.
Treasure Island	Demolished one structure in flood area.	$800,000	Complete	Local and State	1/22/2025	10/31/2017	R.G. Bray, Jr.
Treasure Island	Applications pending to elevate two structures above the base floor elevation	$210,000	Underway	Private and State	1/22/2025	10/31/2017	R.G. Bray, Jr.
Treasure Island	Drainage improvements in the Sunset Beach neighborhood to reduce flooding.	$300,000	Complete	Local and State	1/22/2025	10/31/2017	R.G. Bray, Jr.
Treasure Island	Hardening of critical facilities - City Hall and Public works complex.	$150,000	Received HMGP grant for this project in the amount of $71,487.	HMGP/Local	1/22/2025	10/31/2017	R.G. Bray, Jr.
Treasure Island	Reconstruction of Treasure Island Causeway bascule bridges to replace bridges built in 1939. Causeway is designated evacuation route for 7,560 permanent and 8,000 seasonal residents with the original bridges and equipment subject to storm tide flooding due to low elevation.	$50,000,000	Received federal grant for this project in the amount of $50,000,000. Completed in 2007.	Federal	1/22/2025	10/31/2017	R.G. Bray, Jr.
Treasure Island	Enhancement of beach area to reduce storm losses. Quarterly planting of sea oats by community volunteers to enhance dune system for a number of years. County provides sea oats free of charge. Nominal cost to City. Also, sand sharing program set up so that in the event of a storm, the City can relocate accreted sand to storm damaged areas of Treasure Island's beach ($500,000 reserve fund set aside by City Commission for emergency beach repairs.)	Nominal to date. Reserve of $500,000 established.	Complet and on-going	Local and County (sea oats donation)	1/22/2025	10/31/2017	R.G. Bray, Jr.
Treasure Island	2013 Elevated 2 structures above BFE	$459,000	Complete	Private	1/22/2025	10/31/2017	R.G. Bray, Jr.
Treasure Island	2013 Demolished one structure in flood area (no replacement)	$10,000	Complete	Private	1/22/2025	10/31/2017	R.G. Bray, Jr.
Treasure Island	Permits issues to elevate one structure above the base floor elevation (to be completed in 2014)	$1,430,000	Underway	Private	1/22/2025	10/31/2017	R.G. Bray, Jr.
Treasure Island	Demolition of 7 non-FEMA compliant structures (2015)	$64,700	Complete	Private	1/22/2025	10/31/2017	R.G. Bray, Jr.
Treasure Island	Drainage improvements in the Sunset Beach neighborhood to reduce flooding. (One phase)	$914,000	One Phase Complete	Local and State	1/22/2025	10/31/2017	R.G. Bray, Jr.
Treasure Island	Palms Bridge replacement	$1,657,638	Complete	Local	1/22/2025	10/31/2017	R.G. Bray, Jr.
Treasure Island	Capri Bridge replacement	$2,244,517	Complete	Local	1/22/2025	10/31/2017	R.G. Bray, Jr.
Treasure Island	Main Lift Station Refurbishment	$429,176	Complete	Local	1/22/2025	10/31/2017	R.G. Bray, Jr.
Treasure Island	Lift Station #3 Refurbishment	$244,339	Complete	Local	1/22/2025	10/31/2017	R.G. Bray, Jr.
Treasure Island	Emergency Generator	$56,400	Complete	Penny for Pinellas, Local (Wastewater General Fund)	1/22/2025	10/31/2017	R.G. Bray, Jr.
Treasure Island	Harden / Refurbish Municipal Facilities (LS #6, LS #7, LS #8, LS #9)	$1,093,240	Complete	Local (Wastewater General Fund)	1/22/2025	10/31/2017	R.G. Bray, Jr.
Treasure Island	Harden / Refurbish Municipal Facilities (LS #4)	$756,289	Complete	Local (Wastewater General Fund)	1/22/2025	10/31/2017	R.G. Bray, Jr.
Treasure Island	Phase 6 Drainage improvements in the Sunset Beach neighborhood to reduce flooding.	$1,300,000	Complete	Local and State	1/22/2025	11/19/2018	R.G. Bray, Jr.
Treasure Island	Lift Station #4 - Refurbishment - Elevation of Controls & Electrical Equipment in Lift Station #4 Estimated completion time: more than 12 months. / 4	$823,300	Complete	Partially Funded by City	1/22/2025	1/10/2018	Mike Helfrich

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Treasure Island	GPS Inventory of Street Signs - Inventory all street and identification signs using GPS technology to facilitate replacement following a storm event. Estimated completion time: more than 12 months./ 4	$50,000	Complete	CDBG; HMGP; HMGP Planning	1/22/2025	1/10/2018	Mike Helfrich
Treasure Island	Stormwater Interceptor project in Sunset Beach and rehabilitation of underdrain system at lots 2 and 3 improvement of stormwater discharge throughout the city / 4 - At lots 2 and 3 and nearby areas. 2016: Phase 4 & 5. 2017: Phase 6. 2018: Master Plan. 2019: Causeway Area. 2020: Sunshine Beach Area. 2021: Downtown Area.	$3,105,000	Complete	Local/Partially funded by SWFWMD	1/22/2025	1/10/2018	Mike Helfrich
Treasure Island	Stormwater Master Plan	$2,510,000	Master Plan Complete - Projects to be constructed in the future.	Capitalization Grants for Clean Water State Revolving Funds; HMGP; Nonpoint Source Implementation Grants; SWFWMD Grants, Local funds	1/22/2025	11/30/2021	Jamie Viveiros
Treasure Island	Lift Station Rehabilitation - Rehab and harden Lift Stations #1, #2, #5, #10 an #11. Modernize the faciities and equipment to address the current demands upon the system, extend the life of the facility, and harden the system to be resistant to flood and surge.	$1,800,000	Complete	Local and State Funding	1/22/2025	11/30/2021	Jamie Viveiros
Treasure Island	Lift Station Vault Door Replacements	$600,000	Complete	Capitalization Grants for Clean Water State Revolving Funds; FMAP; HMGP; Nonpoint Source Implementation Grants; Local	1/22/2025	11/30/2021	Jamie Viveiros
Treasure Island	Portable Generator for Pump Station #4	$115,000	Complete	Local Funding	1/22/2025	11/30/2021	Jamie Viveiros
Treasure Island	East Causeway Drainage and Roadway Improvements: Enhance drainge facilities on the East Causeway to expand capacity, reduce flooding, improve roadway conditions, the ability to evacuate all properties west of Park Street, and reduce pollutant discharge into Boca Ciega Bay . /1	$2,396,700	Complete	City, State grant and SWFMD grant.	1/22/2025	11/9/2023	Jesse Miller
Treasue Island	Generator for an Emergency Operations Center (EOC) shared by three municipalities.	$150,000	Complete	Local Funding	1/22/2025	11/7/2023	Jesse Miller
The Arc Tampa Bay	The Arc Tampa Bay Long Center Generator - Purchase and installation of a natural gas based 125 kw generator to support approximately 7000 sqaure feet, to support the critical health and safety needs of our residents during a hurricane.	$142,000	Complete	Generator donated by Publix. Installation costs funded by The Arc Tampa Bay Foundation (a separate 501c3). Engineering performed by East-West. Total costs for installation, maintenance contracts and testing approximately $100,000.	1/22/2025	9/27/2021	Carolyn Reginelli

APPENDIX E – FL REVIEW TOOL

This appendix includes the local mitigation plan review tool as completed for the Florida Division of Emergency Management (FDEM) on November 6, 2024.

2023 Florida Local Mitigation Strategy (LMS) Crosswalk

DESCRIPTION:

The Florida Local Mitigation Strategy (LMS) Crosswalk is informed by the FEMA Local Mitigation Planning Policy Guide (effective April 19, 2023). Each requirement listed below is a required Element of the FEMA Policy Guide. There is a difference in formatting when comparing the FL Crosswalk with FEMA's Policy Guide Elements. This is to prevent the possibility of skipping various components of each FEMA requirement. You will notice the specific FEMA requirement is listed in parenthesis next to each FL Crosswalk Element (e.g., P1 in the FL Crosswalk is equivalent to FEMA Element A1-a). As such, multiple FL Crosswalk Elements may correspond to the same FEMA Element.

INSTRUCTIONS:

Enter the requested information in each field below:
1) In the FL Crosswalk Tab, please identify the "Location in Plan" using the corresponding page numbers for each requirement.
2) In the Jurisdiction Checklist Tab, please add each of the "participating" jurisdictions.

*Please do not edit the following sections: *Met, Not Met, Reviewer Comments* . If revisions are required, the State reviewer will put revisions in the Required Revisions section. As revisions are made, please feel free to add comments about the revisions in the same section. **Do not remove any State comments.**
*Additionally, a Project List Template can be found in a separate tab below.

Jurisdiction:	Pinellas County	**Title of Plan:**	2025 Pinellas County - Countywide Local Mitigation Strategy Update
Local Point of Contact:	Smita Ambadi, AICP, LEED AP, SCPM	**Address:**	310 Court Street, Clearwater, FL 33756
Title:	Principal Planner	**Email:**	sambadi@pinellascounty.org
Agency:	Pinellas County Housing and Community Development	**Phone Number:**	(727) 464-8221

State Reviewers:	**Mitchell Budihas, Angie Odell, Evan Jenkins, Sabrina Uribe**
Date Received by FDEM:	**11/8/2024**
Date Plan Not Approved:	**11/26/2024**
Date Plan APA:	
Date Plan Approved:	

Planning Process (FEMA Element A)		Location in Plan	Met	Not Met	Reviewer Comments	Required Revisions
P1 (A1-a)	The plan must document the current planning process.	Section 2 (PDF pg 53- 65) and Appendix A (PDF pg 486)	**X**		Provided the current planning process for updating, monitoring, and maintaining the plan	
P2 (A1-b)	The plan must list the jurisdiction(s) in the current plan that will seek approval.	PDF pg 5 **(Gov entities) Page 2-11 (Table 2.2) contains the full list of participants**		**X**		**Missing Special Districts in list from project list (Morton Plant Hospital and John's Hopkins Hospital). *"OTHER" has been renamed SPECIAL DISTRICTS AND OTHER ENTITIES in Table 2.2 and updated per discussion with MB. Further edited per LMSWG suggestions .***
P3 (A1-b)	The plan must list the representative from each jurisdiction that will seek approval and how they participated in the planning process. (At a minimum, it must identify the jurisdiction represented and the person's agency and title within the jurisdiction.)	Appendix A (PDF pg 486)		**X**		**Need to provide list of participants for meetings (reps from each jurisdiction not signed in) *Appendix A updated with attendee names from virtual meetings***
P4 (A2)	The plan must provide documentation of an opportunity for stakeholders to be involved in the current planning process. Documentation of this opportunity must identify how *each* of the stakeholders (see below) were presented with this opportunity, as applicable.	Section 2 (pg 54-58; Step 1 of Planning Process and Appendix A	**X**		Meetings open to the public throught the development of the plan. Public Survey, Public Forums, and social media outreach	
P5 (A3)	The plan must document how the public had an opportunity to be involved in the current planning process and what that participation entailed, including how underserved communities and vulnerable populations within the planning area were provided an opportunity to be involved.	Section 2 (PDF pg 56); Step 2 of Planning Process and Appendix A	**X**		Survey published in multiple languages, identified underserved areas to ensure outreach workshops were held.	
P6 (A4)	The plan must document what existing plans, studies, reports and technical information were reviewed and how they were incorporated, if appropriate, into the development/update of the plan.	Section 3 - Planning and Regulatory Capability (PDF pg 85-94)	**X**		Table 3.2 showing existing Plans and Regulatory tool incorporation ***Appendix K also added to document the ongoing vulnerability assessment studies/projects through FDEP.***	
P7 (A4)	For jurisdictions with structures for which National Flood Insurance Program (NFIP) coverage is available, regulatory flood mapping products are required to be incorporated, if applicable. Participants may use other jurisdiction-specific materials, including non-regulatory flood mapping products, that improve upon NFIP regulatory flood mapping products.	Section 4 - Risk Assessment (Flood Profile) - PDF pg 130-174; Also Mitigation Section PDF pg 90-93	**X**		Flood mapping included in Risk Assessment section, along with RL/SRL flood maps	

FEMA Guidance Notes:

Document means to provide factual evidence for how the participants developed/updated the plan. Documentation may include narrative descriptions, copies of meeting minutes, sign-in sheets, or newspaper articles. Examples of documentation of public involvement/feedback may include, but are not limited to, narratives, materials from open meetings, screenshots of social media postings and/or interactive websites with drafts for public review and comment, questionnaires or surveys through utility bills, etc.

Involvement means being engaged and actively participating in the development of the plan; providing input and directly providing, affecting or editing plan content as the representative of the participating jurisdiction(s) or organization.

Stakeholders include local and regional agencies involved in hazard mitigation activities; agencies that have the authority to regulate development; neighboring communities; representatives of business, academia, and other private organizations; representatives of nonprofit organizations.

An opportunity to be involved in the planning process means that these stakeholders are invited to be engaged or are asked to provide information or input to inform the plan's content.

Public Participation: The opportunity must occur during the plan's development, meaning prior to the plan's submission for formal review. In addition, the plan must document how public feedback was included throughout the planning process.

Examples for P7: state hazard mitigation plan; local plans (such as comprehensive/master/general land use, economic development, capital improvement, affordable housing, resource management, resilience, climate, etc.); and hazard-specific reports and plans (such as Community Wildfire Protection Plans).

Risk Assessment (FEMA Element B)		Location in Plan	Met	Not Met	Reviewer Comments	Required Revisions
R1 (B1-a)	The plan must include a **description** of all natural hazards that can affect the jurisdiction(s) in the planning area and their assets, such as dams, located outside of the planning area.	PDF pg 129-362	**X**		Accurate description provided for all natural hazards	
R2 (B1-a)	The plan must provide rationale for the omission of any natural hazards that are commonly recognized to affect the jurisdiction(s) in the planning area.	No common hazards for the area were omitted.	**X**		Profiled all natural hazards, no omissions for the hazard areas.	
R3 (B1-b)	The plan must include information on **location** for each identified hazard.	PDF pg 130-363	**X**		Provided locations for each hazard	
R4 (B1-c)	The plan must provide the **extent** of the hazards that can affect the planning area.	PDF pg 130-363	**X**		Tables with detailed information of extent of hazards	
R5 (B1-d)	The plan must include information on **previous occurrences** for each hazard that affects the planning area. At a minimum, this includes any state and federal major disaster declarations for the planning area since the last update.	PDF pg 130-363	**X**		Table and maps used to show previous occurances	
R6 (B1-e)	The plan must include the **probability** of future events for the identified hazards that can affect the planning area.	PDF pg 130-363	**X**		Good probalbilty analysis for each hazard	
R7 (B1-f)	For multi-jurisdictional plans, when hazard risks differ across the planning area and between participating jurisdictions, the plan must specify the unique and varied risk information for each applicable jurisdiction and their assets outside the planning area.	PDF pg 130-363	**X**		Described how each jurisdiction is impacted by the hazards in different aspects	
R8 (B2-b)	The plan must describe the potential **impacts** on each participating jurisdiction and its identified assets.	PDF pg 130-363	**X**		Provided detailed impacts of hazards for each jurisdiction/hazard	
R9 (B2-a)	The plan must describe the **overall vulnerability** of each participant to the identified hazards.	PDF pg 130-363	**X**		Good overall vulnerabiltiy and the vulnerability of each jurisdiction	
R10 (B2-a)	For plan updates, the risk assessment must meet Element E1-a (Changes in Development).	See item U1 (E1-A)	**X**		Used maps and narratives to describe changes in the risk assessment	
R11 (B2-c)	The plan must address repetitively flooded NFIP-insured structures by including the estimated numbers and types (residential, commercial, institutional, etc.) of repetitive/severe repetitive loss properties.	Risk Assessment - Flood Profile pp PDF pg 144-146	**X**		Number of RL and SRL properties provided for each jurisdicition, including property types. Detailed maps provided to visualize data.	

FEMA Guidance Notes:

Description means to provide a narrative description or definition.

Location is defined as the unique geographic boundaries within the planning area, or assets that may be affected by the identified hazard. If maps are used, provide sufficient detail and scale to clearly identify the hazard locations within and/or affecting assets owned by the participating jurisdiction(s). If narrative descriptions are used, the must contain enough detail to clearly identify the area(s) that will be affected by the hazard.

Extent is defined as the range of anticipated intensities of the identified hazards. Extent is most commonly expressed using various scientific scales. When using scales, the plan must document how the scale applies to each jurisdiction.

Previous Occurrences should include an emphasis on significant events, as determined by the community.

Probability can be defined as historical frequencies, statistical probabilities, hazard probability maps and/or general descriptors.

Impacts must include the **effects of climate change**, changes in population patterns, and changes in land use and development. Gaps and limitations may be addressed as actions in the mitigation strategy, in particular for items that require additional assistance.

Vulnerability is the description of which assets, including structures, systems, populations and other assets, are at risk from the identified hazards. The description must include current and future assets (including people) and the risk that makes them susceptible to damage from the identified hazards.

Assets are, but not limited to, people (underserved communities and socially vulnerable populations); structures (facilities, lifelines, critical infrastructure); systems (networks and capabilities); natural, historic, and cultural resources; activities that have value to the community.

Changes in development means recent development, potential development, or conditions that may affect the risks and vulnerabilities of the jurisdictions or shifts in the needs of underserved communities or gaps in social equity. This can also include changes in local policies, standards, codes, regulations, land use regulations and other conditions.

Mitigation Strategy (FEMA Element C)		Location in Plan	Met	Not Met	Reviewer Comments	Required Revisions
S1 (C1-a)	The plan must describe how resources of each participant the existing authorities, policies, programs, funding and are available to support the mitigation strategy. This must include a discussion of the existing building codes and land use and development ordinances or regulations. Capabilities may be described in a table or narrative.	Tables 3.2 and 3.5 PDF pg 86-98	**X**		Use of Tables and Narratives to describe the policies, programs, funding, tools, plans, building codes, regulations, and ordiances for both present and future strategies	
S2 (C1-b)	The plan must describe the ability of each participant to expand on and improve the capabilities described in the plan (see S1).	Tables 3-2, 3-6, and 3-7; PDF pg 87-98		**X**	Capability Assessment to identify gaps and limitations.	**Need to address gaps and limitations for each participant. Describes Capability Assessment, but doesn't go into how to improve and reduce the gaps and limitations.** ***Proposed paragraph added to page 3-33 (PDF pg 98) in Section that addresses concerns countywide as recommended per MB***
S3 (C2-a)	The plan must describe participation in the NFIP for **each participant**, as applicable, in accordance with NFIP regulatory requirements.	Table 3-4;PDF pg 91-92; ***Appendix B - Floodplain Management***		**X**		**3: How is floodplain enforced?** **4: Who enforces?** **5: What is the process post-disaster? Are SDE's being completed by EM or by FPA/Building Official?** ***New Appendix B created that lists each jurisdictions applicable policies. Note in "Floodplain Management" portion of main document (3-25) points to new appendix.***
S4 (C3-a)	The plan must include **goals** to reduce the risk of the identified hazards.	Table 3.1 (PDF pg 66 -85)	**X**		Listed 6 primary goals, then used Table 3.1 to break down goals and objectives. Color coded to show changes in goals.	
S5 (C4-a)	The mitigation strategy must include an analysis of a comprehensive range of actions or projects that the participants considered to specifically address vulnerabilities identified in the risk assessment.	Overview (PDF pg 67-68); Project discussion placeholder on 4-52; Appendix D		**X**	Provided list of initiatives in Appendix D	**See Reviewer Notes for C4-a, specifically address underserved communities and socially vulnerable populations.** ***Statement added to end of Mitigation Strategy Section as part of the Initiatives discussion (3-35; PDF pg 100).***
S6 (C4-b)	**Each plan participant** must identify one or more mitigation actions the participant(s) intends to implement for each hazard addressed in the risk assessment.	Appendix D; Table D1; ***APPENDIX A, Table A-2***		**X**		**Bellair Shores and Seminole do not have projects on the projects list. Being addressed.** ***Per follow-up call/emails with MB, the outreach projects (APPENDIX A, Table A-2) meet the requirement for these communites.***
S7 (C5-a)	The plan must describe the criteria used for prioritizing the implementation of the actions. The criteria must include an emphasis on the extent to which benefits are maximized, in relation to the associated costs of the action.	Appendix D; PDF pg 99-100	**X**		Low, Medium, High related to Suitability, Risk Reduction, and Cost	

S8 (C5-b)	The action plan must identify who is responsible for administering each action, along with the action's potential funding sources and expected time frames for completion.	Appendix D; Table D-1		**X**	Identifies responsible person and agency for each action	**Need to identify funding sources.** ***Entities updated table or LMSWG leads updated empty funding attribute with most likely traditional funding sources (HMGP/Grants).***

FEMA Guidance Notes:

Discussion means a narrative or other materials that provide context on a section of the plan. Describing current capabilities provides a rationale for which mitigation projects can be undertaken to address the vulnerabilities identified in the Risk Assessment.

For C1-b: If participants do not have the ability or authority to expand and/or improve their capabilities, the plan must describe the lack of ability or authority.

For C2-a: The following information must be provided for each participant: adoption of NFIP minimum floodplain management criteria via local regulation; adoption of the latest effective Flood Insurance Rate Map (if applicable); Implementation and enforcement of local floodplain management regulations to regulate and permit development in SFHAs; appointment of a designee or agency to implement the addressed commitments and requirements of the NFIP; and description of how participants implement the substantial improvement/substantial damage provisions of their floodplain management regulations after an event. Simply stating "The community will continue to comply with the NFIP" is not sufficient to meet the requirement.

Goals are broad, long-term policy and vision statements that explain what is to be achieved by implementing the mitigation strategy. The goals must be consistent with the hazards identified in the plan. Goals may be presented as general statements applying to more than one hazard, or they may be itemized to each of the identified hazards.

A mitigation action is a measure, project, plan, or activity proposed to reduce current and future vulnerabilities described in the risk assessment. These actions must be achievable and demonstrate how the mitigation activities reduce the risks identified in the risk assessment.

Analyzing a comprehensive range means considering mitigation alternatives spanning all types of solutions. These may include local plan and regulations, structure and infrastructure projects, natural systems protection, and education and awareness programs.

For C4-a: Actions considered must emphasize reducing risk to existing buildings, structures and infrastructure, as well as limiting risk to new development and redevelopment. The range of actions considered should include mitigation actions that benefit underserved communities and socially vulnerable populations.

For C5-b: The plan must identify applicable potential funding sources, with details beyond generic terms such as "federal," "state" and/or "local." The plan must provide the **position, office, department, or agency** responsible for implementing/administrating the identified mitigation actions.

Plan Maintenance (FEMA Element D)		Location in Plan	Met	Not Met	Reviewer Comments	Required Revisions
M1 (D1-a)	The plan must describe how the participant(s) will continue to seek public participation after the plan has been approved and during the plan's implementation, monitoring, and evaluation.	PDF pg 64-65	**X**		Quarterly meetings to provide updates and changes each year duirng the cycle	
M2 (D2-a)	The plan must identify how, when and by whom the plan will be tracked for implementation over its five-year cycle (**monitoring**).	PDF pg 64-65	**X**			
M3 (D2-b)	The plan must identify how, when and by whom the plan will be assessed for effectiveness at achieving its stated purpose and goals (**evaluating**).	PDF pg 64-65	**X**			
M4 (D2-c)	The plan must identify how, when and by whom the plan will be reviewed and revised at least once every five years (**updating**).	PDF pg 64-65	**X**			
M5 (D3-a)	The plan must describe the community's process to **integrate** the plan's data, information, and hazard mitigation goals and actions into other **planning mechanisms**.	PDF pg 96-98	**X**		CEMP, PDRP, Comperhensive Plan, PPI	
M6 (D3-c)	A multi-jurisdictional plan must describe **each participant's** individual process for integrating information from the mitigation strategy into their identified planning mechanisms.	PDF pg 96-98	**X**		General application for each participant in integration into each strategy and planning mechanism	
M7 (D3-b)	The plan must identify the local planning mechanisms where hazard mitigation information/actions may be integrated. The identified list of planning mechanisms must be applicable to the plan participant(s) and not contradict the identified capabilities.	Table 3-2 and PDF pg 96-98	**X**		Larger jurisdictions typically have higher planning and regulatory capability, more staff and technical resources, as well as greater fiscal capability compared to smaller jurisdictions.	

FEMA Guidance Notes:

For D1-a: The plan may contain a narrative description or an itemized list of steps, demonstrating the prescribed method that will be followed to obtain future public participation.
Monitoring means tracking the implementation of the plan over time. For example, monitoring may include a system for tracking the status of the identified hazard mitigation actions.
Evaluating means assessing the effectiveness of the plan at achieving its stated purpose and goals.
Updating means reviewing and revising the plan at least once every five years.
Integrate means to include hazard mitigation principles, vulnerability information and mitigation actions into other existing community planning to leverage activities that have co-benefits, reduce risk and increase resilience.
Planning mechanisms refer to the governance structures used to manage local land use development and community decision-making.
For a multi-jurisdictional integration plan, this element may be met with a general narrative description if the process is applicable to each of the plan participants; however, any participant who cannot apply the same process as other plan participants must include their unique process for integration.

Plan Update (FEMA Element E)		Location in Plan	Met	Not Met	Reviewer Comments	Required Revisions
U1 (E1-a)	The plan must describe changes in development that have occurred in hazard-prone areas and how they have increased or decreased the vulnerability of each jurisdiction since the previous plan was approved.	PDF pg 29-34	**X**		Provided maps and narrative to explain changes in vulnerability due to population density and urbanization increases	
U2 (E2-a)	The plan must describe how it was revised due to a change in priorities for each jurisdiction.	PDF Pg 99		**X**	Identified the consideration of each jurisdictions risk and their existing capabilities when considering actions to pursue	**How was it revised based on priorities? How have jurisdictional priority changes affected each jurisdiction?** ***Paragraph drafted and added to Page 3-34; PDF pg 99.***
U3 (E2-b)	The plan must describe the status of all hazard mitigation actions in the previous plan by identifying whether they have been completed or not, for each jurisdiction.	PDF pg 634-679	**X**		Detailed tables providing status updates for all actions and projects	
U4 (E2-c)	The updated plan must explain how the jurisdiction(s) integrated information from the mitigation plan into other planning mechanisms, as a demonstration of progress in local hazard mitigation efforts. If information from the previous plan was not integrated into other planning mechanisms, this must be stated.	PDF pg 92-98	**X**		Integration into various plans to progress mitigation efforts (i.e. Capital Improvement Plan, Economic Development, Sub-Damage Improvement Plan, Natural Resource Protection Plan)	

FEMA Guidance Notes:

Changes in development means recent development, potential development, or conditions that may affect the risks and vulnerabilities of the jurisdictions or shifts in the needs of underserved communities or gaps in social equity. This can also include changes in local policies, standards, codes, regulations, land use regulations and other conditions. If no development changes affected the jurisdiction's overall vulnerability, this must be stated with the plan.

Description of Priorities: A description of priorities is defined by the participant(s). If the participant(s) has no change in priorities since the last approval of the mitigation plan, this must be stated. This can be a narrative or with detailed statements in appropriate sections of the plan.

Actions: For actions that are not complete, the plan must state whether the action is no longer relevant or will be included in the updated action plan.

Plan Adoption (FEMA Element F)		Location in Plan	Met	Not Met	Reviewer Comments	
A1 (F1-a)	The jurisdiction must provide documentation of plan adoption, usually a resolution by the governing body or other authority, to receive approval.					
A2 (F2-a)	To receive approval, the participants must adopt the plan and provide documentation that the adoption has occurred.					

FEMA Guidance Notes:

Jurisdiction Adoption: **At least one** adoption resolution should be transmitted through the State to FEMA for the LMS Plan to be officially approved. The remaining resolutions may be transmitted as they are completed.

Documentation may be provided in the form of meeting minutes, resolutions, signed letter or any other method to demonstrate that official adoption by the participant has occurred.

Participants that submit their adoption documentation separately from the other multi-jurisdictional plan participants will not receive a new expiration date.

Participating jurisdictions that adopt the plan **more than one year** after Approvable Pending Adoption (APA) status has been issued must either: Validate that their information in the plan remains current with respect to both the risk assessment and their mitigation strategy OR Make the necessary updates before submitting the adoption resolution to FEMA.

High Hazard Potential Dams (FEMA Element G) *Eligibility Requirement for HHPD Grant Program*		Location in Plan	Met	Not Met	Reviewer Comments	Required Revisions
D1 (HHPD1-a)	The plan must describe how the local government worked with the local dam owners and/or the state dam safety agency (FDEP).	Flood Profile 4-32; 4-33				
D2 (HHPD1-b)	The plan incorporates information shared by the state and/or local dam owners.	Flood Profile 4-32; 4-33				
D3 (HHPD2-a)	The plan describes the **risks and vulnerabilities** to and from HHPDs (included in risk assessment).	Flood Profile 4-32; 4-33				
D4 (HHPD2-b)	The plan documents the limitations and describes how to address deficiencies (in the risk assessment).	Flood Profile 4-32; 4-33				
D5 (HHPD3-a)	The plan addresses how to reduce vulnerabilities to and from HHPDs as part of its own goals or with other long-term strategies. The plan does not need to include a goal specific to HHPDs alone.	Flood Profile 4-32; 4-33				
D6 (HHPD3-b)	The plan links proposed actions to reduce long-term vulnerabilities that are consistent with its goals.					
D7 (HHPD4-a)	The plan must describe **specific actions** to address HHPDs (project list).					
D8 (HHPD4-b)	The plan describes the criteria used to prioritize actions related to HHPDs.					
D9 (HHPD4-c)	The plan identifies the position, office, department or agency responsible for implementing and administering the action to mitigate hazards to or from HHPDs.					

FEMA Guidance Notes:

Note: Ensure sensitive and/or personally identifiable information is protected.

Information shared by the state and/or local dam owners includes: inundation maps, EAP, Floodplain Plans, dam breach modeling software, as well as more detailed studies.

Risk and vulnerabilities can include potential cascading impacts of storms, wildfires, etc. on dams that may affect upstream and downstream flooding; potential significant economic, environmental or social impacts, as well as multi-jurisdictional impacts, from a dam incident; location and size of populations at risk, and potential impacts to institutions and critical infrastructure/facilities/lifelines; and/or methodology and/or assumptions for risk data and inundation modeling.

Specific actions include rehabilitating/removing dams; adopting and enforcing land use ordinances in inundation zones; elevating structures in inundation zones; and/or adding flood protection, such as berms, floodwalls or floodproofing, in inundation zones.

APPENDIX F – PLAN ADOPTION

This appendix includes the FEMA APA Letter and local adoption resolutions for each of the participating jurisdictions.

Jurisdiction	Date of Adoption
Belleair	
Belleair Beach	
Belleair Bluffs	
Belleair Shore	
Clearwater	
Dunedin	
Gulfport	
Indian Rocks Beach	
Indian Shores	
Kenneth City	
Largo	
Madeira Beach	
North Redington Beach	
Oldsmar	
Pinellas Park	
Redington Beach	
Redington Shores	
Safety Harbor	
St. Petersburg	
St. Pete Beach	
Seminole	
South Pasadena	
Tarpon Springs	
Treasure Island	
Unincorporated Pinellas County	

APPENDIX G – PLAN MAINTENANCE

This appendix includes the Annual LMS Update Forms completed each year for compliance with Florida Administrative Code 27P-22.004 as well as any annual reporting for CRS activities.

Pinellas County

LOCAL MITIGATION STRATEGY

ANNUAL UPDATE

2024-2025

January 24, 2025

Ms. Laura Dhuwe, Mitigation Bureau Chief
State Hazard Mitigation Officer
Florida Division of Emergency Management (FDEM)
2555 Shumard Oak Boulevard
Tallahassee, Florida 32399-2100

RE: **Pinellas County 2024-2025 Local Mitigation Strategy Annual Update**

Dear Ms. Dhuwe:

This letter is sent in compliance with the Florida Administrative Code 27P-22.004(4)(e) requirements pertaining to the 2024 – 2025 annual update of Pinellas County's Local Mitigation Strategy (LMS) and its Working Group.

The Chair for Pinellas County's LMS Working Group is Smita Ambadi, Principal Planner with Pinellas County, and the Vice-Chair is Megan Orlando, Emergency Management Specialist with the City of St. Petersburg, as elected by the LMS working group.

The County's LMS membership consists of two types of members: voting and advisory. Voting members include representation from all participating municipalities and Pinellas County. Advisory members include representation from other public and private agencies including regional partners, nonprofits, and community members. Advisory members do not formally vote but are consulted for technical expertise and valuable input into the planning process. The Working Group continues to work with and seeks to increase participation of not-for-profit organizations, faith-based associations, and the private sector. The LMS meetings that were held in 2024 are as follows: January 17, February 21, March 20, April 10, May 8, May 22, June 26, July 17,August 21, August 28, October 30, and December 18. These include the regular scheduled quarterly meetings, the LMS Annual Update Training, meetings held for the 2025 LMS Five-Year Update, and as a part of the Hazard Mitigation Grant Program (HMGP) project prioritization process. In addition, two public workshops were held in 2024, on April 15 and October 17, as a part of the Five-Year Update. Discussion topics and other pertinent information were disseminated at the Working Group meetings, at the workshops, through emails, and through the LMS SharePoint site. All meetings are posted on Pinellas County's LMS webpage, including the meeting schedule for 2025.

The following is the list of attachments enclosed with the letter:

1. Annual LMS Update Memo 2024-2025.
2. Completed Annual Compliance Form - 27P-22 Fillable Form 2024-2025.
3. Pinellas County 2024-2025 LMS Working Group Roster.
4. Email Invitations to the Municipalities and other members.

310 Court Street
Clearwater, FL 33756
Main (727) 464-8200
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V/TDD (727) 464-4062
www.pinellas.gov

5. Table A-1 Countywide Outreach.
6. Table A-2 Municipal Outreach Projects.
7. Table D-1 Mitigation Initiatives.
8. Table D-2 Accomplishments.
9. Pinellas Multijurisdictional Community Rating System Annual Report for Program for Public Information, Flood Insurance Improvement Plan and Flood Response Plan.

The 2024-2025 Pinellas LMS Roster, Countywide Outreach Matrix, Municipal Outreach Projects, Mitigation Initiatives, and Mitigation Accomplishments were approved by the LMS Working Group at the January 22, 2025, meeting.

If you have any questions or require any further information, please feel to contact my office at 727-464-8200 or via email at gbailey@pinellas.gov.

Sincerely,

Glenn Bailey, AICP
Interim Director, Pinellas County Housing and Community Development Department

cc: Commissioner Brian Scott, Chair
Pinellas County Board of County Commissioners

Catherine Perkins, Director
Pinellas County Emergency Management

Kelli Hammer Levy, Director
Pinellas County Public Works

LMS ANNUAL UPDATE MEMO
2024-2025

STATE OF FLORIDA
DIVISION OF EMERGENCY MANAGEMENT

Ron DeSantis, *Governor* **Kevin Guthrie,** *Executive Director*

MEMORANDUM

TO: County Director of Emergency Management
Local Mitigation Strategy Working Group Chair/Coordinator

FROM: Laura Dhuwe, Mitigation Bureau Chief
State Hazard Mitigation Officer
Florida Division of Emergency Management

SUBJECT: Annual request for LMS update, per 27P-22.004(4)(e) Florida Administrative Code

The purpose of this memo is to remind the Local Mitigation Strategy (LMS) Chairperson of the Florida Administrative Code 27P-22.004, which requires an annual update of information regarding the LMS plan and working group.

Please fill out the 27P-22 Fillable Form and provide the following materials:

- Current list of members of the LMS working group, identifying current chairperson, vice chairperson, and/or coordinator (and contact information for each including email, phone, and mailing address)
- Documentation showing that the county has issued a written invitation to each municipality to participate in the LMSWG, within the preceding year.
- Current list of mitigation measures, identifying responsible agency/department, associated funding sources and their estimated costs, and expected timeframes for completion (also referred to as action item list, mitigation initiatives, or prioritized project list)
- Major changes (if applicable) to the local hazard assessment, critical facilities list, repetitive properties list, or plan maps occurring in the last year

The Florida Administrative Code 27P-22.004 is enclosed for your reference. Please note that this is not a request for your 5-year plan update.

Please email this updated information by the last working weekday of January 2025 (Friday, January 31, 2025) to MitigationPlanning@em.myflorida.com.

Upon submittal, our office will issue a letter of compliance. If your county does not submit the annual update information by the deadline, our office will issue a non-compliance letter on the first working day of February 2025.

Please contact your LMS Liaison with any questions. Thank you in advance for your cooperation.

Regions 1, 2, and 4	Regions 3, 5, and 8
Angie Odell Angie.Odell@em.myflorida.com 850-524-7438	Evan Jenkins Evan.Jenkins@em.myflorida.com 850-815-4589
Regions 6, 7, 9, and 10	**Mitigation Planning Unit Manager**
Mitchell Budihas Mitchell.Budihas@em.myflorida.com 850-815-4588	Angie Odell Angie.Odell@em.myflorida.com 850-524-7438

Annual Update Requirement

Current list of members of the LMS working group, identifying current chairperson, vice chairperson, and/or coordinator (and contact information for each including email, phone, and mailing address)

Supporting documents:

- Annual Compliance Form - 27P-22 Fillable Form 2024-2025 identifying the current chairperson, vice chairperson, and/or coordinator with their contact information.

- Pinellas County 2024-2025 LMS Working Group Roster.

LMS ANNUAL COMPLIANCE FORM

27P-22 Fillable Form 2024-2025

Florida Administrative Code 27P-22.004

Annual Compliance Form

This form is due by the last working weekday of January 2025 (Friday, January 31, 2025). Please email the completed form to MitigationPlanning@em.myflorida.com. Contact your liaison (listed below) with any questions. Thank you in advance for your cooperation.

Regions 1, 2, and 4	Regions 3, 5, and 8
Sabrina Uribe Sabrina.Uribe@em.myflorida.com 850-273-1830	Evan Jenkins Evan.Jenkins@em.myflorida.com 850-443-4280
Regions 6, 7, 9, and 10	**Mitigation Planning Manager**
Mitchell Budihas Mitchell.Budihas@em.myflorida.com 850-524-4195	Angie Odell Angie.Odell@em.myflorida.com 850-524-7438

Reference: FAC 27P-22.004(4)(a)		
County	Pinellas County	
Chair	NAME: Smita Ambadi, LEED ND, SCPM	TITLE: Principal Planner
	JURISDICTION: Pinellas County	
	ADDRESS: 310 Court Street, Clearwater, FL 33756	
	PHONE (O): 727-464-8221	PHONE (C):
	EMAIL: sambadi@pinellas.gov	
Vice Chair *(if applicable)*	NAME: Megan Orlando, FPEM, MPA, MCP	TITLE: EM Specialist
	JURISDICTION: City of St. Petersburg, Office of Emergency Management	
	ADDRESS: 400 Dr. M.L.K. Jr St. S, St. Petersburg, FL 33701	
	PHONE (O): 727-892-5200	PHONE (C): 727-503-9212
	EMAIL: megan.orlando@stpete.org	
LMS Coordinator *(if applicable)*	NAME: Catherine (Cathie) Perkins	TITLE: Director, Pinellas County Emergency Management
	JURISDICTION: Pinellas County	
	ADDRESS: 10750 Ulmerton Rd, Bldg 1 Suite 267, Largo FL 33778	
	PHONE (O): 727-464-3851	PHONE (C): 727-200-6997
	EMAIL: cperkins@pinellas.gov	
County Floodplain Administrator	NAME: Lisa Foster, CFM	TITLE: Floodplain Administrator
	JURISDICTION: Pinellas County	
	ADDRESS: 14th South Fort Harrison Ave., 2nd Floor, Clearwater, FL 33756	
	PHONE (O): 727-464-8962	PHONE (C):
	EMAIL: ldfoster@pinellas.gov	

Was your county's LMS Plan submitted to the State for review within the last 6 months?	☑ YES	☐ NO	
If yes, have there been any changes since the plan was submitted?	☑ YES	☐ NO	☐ N/A
If yes or N/A, please complete the entire form. *If no, your 27P-22.004 annual compliance form is complete!*			

Requirement Checklist	Comments
LMS Working Group (LMSWG) Submit the LMSWG list, including contact information. *Reference: FAC 27P-22.004(4)(a)*	Attached Please find attached, the updated LMS Working Group Roster.
LMSWG Participation Invites Provide documentation showing that the county has issued a written invitation to each municipality to participate in the LMSWG, within the preceding year. *FAC 27P-22.004(4)(3)*	Attached Please find attached, copies of email invitations to Pinellas County's 24 municipalities.
Hazard Analysis Change Are there any new or removed hazards? *FAC 27P-22.004(4)(e)(1)*	☐ YES ☑ NO *(If yes, attached the updated sections)* There are no new or removed hazards since the LMS Five-Year Update (draft) was submitted.
Prioritized Project List (PPL) Include project list in order of priority, identifying the agency/department responsible for the projects, estimated costs, potential funding sources, and expected timeframes for completion. *FAC 27P-22.004(4)(e)(2), FAC 27P-22.005(7)*	Attached ***(in excel)*** Please find attached, updated Table D-1 Mitigation Initiatives List from the LMS plan.
Critical Facilities List Have there been any changes to the critical facilities list within the past year? *FAC 27P-22.004(4)(e)(3)*	☑ YES ☐ NO *(If yes, attached the updated list)* There have been no major changes since the LMS Five-Year Update (draft) was submitted. However, there are a few healthcare facilities (assisted living, nursing homes, etc.) that have closed and/or new facilities that have opened since the update. An abridged version of this list is included in the Annual Update. A complete list can be provided to FDEM if needed.
Repetitive Loss Properties List Have there been any additions or removals to the repetitive loss properties in any of the jurisdictions within the past year? *FAC 27P-22.004(4)(e)(4)*	☑ YES ☐ NO *(If yes, attached the updated list)* See attached updated RLAA report.
Revisions to Maps Were there any changes to maps included in the LMS within the preceding year? *FAC 27P-22.004(4)(e)(5)*	☐ YES ☑ NO *(If yes, attached the updated map(s))* There have been no additional changes to maps since the LMS Five-Year Update (draft) was submitted to FDEM.

APPENDIX H – PROGRAM FOR PUBLIC INFORMATION

This appendix includes the countywide Program for Public Information (CRS Activity 330).

PINELLAS COUNTY
MULTI-JURISDICTIONAL
PROGRAM FOR PUBLIC INFORMATION

Pinellas County | January, 2025



PINELLAS COUNTY
MULTI-JURISDICTIONAL
PROGRAM FOR PUBLIC INFORMATION

Prepared for:

Pinellas County and Participating Municipalities

22211 US Hwy. 19 N.

Clearwater, FL 33765

Prepared by:

Jones Edmunds & Associates, Inc.

324 S. Hyde Park Ave.

Tampa, Florida 33606

January, 2025

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1 INTRODUCTION

Located on Florida's West Coast, Pinellas County is a 280-square mile peninsula bordered by the Gulf of Mexico and Tampa Bay, with 588 miles of coastline. There are numerous streams, creeks and drainage channels that run through the County. Of these, the County has identified 25 creeks and canals that serve as major drainage features. There are also several large lakes, including Lake Tarpon (2,534 acres), Lake Seminole (980 acres), Lake Maggiore (380 acres), Salt Lake (220 acres), Lake Del Oro (75 acres), Alligator Lake (77 acres), Lake St. George (50 acres) and Lake Chautauqua (50 acres).

Pinellas County is comprised of 24 municipalities, is home to nearly a million residents and is the most densely populated county in the state of Florida, with approximately 3,400 residents per square mile. As a low-lying, highly urbanized community the County is vulnerable to sea level rise, storm surge, and other extreme weather events.

The County is impacted by riverine, storm surge, and localized flooding in low lying and urban areas. Pinellas County has the overall goal to become more sustainable and resilient to current vulnerabilities and future flooding conditions, through both internal governmental practices and external community services, such as participation in the National Flood Insurance Program (NFIP) and Community Rating System (CRS) and implementing a Program for Public Information (PPI). The County and most of its municipalities have been actively participating in the National Flood Insurance Program's (NFIP) Community Rating System (CRS) since the early 1990's. The CRS program provides flood insurance premium reductions to participating communities. The reductions are based on the community's floodplain management programs, which include public information outreach activities, such as implementation of a Program for Public Information. The PPI was introduced by the Federal Emergency Management Agency (FEMA) as a new planning tool to provide a step-by-step coordinated approach to flood hazard outreach, which Pinellas County followed in developing their Unincorporated Pinellas County PPI, adopted in 2015 (Figure 1-1).

Pinellas County has numerous ongoing outreach efforts with goals to increase flood hazard awareness and to motivate actions to reduce flood damage, encourage flood insurance coverage, and protect the natural functions of floodplains, some of which are countywide efforts. In addition, agencies, such as IFAS, Sea Grant and Tampa Bay Regional Planning Council, and the County's 24 municipalities have outreach centered on flood protection and awareness. As such, the County expanded their initial Program for Public Information (PPI) to include its municipalities in the 2025 PPI update to better coordinate public information activities and develop activities that will lead to more effective programs countywide. This Pinellas County Program for Public Information (PPI) includes all unincorporated areas of Pinellas County as well as 16 of its partner municipalities.

The County's purpose in developing this plan is to improve communication with residents, and to provide information about flood hazards, flood safety, flood insurance, and ways to protect property and natural floodplain functions to those who can benefit from it. Although this information is being effectively shared throughout the County, this program will better coordinate messages and materials, standardize the information being shared, and make it more

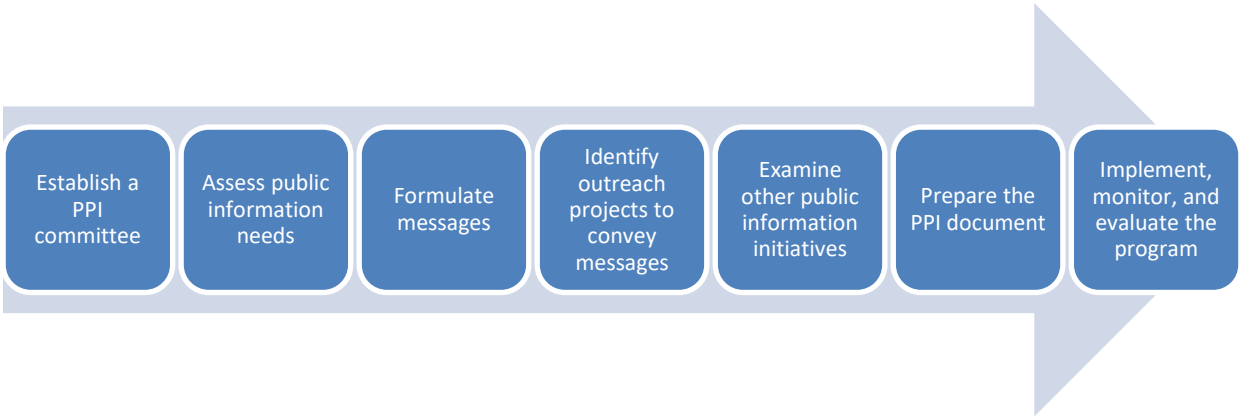
accessible to County staff as well as the other local governments and agencies within the County.

The geographic and jurisdictional scope of the Pinellas County PPI includes all unincorporated areas of Pinellas County and the following municipalities:

- Town of Belleair
- City of Belleair Beach
- City of Clearwater
- City of Gulfport
- City of Indian Rocks Beach
- Town of Indian Shores
- City of Madeira Beach
- City of Oldsmar
- City of Pinellas Park
- Town of Redington Beach
- Town of Redington Shores
- City of Safety Harbor
- City of South Pasadena
- City of St. Petersburg
- City of St. Pete Beach
- City of Tarpon Springs
- City of Treasure Island

This PPI offers a structure in line with the Program for Public Information activity of the CRS (Figure 1-1).

Figure 1-1 PPI Planning Process



2 PLANNING COMMITTEE

The role of the planning committee as it relates to this PPI is to provide input about target audiences, types and delivery of messages, and insight into ongoing efforts in the community. The efforts of the PPI can affect and be affected by other related activities such as development of the Flood Response Plan, Flood Insurance Improvement Plan and the Floodplain Management Plan, which is a component of the larger Local Mitigation Strategy (LMS). **This committee represents a unique opportunity to coordinate and improve consistency in messaging countywide and avoid duplication of efforts among the various initiatives to reduce flood risk and damage. This group will serve as the Pinellas County Flood Risk and Mitigation Public Information Working Group (FRMPIWG)**. Not only will this committee be covering the basic CRS PPI requirements, but they will also be evaluating Flood Insurance Coverage, Floodplain Management, Flood Warning and Response, and providing input to the multi-jurisdictional LMS.

The multi-jurisdictional committee has members from both inside and outside the local government agencies. Unincorporated and municipal staff cover a variety of roles, maximizing the exposure and coordination among various department functions. The types of roles represented include Floodplain Management, Public Works, Marketing and Communications, Environmental Management, Planning and Development Services, and Department of Emergency Management. Many of these departments have designated Public Information Officers (PIOs). Community staff work together with active members of the community, including representatives of the insurance, real-estate, mortgage-lending industries, neighborhood associations, and Tampa Bay Regional Planning Council (TBRPC), to develop and implement this plan (Table 2-1). The working group meets several times each year to monitor and update the plan. On occasion, the working group may ask for input from other professionals or agencies for their input and specific expertise on various topics related to specific outreach initiatives (Table 2-2).

The committee first convened in October of 2018 to discuss the transition from a PPI that addressed primarily Unincorporated Pinellas County, to an inclusive multi-jurisdictional public information program.

Jurisdiction Represented	Name	Affiliation
Pinellas County	Ali Rieman	Pinellas County – Project Coordinator
Pinellas County	Anamarie Rivera	Pinellas County - Environmental Management
Pinellas County	Brian Ellis	Tampa Bay Regional Planning Council
Pinellas County	Cara Serra	Tampa Bay Regional Planning Council
Pinellas County	Cheryl Morales	Pinellas Public Library Cooperative (PPLC)
Pinellas County	CJ Reynolds	Florida Housing Coalition
Pinellas County	David Connor	Pinellas County – Marketing & Communications
Pinellas County	Dawn Forrest	Wright Flood
Pinellas County	Gerry Evenwel	National Flood Experts
Pinellas County	Jessica McKracken	Pinellas County – Emergency Management
Pinellas County	Joe Farrell	Pinellas/Pasco Realtor Organization (PRO)
Pinellas County	John Hibbard	Weisner Insurance
Pinellas County	Kelsey Grentzer	Pinellas County – Marketing & Communications

Pinellas County	Lindsey O'Donnell	Florida Best Quote Insurance
Pinellas County	Lisa Foster	Pinellas County – Floodplain Administrator
Pinellas County	Marty Sorensen	Resident
Pinellas County	Mary Burrell	Pinellas County - Emergency Management
Pinellas County	Marq Caughell	Pinellas County – Public Works Communications
Pinellas County	Scott Nappier	Beach Access – Real Estate Brokerage
Pinellas County	Smita Ambadi	Pinellas County - Planning
Pinellas County	Zahra Andalib	National Flood Experts
Pinellas County	Zorana Kojic	StormSensor
Belleair	Debbie Darling	Belleair CC
Belleair	Keith Bodeker	Belleair - Town of Belleair
Belleair Beach	Aaron Glanz	Belleair Beach – Community Services Administrator
Belleair Beach	Frank Bankard	Resident
Clearwater	Derek Smith	Clearwater – Emergency Management
Clearwater	Jared Leane	Resident
Clearwater	Steve Kessler	Resident
Dunedin	Michelle Monteclaro	City of Dunedin
Gulfport	Clark Streicher	Gulfport - Building Official
Gulfport	Karen Brodeur	WhitCo Insurance Agency
Hillsborough County	Christine Hummel	Hillsborough County – CRS Coordinator
Indian Rocks Beach	Coleen Olson	Indian Rocks Beach – Public Works Administrative Assistant
Indian Rocks Beach	Diane Flagg	Resident
Indian Shores	Brian Rusu	Indian Shores - Building Official
Indian Shores	Robert E. Lyons	Sunwest Construction LLC
Madeira Beach	Jenny Rowan	Madeira Beach – Community Development Director
Madeira Beach	Lisa Sheuermann	Madeira Beach – Community Development Program Coordinator
Madeira Beach	Vincent Gadrix	Gulf Beaches Public Library Director
Oldsmar	Daniel Simpson	Oldsmar – Public Works Director
Oldsmar	Doug Bevis	Resident/Realtor
Oldsmar	Felicia Donnelly	Oldsmar – City Manager
Oldsmar	Gregg Silliman	Oldsmar - Code Enforcement Officer
Oldsmar	James Wagner	Oldsmar – Planning & Zoning
Oldsmar	Mandi Clark	Oldsmar – Floodplain & Building Coordinator
Oldsmar	Matt Jackson	Oldsmar – Principal Planner
Oldsmar	Mike Bolan	Mike's Weather Page
Oldsmar	Tatiana Childress	Oldsmar – Planning & Redevelopment Director
Pinellas Park	Erica Lindquist	Pinellas Park – Planning & Development Services Director
Pinellas Park	Housh Ghovaee	Gateway Chamber of Commerce
Pinellas Park	Suzanne Boisvert	Pinellas Park – Emergency Management Coordinator
Pinellas Park	Terry England	Gateway Chamber of Commerce
Pinellas Park	Tiffany Menard	Pinellas Park – Senior Planner
Redington Beach	Annie Fleeting	Next Home Beach Time Realty
Redington Beach	Barry Scarr	Insurance Professional
Redington Beach	Pat English	Resident
Redington Beach	Tim Thompson	JPM Chase
Redington Shores	Bill Blackburn	Blackburn Coastal Realty

Redington Shores	Brian McClure	Charter
Redington Shores	Christy Herig	Resident
Redington Shores	Cynthia Hoyt	Resident
Redington Shores	Dave Motley	Resident
Redington Shores	Michael McGlothlin	Redington Shores – Town Administrator
Safety Harbor	Jessica Wilson	Brightway Insurance
Safety Harbor	Marcie Stenmark	Safety Harbor – Community Development Coordinator
South Pasadena	David Mixson	South Pasadena – Fire Chief
South Pasadena	Robin Miller	Tampa Bay Beaches Chamber of Commerce
St. Petersburg	Angie Phillips	St. Petersburg – Acting Floodplain Administrator
St. Petersburg	Brandi Gabbard	City Council & Real Estate Broker
St. Petersburg	Chris Dailey	Shore Acres Civic Association
St. Petersburg	Frank Malowany	Smith & Associates
St. Petersburg	John Mason	St. Petersburg Council of Neighborhood Associations
St. Pete Beach	Julie Anderson	St. Pete Beach – Building Division Manager
St. Pete Beach	Michael Welch	Resident
St. Pete Beach	Mike Clarke	St. Pete Beach – Public Works Director
Tarpon Springs	David Gilson	Tarpon Springs - Building Official
Tarpon Springs	Joan Jennings	Resident
Tarpon Springs	Susan DeCose	Resident
Treasure Island	Brian Ford	Insurance Resources
Treasure Island	Maryellen Edwards	Treasure Island – Assistant Director
Consultant	Chris Zambito	Atkins
Consultant	Joan Van Stone	CRS Max, Inc.
Consultant	Khan Boupha	Jones Edmunds

Table 2-3 provides an overview of the committee meetings. Key topics during the committee meetings include:

- Plan organization
- Coordination of projects (countywide and jurisdictional) to relay flood information
- Identification of flood risks and potential mitigation opportunities
- Identification of partnership opportunities
- Providing support to LMS WG
- Identification of priority areas for outreach
- Assessment of flood insurance coverage
- Determination of priority audiences for outreach activities
- Inventory and evaluation of other public information initiatives at the County as well as other agencies

- Development of outreach messages
- Review of possible outreach activities
- Plan implementation and update

Table 2-1 FRMPIWG Core Members

Jurisdiction Represented	Staff/Stakeholder	Name	Affiliation
Pinellas County	Staff	John Carkeet	Pinellas County Marketing & Communications – PIO
Pinellas County	Staff	Maxine Moore	Floodplain Technician
Pinellas County	Stakeholder	Ashley Tharp	Wright Flood, Corporate Agent Training Manager
Pinellas County	Stakeholder	Cece McKiernan	Florida Floodplain Managers Association, Executive Director
Belleair	Staff	Greg Lauda	Floodplain Manager
Belleair	Stakeholder	Tom Shelly	Florida Real Estate Broker
Belleair Beach	Staff	Kyle Riefler	Community Services Administrator
Belleair Beach	Stakeholder	Marv Behm	Resident
Clearwater	Staff	Sarah Kessler	City of Clearwater
Clearwater	Stakeholder	Bill Jonson	Former Councilmember
Gulfport	Staff	Michael Taylor	Community Development Principal Planner
Gulfport	Stakeholder	Mike Whitman	WhitCo Insurance Agency
Indian Rocks Beach	Staff	Dean Scharmen	Public Services Director
Indian Rocks Beach	Stakeholder	Ron Sacara	Resident
Indian Shores	Staff	William Jones	Building Clerk
Indian Shores	Stakeholder	Katrena Hales-Claver	Calusa Vacations LTD
Madeira Beach	Staff	Marci Forbes	Community Development Engineer
Madeira Beach	Stakeholder	Vincent Gadrix	Neighborhood Construction
Oldsmar	Staff	Deb Vitralli	Marketing Specialist / PIO
Oldsmar	Stakeholder	Paula Saracki	Resident/Business Owner
Pinellas Park	Staff	Derek Reeves	Planning & Development Services Principal Planner
Pinellas Park	Stakeholder	Linda Yang	FL Strategic Insurance
Redington Beach	Staff	Adriana Nieves	Deputy Clerk
Redington Beach	Stakeholder	Thomas Dorgan	Resident
Redington Shores	Staff	Jolie Patterson	Deputy Town Clerk
Redington Shores	Stakeholder	Kimberly Harr	Harr & Associates, Inc.

Jurisdiction Represented	Staff/Stakeholder	Name	Affiliation
Safety Harbor	Staff	Troy Wilcox	Civil Designer
Safety Harbor	Stakeholder	Damon Lister	Southern Life Realty
South Pasadena	Staff	Terri Sullivan	Building Official
South Pasadena	Stakeholder	Collin Baranick	Elance at Pasadena
St. Petersburg	Staff	Hannah Rebholz	Floodplain Coordinator
St. Petersburg	Stakeholder	Jake Holehouse	HH Insurance
St. Pete Beach	Staff	Mark Vasquez	Building Official
St. Pete Beach	Stakeholder	Chris Hollands	Local Business Owner
Tarpon Springs	Staff	Megan Araya	Development Services Coordinator
Tarpon Springs	Stakeholder	Barbara Mamouzelos	Resident
Treasure Island	Staff	Jesse Miller	Principal Planner
Treasure Island	Stakeholder	Clyde Smith	General Manager, Bilmar Resort

Table 2-2 FRMPIWG Additional Support

Jurisdiction Represented	Name	Affiliation
Pinellas County	Ali Rieman	Pinellas County – Project Coordinator
Pinellas County	Anamarie Rivera	Pinellas County - Environmental Management
Pinellas County	Brian Ellis	Tampa Bay Regional Planning Council
Pinellas County	Cara Serra	Tampa Bay Regional Planning Council
Pinellas County	Cheryl Morales	Pinellas Public Library Cooperative (PPLC)
Pinellas County	CJ Reynolds	Florida Housing Coalition
Pinellas County	David Connor	Pinellas County – Marketing & Communications
Pinellas County	Dawn Forrest	Wright Flood
Pinellas County	Gerry Evenwel	National Flood Experts
Pinellas County	Jessica McKracken	Pinellas County – Emergency Management
Pinellas County	Joe Farrell	Pinellas/Pasco Realtor Organization (PRO)
Pinellas County	John Hibbard	Weisner Insurance
Pinellas County	Kelsey Grentzer	Pinellas County – Marketing & Communications
Pinellas County	Lindsey O'Donnell	Florida Best Quote Insurance
Pinellas County	Lisa Foster	Pinellas County – Floodplain Administrator
Pinellas County	Marty Sorensen	Resident
Pinellas County	Mary Burrell	Pinellas County - Emergency Management
Pinellas County	Marq Caughell	Pinellas County – Public Works Communications
Pinellas County	Scott Nappier	Beach Access – Real Estate Brokerage
Pinellas County	Smita Ambadi	Pinellas County - Planning
Pinellas County	Zahra Andalib	National Flood Experts
Pinellas County	Zorana Kojic	StormSensor
Belleair	Debbie Darling	Belleair CC
Belleair	Keith Bodeker	Belleair - Town of Belleair
Belleair Beach	Aaron Glanz	Belleair Beach – Community Services Administrator

Belleair Beach	Frank Bankard	Resident
Clearwater	Derek Smith	Clearwater – Emergency Management
Clearwater	Jared Leane	Resident
Clearwater	Steve Kessler	Resident
Dunedin	Michelle Monteclaro	City of Dunedin
Gulfport	Clark Streicher	Gulfport - Building Official
Gulfport	Karen Brodeur	WhitCo Insurance Agency
Hillsborough County	Christine Hummel	Hillsborough County – CRS Coordinator
Indian Rocks Beach	Coleen Olson	Indian Rocks Beach – Public Works Administrative Assistant
Indian Rocks Beach	Diane Flagg	Resident
Indian Shores	Brian Rusu	Indian Shores - Building Official
Indian Shores	Robert E. Lyons	Sunwest Construction LLC
Madeira Beach	Jenny Rowan	Madeira Beach – Community Development Director
Madeira Beach	Lisa Sheuermann	Madeira Beach – Community Development Program Coordinator
Madeira Beach	Vincent Gadrix	Gulf Beaches Public Library Director
Oldsmar	Daniel Simpson	Oldsmar – Public Works Director
Oldsmar	Doug Bevis	Resident/Realtor
Oldsmar	Felicia Donnelly	Oldsmar – City Manager
Oldsmar	Gregg Silliman	Oldsmar - Code Enforcement Officer
Oldsmar	James Wagner	Oldsmar – Planning & Zoning
Oldsmar	Mandi Clark	Oldsmar – Floodplain & Building Coordinator
Oldsmar	Matt Jackson	Oldsmar – Principal Planner
Oldsmar	Mike Bolan	Mike’s Weather Page
Oldsmar	Tatiana Childress	Oldsmar – Planning & Redevelopment Director
Pinellas Park	Erica Lindquist	Pinellas Park – Planning & Development Services Director
Pinellas Park	Housh Ghovaee	Gateway Chamber of Commerce
Pinellas Park	Suzanne Boisvert	Pinellas Park – Emergency Management Coordinator
Pinellas Park	Terry England	Gateway Chamber of Commerce
Pinellas Park	Tiffany Menard	Pinellas Park – Senior Planner
Redington Beach	Annie Fleeting	Next Home Beach Time Realty
Redington Beach	Barry Scarr	Insurance Professional
Redington Beach	Pat English	Resident
Redington Beach	Tim Thompson	JPM Chase
Redington Shores	Bill Blackburn	Blackburn Coastal Realty
Redington Shores	Brian McClure	Charter
Redington Shores	Christy Herig	Resident
Redington Shores	Cynthia Hoyt	Resident
Redington Shores	Dave Motley	Resident
Redington Shores	Michael McGlothlin	Redington Shores – Town Administrator
Safety Harbor	Jessica Wilson	Brightway Insurance
Safety Harbor	Marcie Stenmark	Safety Harbor – Community Development Coordinator
South Pasadena	David Mixson	South Pasadena – Fire Chief
South Pasadena	Robin Miller	Tampa Bay Beaches Chamber of Commerce
St. Petersburg	Angie Phillips	St. Petersburg – Acting Floodplain Administrator
St. Petersburg	Brandi Gabbard	City Council & Real Estate Broker

St. Petersburg	Chris Dailey	Shore Acres Civic Association
St. Petersburg	Frank Malowany	Smith & Associates
St. Petersburg	John Mason	St. Petersburg Council of Neighborhood Associations
St. Pete Beach	Julie Anderson	St. Pete Beach – Building Division Manager
St. Pete Beach	Michael Welch	Resident
St. Pete Beach	Mike Clarke	St. Pete Beach – Public Works Director
Tarpon Springs	David Gilson	Tarpon Springs - Building Official
Tarpon Springs	Joan Jennings	Resident
Tarpon Springs	Susan DeCose	Resident
Treasure Island	Brian Ford	Insurance Resources
Treasure Island	Maryellen Edwards	Treasure Island – Assistant Director
Consultant	Chris Zambito	Atkins
Consultant	Joan Van Stone	CRS Max, Inc.
Consultant	Khan Boupha	Jones Edmunds

Table 2-3 FRMPIWG Meetings

Date	Discussion Topics
January 31, 2020	Committee reviewed the status of the LMS and Multi-Jurisdictional PPI. The committee revisited several priority areas and audiences, discussed other public information efforts and reviewed the status of projects. The PPI resource toolbox is complete, and a demonstration was provided to the members. This tool will assist participating communities to document their PPI projects.
May 29, 2020	Committee reviewed the status of the LMS and Multi-Jurisdictional PPI, along with their adoption status of the 5-year plan update. The committee also reviewed the Flood Insurance Improvement Plan for revisions. The committee discussed the publicity requirements for outreach initiatives. A toolbox was developed to help communities track outreach materials. Other outreach project initiatives were discussed including making elevation certificates available to the public and standardizing the outreach messages for social and regular media under different weather scenarios.
October 16, 2020	The committee reviewed and identified updates to the LMS, PPI, FIA and FRP, including adding new projects and messages. The committee also discussed the status and effectiveness of each outreach project for the municipalities. The plans were updated, and the annual reports were developed following this meeting.
January 29, 2021	The committee reviewed the updates to the LMS that had been submitted to the state. They also reviewed the ongoing project, blue-sky social media messaging, the SharePoint toolkit. They discussed potential projects like letters to utility companies, veterinarian outreach, Tampa Bay newspaper, the Business Flood and Hurricane Outreach Summit and EC digitization. A focus group was created to come up with a post-flood checklist to help residents compile damage to valuables.

May 21, 2021	The committee reviewed the annual LMS report and the updated PPI report, Appendix H. They also discussed the ongoing projects and details on how there are countywide projects and jurisdiction specific projects, highlighting how the OP matrix is a great tool for tracking that kind of info. New messages were created in response to Hurricane Eta. They also discussed Blue-sky messaging, the flood map service, collaboration with Sarasota County on Floody the Frog, engagement stats on social media messaging, and hurricane awareness week. They reviewed FRMPIWG tasks accomplished by municipalities like the real estate disclosure program, the SharePoint toolkit training, Emergency Management Annual Summits, and Elevation Certificate upload applications. Ideas for new projects were also discussed.
October 22, 2021	The committee was informed that Pinellas County had recently received a Class 3 CRS rating and discussed how the new flood insurance discount would impact all of the involved communities. They reviewed the Annual Report for the PPI and discussed Public Information Needs, Potential Target Audiences, Messages and Outcomes, and Outreach Projects. There was then open discussion on the LMS for the annual reports and that all municipalities need to update related to their respective communities. They also formed a messaging task force.
January 28, 2022	The committee reviewed Real Estate Disclosure Program Training, FRP Messages, Flood Guide Updates, Blue-Sky Social Media messages, Elevation Certificate Digitization and EC Entry Application, FloodApplication, Flood Map Service Review and Survey, and new outreach projects, including the audiences, and possible outcomes.
May 6, 2022	The committee discussed the status of the Real Estate Disclosure Program Training, FRP Messages, Flood Guide Updates, Blue-Sky Social Media messages, Elevation Certificate Digitization and EC Entry Application, FloodApplication, Flood Map Service Review and Survey, and new outreach projects, including the audiences, and possible outcomes.
October 28, 2022	The committee evaluated the public information needs. The messages, target audiences and outcomes were re-evaluated, along with the status of existing and future projects. The annual report was also reviewed.
February 17, 2023	The committee reviewed the LMS annual report, which serves as the County's floodplain management program report, and provided feedback. The accomplishments of the PPI were also reviewed to determine effectiveness and next steps. The committee and stakeholders updated the status of each project.
May 19, 2023	The PPI committee reviewed the status of projects undertaken by the County as well as participating municipalities.
October 20, 2023	The committee evaluated the public information needs. The messages, target audiences and outcomes were re-evaluated, along with the status of existing and future projects. The LMS annual report was also reviewed.
January 26, 2024	The PPI group reviewed the LMS annual report and the PPI annual report. In anticipation of the 5-year update for the PPI, the committee reflected back on the accomplishments of the program and what will be needed for the 5-year update. This included an assessment of projects developed by the County and the municipalities, with input from stakeholders. New projects discussed include storm surge signage, an update on the vulnerability assessment being conducted county-wide and the needs of municipalities for outreach.

May 10, 2024	The PPI reviewed the status of current projects and potential new projects. In addition, the committee re-evaluated the flood outreach topics and outcomes. Stakeholder projects were also reviewed to determine the status and future needs.
February 2025	The September meeting was postponed due to the impact of back-to-back hurricanes, Helene and Milton, which nearly made direct landfall in Pinellas County and its surrounding areas. In the aftermath, County and local government staff prioritized community recovery and rebuilding efforts, making it impossible to meet as originally scheduled. The working group now plans to reconvene in February.

Meeting notes and sign-in sheets for the above meetings and subsequent meetings to update the plan are provided in the attachments that accompany this PPI (Appendix A). FRMPIWG meetings are advertised on the County's website and are open to the public.

3 ASSESSMENT OF PUBLIC INFORMATION NEEDS

With almost one million residents, Pinellas County is the most densely populated County in Florida with over 3,400 people per square mile. Much of the development in the County occurred prior to implementation of floodplain management and flood damage prevention requirements in the 1970s. Additionally, much of that development occurred in areas that are now classified as Special Flood Hazard Areas (SFHA) on the FEMA Flood Insurance Rate Maps (FIRM), County identified flood hazard areas, and storm surge areas.

The County and its municipalities are exposed to flooding from hurricanes, tropical storms, storm surges, as well as stormwater runoff resulting from heavy rainfall. The latest FIRMs show approximately 105,000 acres of SFHA in the County, of which over 25,200 acres are in the unincorporated areas. There are almost 354,000 structures within Pinellas County and its municipalities. Approximately 86,000 structures in Pinellas County and its municipalities are within the SFHA. Over 55,000 of these structures in the SFHA were built before 1975, when federal floodplain regulations had not yet been adopted in most jurisdictions.

In addition to the SFHA flood risk identified in the FIRMs, there is a risk of flooding from storm surge in Pinellas County. Although many of the properties in the storm surge area are included in the SFHA, there are some that are not. There are also historically flood prone areas throughout the County, some of which are located outside of the SFHA and storm surge areas, such as low-lying areas where conveyance is susceptible to back up from tidal tailwater. In total, there are over 225,000 structures within Pinellas County and its municipalities that can potentially be affected by flooding due to heavy rain or storm surge. This represents approximately 64% of the structures in Pinellas County. Additionally, there are repetitive loss areas, which include properties for which two or more claims of more than $1,000 have been paid by the National Flood Insurance Program (NFIP) within any 10-year period since 1978 and all nearby properties with the same or similar flooding conditions.

PRIORITY AREAS

Pinellas County is mostly flat, and due to its geographic location in the subtropics, the entire county is vulnerable to damage caused by flooding from tropical storms, hurricanes and heavy rainfall. To identify priority areas of concern, the County and many of its municipalities have been tracking historical flooding issues using Geographic Information Systems (GIS) and have delineated Repetitive Loss Areas (RLA). In addition, Pinellas County and its municipalities have developed and maintained comprehensive watershed management plans for the region. These plans include stormwater models developed to describe the flooding potential for areas within the county. The results of these plans help to identify those areas that are vulnerable to flooding from small storms or less frequent, larger storms.

Areas susceptible to flood hazards include the SFHA and the other flood hazard areas identified through the watershed management plans (Figure 3-1). Based on the communities' assessment of flood hazards, priority areas include the following:

- Coastal Lands – These areas have experienced flooding and erosion resulting from severe weather systems such as hurricanes, tropical storms, intense rainfall and surge.

During several hurricanes, high tides and surge have caused damage to many homes, seawalls, and roads along the Pinellas coastline.

- Structures, such as homes and businesses, that were built prior to the adoption of the first FIRM are considered pre-FIRM and may not have been built above the base flood elevation (BFE). Figure 3-2 shows the pre-FIRM and Post-FIRM development across the County.
- Storm Surge Affected Areas – Certain areas can also be significantly impacted by storm surge as depicted by the County's Storm Surge map (Figure 3-3), with Zone A being the most vulnerable.
- Localized flooding areas of concern throughout the county were also identified through the County's watershed management plans. These areas have been delineated in GIS.
- Repetitive Loss Areas – A repetitive loss area is an area within a community that includes buildings on FEMA's list of repetitive losses and nearby properties that may be subject to the same or similar flooding conditions. Pinellas County and participating municipalities identified and delineated these areas using the most recent repetitive loss properties data from FEMA. In addition, Pinellas County performed a repetitive loss area analysis (RLAA) in which detailed building information is collected through field visits to develop an understanding of the exact causes of repetitive flood damage at those sites. The Repetitive Loss Areas Summary and Pinellas County RLAA can be found in the LMS.

Figure 3-1 Flood Prone and Repetitive Loss Areas

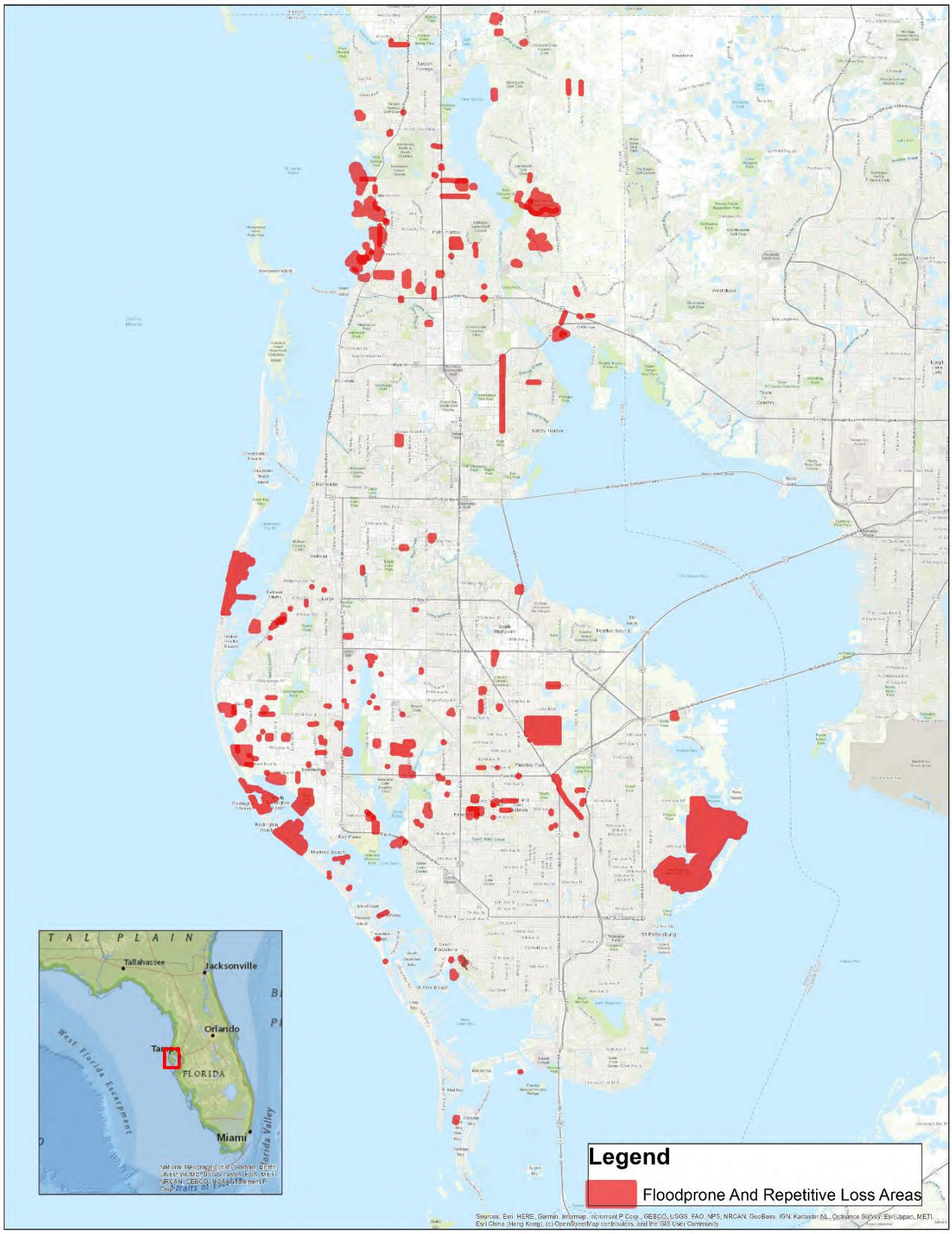


Figure 3-2 Pinellas County Age of Development

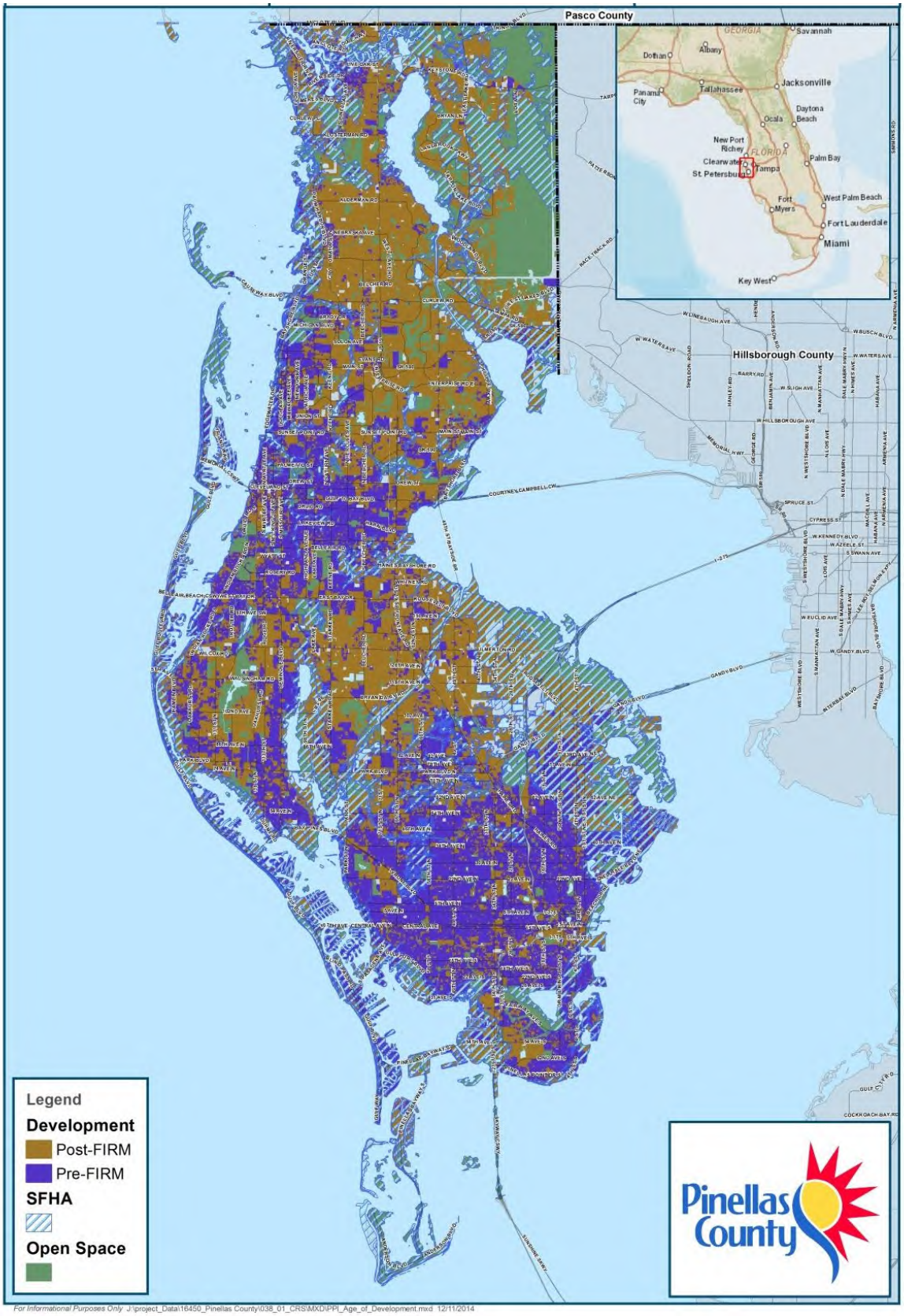
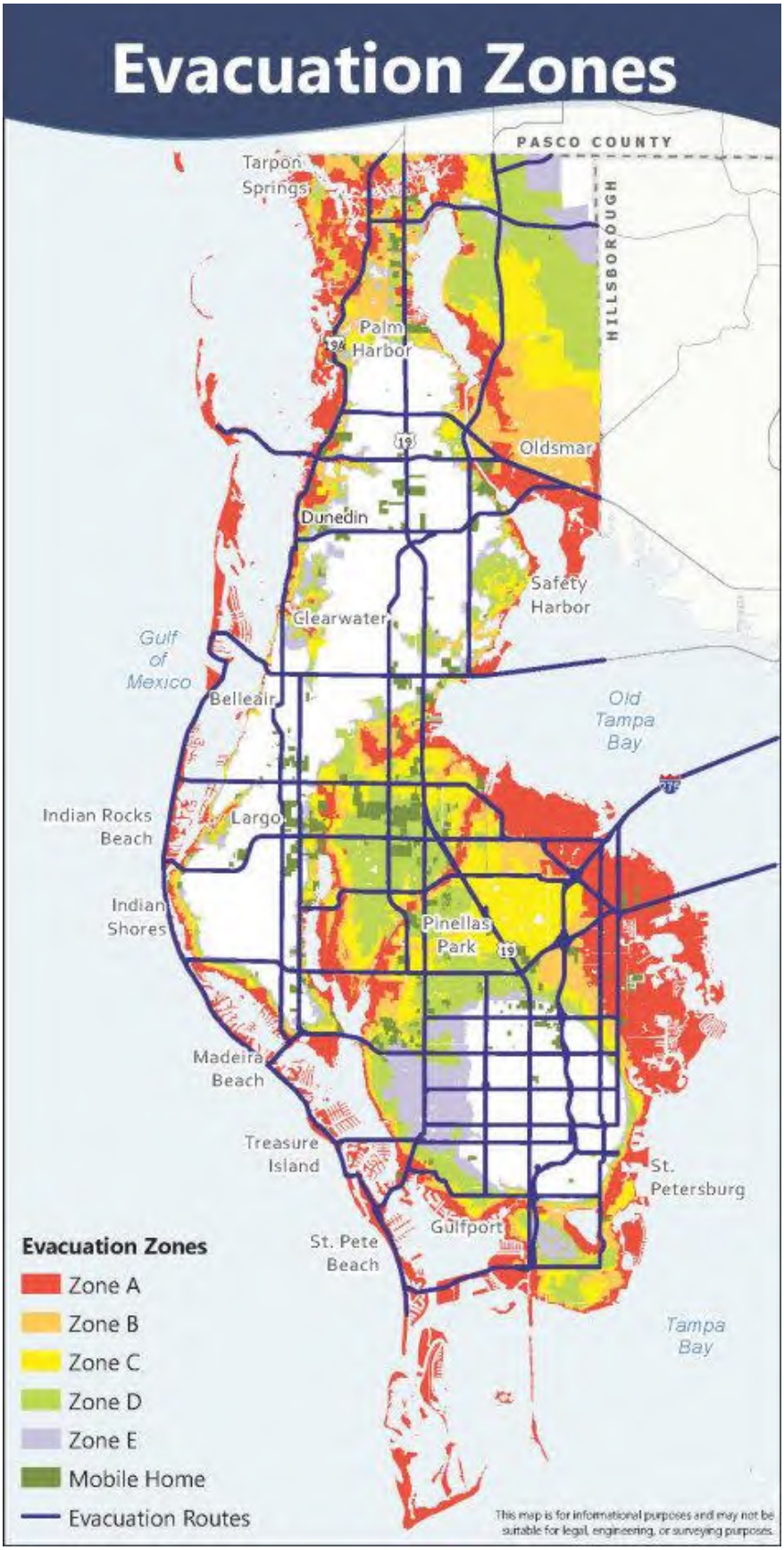


Figure 3-3 Storm Surge



FLOOD INSURANCE COVERAGE ASSESSMENT

There are approximately 130,000 policies with $33 billion of flood insurance in force within Pinellas County and its municipalities.

Pinellas County and its municipalities evaluated the number of structures in each FIRM flood zone compared to the policy summary by zone. From this information the FRMPIWG was able to identify several target audiences and areas, such as the VE zone, to include in the Flood Insurance Improvement Plan (Appendix B). Based on the flooding and development information described above, the Committee identified the residents and businesses within certain areas as target audiences to whom projects should be directed. In addition to identifying these audiences based on their location and flood insurance coverage information the Committee identified additional groups of stakeholders from across the County that would also benefit from information on flood related topics. For example, people looking to purchase properties in the County, should be apprised of their flood risk and flood insurance requirements.

Flood insurance policy data was provided by FEMA to the County in October 2023. The provided data included the community's name, address, and policy effective date for active contracts. The 2023 data lacked additional information that was provided in past years, such as premium amounts. Additionally, there were 19,008 Policies in Force (PIF) with the community's name listed as 'UNKNOWN'. As such, these addresses were geocoded and spatially joined to parcel data to estimate the community. There were 1,721 provided addresses that were not located.

Of the approximately 72,824 policies currently in-force within Pinellas County and its municipalities, about 53,860 of those policies are for properties within the SFHA, indicating that there is a significant number of homeowners that opted to carry flood insurance even though they may not be required to. It should be noted that policies from private flood insurance companies are not reported to the County or municipalities. Additionally, condos and other multi-family structures may have many policies associated with each building. Overall, most of the policies in force are for single-family homes – about 64,010 properties with policies. The County maintains insurance for facilities that it owns, including flood insurance for facilities that are shown to be at risk for flooding.

Since Risk Rating 2.0 began in 2021, there has been a decrease in NFIP policy counts year to year for most of the Pinellas County communities. It is unclear how many people dropped NFIP policies to purchase flood insurance through a private insurer or how many people chose to not renew their NFIP policies because of increased rates. The consistent decreasing number of NFIP policies is concerning and the working group will continue to identify, improve, and implement outreach to educate the public about the benefits of insurance coverage following a flood.

Table 3-1 summarizes the NFIP policies for Pinellas County and its municipalities. As indicated by the data, although the number of policies and total number of losses are greatest in the largest municipalities, significant losses are also found in the communities along the gulf coast as well as many inland areas adjacent to major tributaries. Outreach projects need to target these audiences to educate them on the flood risks, ways to mitigate, and flood insurance.

Table 3-1 Summary of Insurance for Municipalities (September 2023)

Community Name (Number)	PIF FEMA Dec 2021	Premiums FEMA Dec 2021	PIF FDEM July 2022	Premiums FDEM July 2022	PIF FEMA Sept 2023	Total Number of Losses	Premiums FEMA Sept 2023
Belleair Beach, City Of (125089)	893	$1,560,881	841	$1,345,584	621	12,846	No Data Provided By FEMA
Belleair Bluffs, City Of (120239)	158	$56,996	126	$39,031	40	272	No Data Provided By FEMA
Belleair Shore, Town Of (125090)	32	$109,047	29	$80,676	30	118	No Data Provided By FEMA
Belleair, Town Of (125088)	726	$432,809	710	$387,549	242	2	No Data Provided By FEMA
Clearwater, City Of (125096)	11,267	$8,426,272	10,680	$7,252,485	4,305	484	No Data Provided By FEMA
Dunedin, City Of (125103)	3,973	$3,683,880	3,635	$3,083,703	2,262	6,962	No Data Provided By FEMA
Gulfport, City Of (125108)	2,693	$1,847,712	2,471	$1,564,287	1,311	1,711	No Data Provided By FEMA
Indian Rocks Beach, City Of (125117)	2,599	$2,472,764	2,475	$2,216,738	1,554	1,382	No Data Provided By FEMA
Indian Shores, Town Of (125118)	2,742	$1,610,169	2,687	$1,374,573	538	1,045	No Data Provided By FEMA
Kenneth City, Town Of (120245)	225	$147,271	206	$130,062	162	2,204	No Data Provided By FEMA
Largo, City Of (125122)	1,939	$1,362,598	1,896	$1,338,335	2,234	63	No Data Provided By FEMA
Madeira Beach, City Of (125127)	3,049	$3,483,043	2,937	$3,142,950	1,268	-295	No Data Provided By FEMA
N. Redington Beach, Town Of (125133)	942	$884,361	1,144	$889,380	379	1,781	No Data Provided By FEMA
Oldsmar, City Of (120250)	2,192	$1,977,153	2,116	$1,924,680	2,793	563	No Data Provided By FEMA
Pinellas County * (125139)	30,187	$20,997,595	27,917	$17,524,450	17,341	-601	No Data Provided By FEMA
Pinellas Park, City Of (120251)	2,771	$1,999,020	2,582	$1,749,831	2,586	185	No Data Provided By FEMA
Redington Beach, Town Of (125140)	677	$1,371,739	583	$1,223,179	585	92	No Data Provided By FEMA
Redington Shores, Town Of (125141)	1,622	$1,196,693	1,611	$1,126,617	679	943	No Data Provided By FEMA
Safety Harbor, City Of (125143)	1,132	$630,994	1,057	$585,077	917	215	No Data Provided By FEMA
Seminole, City Of (120257)	918	$452,696	1,111	$591,036	1,161	-243	No Data Provided By FEMA
South Pasadena, City Of (125151)	2,777	$2,123,167	2,665	$1,839,217	438	2,339	No Data Provided By FEMA
St. Pete Beach, City Of (125149)	6,493	$8,326,899	6,286	$7,487,171	2,774	3,719	No Data Provided By FEMA
St. Petersburg, City Of (125148)	34,754	$35,746,131	32,564	$31,572,823	22,674	12,080	No Data Provided By FEMA
Tarpon Springs, City Of (120259)	3,291	$2,978,912	2,928	$2,583,057	2,322	969	No Data Provided By FEMA
Treasure Island, City Of (125153)	4,898	$5,165,872	4,683	$4,748,136	1,887	3,011	No Data Provided By FEMA
Countywide Total	**122,950**	**$109,044,674**	**115,940**	**$95,800,627**	**71,103**	**122,950**	**No Data Provided By FEMA**

CURRENT PUBLIC INFORMATION EFFORTS

The FRMPIWG discussed ongoing efforts to prepare, implement and monitor a range of flood related public information activities. The committee reviewed these projects to assess potential revisions to improve the messaging and its reach to the intended audiences. These activities included efforts initiated by the County as well as other agencies. These projects are described below.

Property Appraiser Records

The Property Appraiser website is highly utilized by home buyers, realtors and many others. The committee is working with the Property Appraiser to provide flood risk information in conjunction with the parcel data.

Flood Information workshops

Several communities conduct regular workshops throughout Pinellas County. These are general presentations with Q&A sessions for the public. Subjects covered in the workshops include flood risk information and flood insurance. There is an opportunity for the committee to develop and incorporate more CRS messages.

Flood Information Branding

One of the County's objectives is to provide recognizable flood information and messages to residents and businesses across the County, including its municipalities. As such the County developed the "It's Not All Sunshine" logo. The County is incorporating the logo and the PPI messages into many of the PPI projects. The County is also developing their projects such that municipalities may implement them in their own communities. For example, the County will provide a digital copy of the Flood Guide for any Pinellas County municipality that is interested in implementing a brochure project in their community to add their logo, website, and contact information. The guide, however, was developed as a County-wide project and includes information applicable to all jurisdictions. The same logo and messages were also incorporated into the Real Estate Flood Information and Brochure. The Real Estate Disclosure Program was also developed as a County-wide effort, therefore municipal communities will also benefit from the project. This combination of projects with like messages and branding will promote message recognition throughout the County.

Flood Information Website

Each participating municipality has developed their own website for delivering flood information to the public. In addition, in order to promote consistency and provide a coordinated and unified approach to the messages for flood risk information, the websites provide links to flood information resources available at Pinellas County. The Pinellas County Flood Information website (//pinellas.gov/flooding) was identified as a project in the 2014 PPI. The content was revised to elaborate on all the CRS priority topics and the additional messages developed by the FRMPIWG (Section 0). The content also includes publicity for flood-related County services and regulations. The County also included interactive flood maps on the "Flood Map Service"

section of the site. Real-time gage information is included as well for users to see current water levels for both riverine and tidal systems.

The structure and hierarchy of the site and of each page were revised to ensure the pathways to specific information are concise and easily navigable. Additionally, the flood information site is linked directly from the Pinellas County homepage (pinellas.gov) and can be found using the search feature. The flood information home page has a directory of the flood protection information provided, along with links to the appropriate pages and all links are checked monthly and updates as needed.

The website also includes specific information on warning, safety, and evacuation when there is an impending flood, during a flood, and immediately after a flood, such as:

- Where flooding will likely occur
- Evacuation routes
- Shelter locations
- Flood Safety precautions

The website is continually edited and updated and each month hyperlinks are checked and fixed if needed. Each year the FRMPIWG reviews the site in detail and content is updated if needed.

Flood Map Service

The FRMPIWG developed an online Flood Map Service to provide residents and businesses with FEMA Flood Insurance Rate Map (FIRM) and other sources of information about the local flood hazard and natural floodplain functions 24 hours a day, 7 days a week. This service is searchable by address or map location. The Flood Map Service webpage also includes additional maps to find out potential storm surge depth, evacuation zones, shelter locations, and current water levels. Additionally, the County has a flood information phone line with a designated option to get flood map information from County, City, or Town staff during regular business hours. The online Flood Map Service is publicized in the widely distributed Hurricane Guide and in the flood information guide. **The FRMPIWG recognizes that awareness of the flood risk and insurance requirements for potential investments is of the utmost importance for buyers of real estate and identified real estate agents as the target audience to receive information about the Flood Map Service.** The County sends information about the Pinellas County Flood Map Service to the Pinellas/Pasco REALTOR® Organization (PRO) to distribute in their newsletter annually. Additionally, the County provides at least two Real Estate Disclosure and Online Map Service training in coordination with PRO each year.

Flood Information Phone Line

Pinellas County designated a phone number for all flood information phone calls, 727-464-7700, which is displayed on the flood information website. The line contains a directory to ensure callers are connected with the proper department to address inquiries. Callers inquiring about properties in one of the participating municipalities will be provided the contact information for

the appropriate city or town. The recorded menu message includes the Flood Information Services hours and directs callers to www.pinellas.gov/flooding for additional information. The directory options include:

1. Report ditch obstruction or flooding issue
2. Flood Zone Information or Elevation Certification
3. Hurricane and flood preparedness and evacuation
4. Other Flood Related Requests

Real Estate Disclosure Program

The Pinellas County Real Estate Agents Disclosure Program is a joint effort between the County, municipalities and its real estate agents, through the Pinellas/Pasco REALTOR® Organization (PRO), which covers the entire County, including its municipalities. Real estate agents are in an ideal position to inform buyers whether a property is in a flood zone and if flood insurance is required. As such, the FRMPIWG identified two projects:

- Real Estate Flood Information and Disclosure Brochure
- Real Estate Disclosure and Flood Map Service Training

With input from representatives of PRO, the County developed a real estate centered flood disclosure and information brochure with a fillable section for agents to enter the property's flood hazard and insurance requirement information. The County provides training to agents on using the online Flood Map Service to obtain flood information and how to complete the brochure. The training sessions are taught by County staff in coordination with PRO at least once per year. The County also developed a flyer, which is distributed by PRO to publicize the training and brochure.

Real estate agents will advise potential buyers about the flood hazard and provide the brochure to clients interested in purchasing properties located in the SFHA, countywide, so that they are made aware of the flood hazard and the flood insurance purchase requirement.

Flood Protection Assistance and Advisory Service

Pinellas County Building Department Staff provide one-on-one consultations, and site visits as appropriate, to advise inquirers about property protection measures, such as retrofitting techniques and drainage improvements. The objectives of including the Pinellas County Flood Protection Assistance Advisory Program in this PPI are to

- Increase awareness and use of the service,
- Enhance mitigation information provided

This will increase the likelihood that residents will undertake activities to reduce the flood hazard to their property and in turn could decrease property loss due to flooding.

This service is available to all residents, and the service is publicized on the County's Flood Information website and in the Flood Guide. **Those most likely to experience flooding and benefit from this assistance include residents and businesses in repetitive loss areas. Therefore, a letter and the Flood Guide, containing information about the service is**

mailed directly to residents and businesses in Repetitive Loss Areas annually. Additionally, the Real Estate Flood Information and Disclosure Brochure which also includes information about this service, will be provided by real estate agents to home buyers.

Staff providing this service should discuss flood mitigation options and recommend discussing retrofit options further with their insurance agent. Staff should also urge inquirers to work closely with design professionals. Staff should also offer supplemental materials to inquirers, such as:

- FEMA - Repairs, Remodeling, Additions, and Retrofitting – Flood (Section 9.1)
- FEMA - Reducing Flood Risk to Residential Buildings That Cannot Be Elevated
- FEMA - Homeowner's Guide to Retrofitting - Six Ways to Protect Your Home from Flooding

Floodplain Management Planning

Pinellas County, its municipalities, and other stakeholders have developed a Multi-jurisdictional Local Mitigation Strategy (LMS) through a systematic process of identifying hazards, including flooding, their causes, and planning preventive and corrective measures to reduce the risk of current and future hazards. This strategy also serves as the County's and many municipality's floodplain management plans. The Pinellas County LMS has been in effect since 1998 and is reviewed and updated annually. Public and stakeholder input is an important part of the planning and update process. The Pinellas County FRMPIWG also serves on the LMS Stakeholder Working Group and offers support to the LMS Working Group by providing input on the LMS during the planning and update process, and assisting with outreach efforts to inform the public, stakeholders, and other organizations about the LMS.

Natural Functions Open Space Educational Materials

The County and its municipalities have a great number of parks and preserves that provide natural floodplain functions, recreation, and educational opportunities for many. For example, the parks may provide venues to educate visitors about the importance of floodplains and emphasize the County's "Only Rain Down the Drain" campaign.

Pinellas County and its municipalities implement numerous outreach projects at parks and preserves throughout the County, such as bulletin board information, brochures and educational materials, educational tours, and highlight pollution control measures, such as water goats.

Stream Dumping Regulation

The County enforces a regulation that prohibits dumping or disposal of debris in the drainage system. **Landscapers and stormwater managers were identified as the target audiences to be notified about the regulation.** Landscapers are in a position to prevent materials from getting into the County's natural floodplains, drainage, and conveyance systems. They are not

required, but it is highly recommended for them to attend the training to attend the Pinellas County Landscape BMP Certification classes, which include information about the regulation and about protecting natural floodplain functions. Stormwater managers facilitate distribution of the County-wide "Only Rain Down the Drain" campaign materials and information within their jurisdictions. The campaign includes outreach to publicize this regulation and educate businesses, residents, and visitors about natural floodplains such as how to protect watersheds and prevent flooding caused by drainage system blockages.

This outreach includes storm drain markers, door hangers, vehicle and bus wraps, movie theater PSAs (including the new "Don't Feed the Beast" campaign), videos, informational website, brochures, and neighborhood presentations.

Emergency Warnings and Notifications

The extent of the damage caused by a flood is related not only to its severity, but also the level of public awareness and preparedness including early warning systems, and dissemination of timely and effective information to the public. As such, the efforts by the County and its municipalities to reduce flood loss are focused on education and outreach, early warning systems, and distributing information that enables people and communities to respond when severe weather hits.

The annual flood and hurricane information outreach informs the public about flood zones, storm surge, evacuation zones, how they will be warned, and the safety measures they should take, should a hurricane and/or flood event occur. The most effective way to reach the community, at large, is through a combination of communication tools; therefore, this information is provided to the public throughout the year via:

- Hurricane Guide
- Flood Guide
- Utility Bill Insert(s)
- E-News and E-Lert
- Social Media
- County Website
- Presentations/Events
- Videos
- Ready Pinellas App

Pinellas County Emergency Management (EM) participates with the National Weather Service (NWS) alert system, which is an automated flood warning system; the County uses this as its primary means of notification of impending flood. County EM staff evaluate each NWS notification and responds as appropriate, which may include notifying emergency management

partners, the media, and/or residents via one or more of the County's several notification avenues.

The Pinellas County Flood Warning and Response Preparations Package (Appendix C) includes numerous messages and outreach projects that are prepared in advance, but not implemented until a flood is impending or occurs. The public will be warned via numerous Flood Warning and Response Preparation outreach projects, such as press releases, Alert Pinellas, and social media.

CRS Communities Coordination

Although the CRS Community of Pinellas County only encompasses the unincorporated area, many of the County's floodplain management efforts extend county-wide, which benefits its municipalities. One of the goals of this multi-jurisdictional Pinellas County PPI is to develop outreach projects with consistent messages and services that may serve all of Pinellas County, including its municipalities. This will save municipal resources and support consistent flood information across the County. Pinellas County, for example, included flood map data for the entire county, including its municipalities, when they developed their online flood map service. Pinellas County also provides flood warning and response services county-wide. The County developed a PPI toolbox to provide resources to municipalities and organize the outreach activities and messaging countywide. Additionally, the Tampa Bay Regional CRS Users group meetings provide a platform for coordination of floodplain management activities, not only among Pinellas County jurisdictions, but also neighboring communities.

Flood Guide

The Pinellas County Marketing and Communications Department developed a Flood Guide to highlight the CRS topics. The 8-panel guide was developed with the objective of remaining simple by providing concise messaging, showing available resources, and providing contact information. Subjects covered in the flyer include flood risk information, building responsibly, flood insurance, flood safety, flood protection, natural floodplain functions, and more. The guide contains messaging developed by the FRMPIWG and is has been translated into Spanish and will be translated into Vietnamese.

In addition to the initiatives described in this section, the FRMPIWG has reviewed many other programs by the County, stakeholders and others documented in Appendix D. Table 3-2 highlights some of these projects and initiatives from Non-County Sources.

Table 3-2 Non-County Flood Information Outreach

Organization	Outreach	Type	URL
FEMA	Multiple	Publications, Website, Tools	https://www.fema.gov/national-flood-insurance-program
FDEM	Multiple	Publications and Website	https://www.floridadisaster.org/hazards/floods/
FDEM	Flood Info Rack Cards	Publication	https://www.floridadisaster.org/dem/mitigation/floodplain/crs/

Organization	Outreach	Type	URL
FDEP	Multiple	Publications and Website	https://floridadep.gov/rcp/beaches
FDEP	*Building Near the Beach?*	Interactive Map	https://ca.dep.state.fl.us/mapdirect/?focus=beaches
Municipalities	Flood Information Websites and Brochures	Publications and Website	multiple
UF IFIS Extension	Multiple	Publications and Website	https://sfyl.ifas.ufl.edu/
UF IFIS Extension	Disasters: Preparation and Recovery	Publications and Website	https://sfyl.ifas.ufl.edu/disaster-prep-and-recovery/
UF IFIS Extension	Homeowner's Handbook to Prepare for Natural Hazards	Publications and Website	https://sfyl.ifas.ufl.edu/archive/pdf/FL_homeowners_handbook.pdf
SWFWMD	Watershed Management Program Floodplain Map Viewer	Interactive Map	https://www.swfwmd.state.fl.us/projects/floodplain_viewer
SWFWMD	Federal Flood Map Updates General Information	Publications and Website	https://www.swfwmd.state.fl.us/sites/default/files/medias/documents/fema-generalinfo.pdf
Sea Grant	Multiple	Publications and Website	https://www.flseagrant.org/climate-change/
Sea Grant	Volunteer Recruitment	Events and Research	https://www.flseagrant.org/climate-change/coastalplanning/
Sea Grant	Social media	Web	https://twitter.com/pinellaseagrant
Storm Team 8 WFLA-TV	Hurricane-Ready	Website	https://www.wfla.com/tracking-the-tropics/
Storm Team 8 WFLA-TV	Hurricane-Ready Guide 2020	Publication	https://www.wfla.com/weather/hurricane-ready/2020-hurricane-guide/
Storm Team 8 WFLA-TV	Surviving the Storm	Website	https://www.wfla.com/weather/tracking-the-tropics/watch-storm-team-8-special-surviving-the-storm-2/
Storm Team 8 WFLA-TV	News and weather	TV, social media, Website	https://www.facebook.com/WFLANewsChannel8/
Bay News 9	News and weather	TV, social media, Website, App	https://www.facebook.com/likebn9
Bay News 9	Hurricane Season 101: FAQs	Publications and Website	https://www.baynews9.com/fl/tampa/weather/2017/10/20/hurricane-season-101--frequently-asked-questions
Bay News 9	Hurricane Center	Publication	https://www.baynews9.com/fl/tampa/weather/hurricane-center
Tampa Bay Times	Hurricane Page	Website	https://www.tampabay.com/hurricane/

Organization	Outreach	Type	URL
Tampa Bay Times	2020 Hurricane Preparation Guide Series	Newspaper	https://www.tampabay.com/hurricane/2020/06/01/hurricane-2020-the-cdcs-tips-for-this-pandemic-hurricane-season/
ABC Action News	Personalized Hurricane Survival Information	Interactive Map	https://www.abcactionnews.com/hurricane
ABC Action News	Storm Shield: Get severe weather alerts for ANY type of phone	App	https://www.abcactionnews.com/storm-shield-get-severe-weather-alerts-for-your-ios-and-android-device
ABC Action News	News and weather	TV, social media, Website, App	https://www.abcactionnews.com/
CBS Tampa Bay, CW44	Hurricane Guide	Website	https://tampa.cbslocal.com/hurricane-guide/
CBS Tampa Bay, CW45	News and weather	TV, social media, Website, App	https://tampa.cbslocal.com/
Duke Energy	Hurricane Recovery Assistance	Social media, Website, Emails	https://news.duke-energy.com/releases/duke-energy-florida-is-here-to-help-customers-impacted-by-hurricane-helene
Duke Duke Energy	Protecting Environment & Wildlife	Duke Energy Foundation Grants	https://foundation.duke-energy.com/grants/florida
Duke Energy	Hurricane Preparation	Social media, Website, Emails	https://www.facebook.com/duke.energy/
Duke Energy	Storm Center	Website, App, Emails	https://www.duke-energy.com/Safety-and-Preparedness/Storm-Safety
Duke Energy	Flooding and Electrical Safety	Website, App, Emails	https://www.duke-energy.com/safety-and-preparedness/storm-safety/flooding-electrical-safety
Publix	Hurricane Preparation Checklists	Emails, Website, social media, Store Fronts	https://ww4.publix.com/pages/publix-storm-basics
BayCare	Medical Safety and Preparedness During Hurricane Season	Emails, Website	https://baycare.org/about-us/medical-safety-and-preparedness-during-hurricane-season

4 TARGET AUDIENCES

The FRMPIWG identified target audiences, including residents and businesses for which outreach projects can be developed. Over 91,150 buildings are currently in the SFHA and more if we account for the flood risks identified through the County's watershed management plans and Repetitive Loss Areas Analysis (RLAA). Residents and businesses in these areas should be aware of the flood risks and insurance options. **In addition to the target audiences identified for at-risk areas, the FRMPIWG also reviewed the insurance data and determined that certain specific audiences can benefit from a flood insurance outreach initiative.** Each of the stakeholders also identified specific audiences they had direct contact with and can provide valuable assistance for reaching those audiences. Table 4-1 describes the target audiences.

Table 4-1 Target Audiences

Audience(s)		Flood Insurance Plan Audience
1	Residents and businesses in Repetitive Loss Areas (RLAs)	Yes
2	Real Estate Professionals	Yes
3	Buyers of Real Estate	Yes
4	Residents and businesses in the Storm Surge (Cat 2), but outside of the FEMA SFHA (X & Surge)	Yes
5	Home Inspectors	Yes
6	County/City Building Inspectors	Yes
7	Architects/designers; contractors/builders	Yes
8	County/City Call Center staff	Yes
9	Landscapers	No
10	Surveyors	Yes
11	Customers of Pinellas County and City services	Yes
12	English Speakers of Other Languages (ESOL)	Yes
13	Doctors, dialysis staff, home healthcare providers	No
14	Residents and businesses in Flood Response Hazard Areas	No
15	Owners of substantially damaged buildings	Yes
16	Residents and businesses that will be affected by flood map changes	Yes
17	County/City staff	Yes
18	Sea Level Rise impacted areas	No
19	Boat owners/Marinas	No
20	Pet owners	No
21	Seasonal residents	Yes
22	Insurance providers	Yes
23	Condo Association Management Companies	Yes
24	Homeowners Association	Yes
25	Universities, Colleges, and Vocational Programs (trade schools)	Yes
26	FDIC insured banks / lenders / mortgage	Yes
27	Local Bar Association - Legal	No
28	Large companies (e.g. HSN, Valpak, Jabil, etc.)	No
29	Public school students, faculty, staff, parents	No
30	PSTA/Trolly	No

Audience(s)		Flood Insurance Plan Audience
31	St. Pete / Clearwater Airport	No
32	Veterinarians	No
33	Renters	Yes
34	Mobile Homes / Mobile Parks	Yes
35	Churches/Houses of Worship	No
36	Community-Based Groups (VFW, American, Elks, etc.)	No
37	Private Schools	No
38	Daycare Facilities	No
39	Aquarium	No
40	Girl Scouts/Boy Scouts	No
41	Property Appraisers	No

The list of audiences has grown since the previous PPI update, now including additional groups such as churches, private schools, and aquarium staff, among others. During the recent FRMPIWG meeting, members not only identified potential new audiences but also explored project ideas. They also emphasized the importance of engaging these groups as future stakeholders. Many of the identified audiences share similar interests, allowing for activities that can effectively address multiple groups. Key recommendations from the working group are outlined below:

Builders – The working group aims to prioritize identifying an outreach project tailored to this audience in the upcoming year.

Surveyors - **Project Idea #1:** Target specific locations post-storm for collecting flood information from willing residences and businesses. **Project Idea #2**: Develop a flyer for DIY high water marking.

Pinellas County Emergency Management – Project Idea #1: Review and update emergency plans for healthcare facilities. **Project Idea #2**: Conduct training sessions for healthcare facilities to enhance storm event preparedness.

Residents and Businesses Affected by Flood Map Changes - Project Idea #1: Implement an outreach program when new Watershed Management Plans (WMP) are completed and adopted.

Boat Owners/Marinas - Project Idea #1: Create an outreach brochure focusing on state-wide marine debris and emergency planning for mariners. **Project Idea #2**: Provide long-term information for boats and trailers registration. **Project Idea #3**: Emphasize the need for private mariners to have emergency plans and develop a handout for dock permits. **Project Idea #4/State Engagement**: Collaborate with the Clean & Resilient Marina program (Florida DEP).

Pet Owners - Project Idea #1: Develop targeted messaging in dog parks, local pet stores, and kennels/boarding facilities.

Homeowners Associations (HOAs) - Project Idea #1: Continue annual outreach projects and explore bi-monthly meetings to increase involvement. **Project Idea #2**: Identify and support current HOA projects and outreach initiatives.

FDIC Insured Banks/Lenders/Mortgage - Project Idea #1: Explore forbearance options for homeowners affected by storms (Committee Member to send examples).

Large Companies (e.g., HSN, Valpak, Jabil) - Project Idea #1: Partner with Valpak for in-kind inserts in envelopes. **Project #2/Chamber of Commerce Engagement**: Strengthen collaboration with the Chamber of Commerce and encourage participation in PPI meetings.

Key Contacts:

◦ Chris Steinhocker, President of St. Pete Chamber
◦ Michael Welch, communication liaison
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Public School Students, Faculty, Staff, Parents - Project Idea #1: Use PeachJar through the PC School Board to send flyers. **Project Idea #2**: Distribute hurricane guides to schools and charter schools annually.

PSTA/Trolley - Project Idea #1: Develop and implement messaging at bus and trolley stops.

Girl Scouts/Boy Scouts - Project Idea #1: Introduce a badge program focused on flood knowledge and preparedness.

Property Appraisers - **Project Idea #1/Training**: Conduct annual training sessions for private property appraisers with Continuing Education Credits (CEC).

5 MESSAGES AND OUTCOMES

Outreach campaign messages must be accurate and concise to result in action and positive outcomes. The FRMPIWG developed specific topics, messages, and expected outcomes based on the NFIP CRS floodplain management topics. Topics included the six themes that recur throughout the CRS manual: know your flood hazard; insure your property for your flood hazard; protect people from the hazard; protect your property from the hazard; build responsibly; and protect natural floodplain functions. The Committee also identified four additional topics with messages and outcomes for flood information projects that are implemented throughout the year. The County encourages all of its municipalities to incorporate all of these messages into their outreach efforts to promote message recognition throughout the County.

Specific objectives for certain audiences were also discussed. These objectives were identified as unmet needs by the stakeholders as they relate to their respective professions. The objectives address issues often encountered during their interactions with clients, organizations, consumers and others. Specific objectives included:

- County leaders and/or Commissioners; Elected Officials – Educate this audience about flood risks and encourage flood insurance; Encourage consistent and programmatic approach to educate residents about flood risks.
- Home builders/developers – Educate this audience about code requirements (including zoning) vs FEMA requirements vs risk.
- Mortgage brokers association – Provide information about flood risk topics and resources available at the county.
- Schools – Provide education materials about flood risk.

- Consumers – Educate consumers to ask the right questions of builders. Know that savings may offset extra construction costs; Do not let flood insurance policy lapse; Understand map changes before they happen and save; Risk is not identified on a map; Know the sources of information related to flood risk, including existing highwater marks.
- Real estate agents – Educate agents to ask or relay information about flood risk.
- Homebuyers – Educate buyers about flood risk.
- Utility customers – Provide information about flood risk topics and available resources in utility bill inserts. Information should be short and concise.

Guided by the topics and objectives above, the FRMPIWG developed key messages and outcomes. The Key Messages for each topic are outlined in **Appendix E**. Since the last update, messages have been added, removed and revised to best convey these objectives.

TOPIC 1: KNOW YOUR FLOOD HAZARD

In Pinellas County, flooding and other drainage problems can result after several inches of rain in a short period of time or after several days of continued rain. Certain areas within Pinellas County are classified as high flood risk areas. In addition to the flood risk areas identified on the FEMA maps, Pinellas County has also delineated other areas that are at risk for flooding that were identified through their watershed management plans. Residents and property owners need to be aware of the flood risks in their area.

Outcomes

- Better prepared and informed residents and businesses.
- Informed property owners and buyers.

TOPIC 2: INSURE YOUR PROPERTY FOR YOUR FLOOD HAZARD

Property owners in Pinellas County and its municipalities should take measures to protect their investment, including purchasing flood insurance. For some homeowners, flood insurance may be required if the property is located in a Special Flood Hazard Area (SFHA) and they have a government-backed loan. Property owners should also be aware that even though their property may not be in a SFHA, it may still be subject to flooding and that most homeowner's insurance do not cover flood. Homeowners who have flood insurance often recover quicker from a flooding event than those without flood insurance. Flood insurance is also available for renters. Flood insurance technical assistance
from flood insurance "advocates" is also available. These are professionals in the insurance field who can provide you with reliable information about your flood risk and flood insurance options.

Outcomes

- Increased number of flood insurance policies.

- Faster recovery from flooding event.

TOPIC 3: PROTECT PEOPLE FROM FLOOD HAZARD

Floods can occur quickly, and people should be prepared. There are certain steps that people can take before, during and after a storm that will help protect themselves and their family and minimize damage to their properties. Several resources can help them prepare, including preparation guides and automated alert systems.

Outcomes

- Save lives.

TOPIC 4: PROTECT YOUR PROPERTY FROM FLOOD HAZARD

Approximately 55,300 structures in Pinellas County were built before there were flood regulations or flood maps (prior to December 1971, these structures are called “Pre-FIRM”) that are in the Special Flood Hazard Areas. Because they are in a high-risk flood zone, these structures are the most vulnerable to flood risks. There are certain measures that can be taken when constructing or improving a home to reduce the risk of flood damage. They include modifications to the structures themselves as well as other types of activities that do not include the structure, such as keeping drainage ditches clean and inlets clear of debris.

Outcomes

- Reduced localized flooding.
- Reduced flood insurance claims.
- Reduced property loss from flooding.

TOPIC 5: BUILD RESPONSIBLY

Pinellas County enforces specific building regulations in the SFHA to protect people and buildings from flooding while maintaining natural floodplain functions. Builders should contact Pinellas County to find out what permits are required before starting the project.

Outcomes

- Increased compliance.
- Reduced flood losses.

TOPIC 6: PROTECT NATURAL FLOODPLAIN FUNCTIONS

Increased development has led to increased stormwater runoff and resulted in flooding in many areas. However, there are areas that naturally flood and benefit our community. Areas such as wetlands, preserves, and other types of floodplains perform many natural functions and provide recreational benefits in the community. Residents and developers should be aware of these benefits and are encouraged to protect these resources and incorporate natural designs.

Outcomes

- Improvement in water quality.
- Improvement in natural storage capacity.

TOPIC 7: HURRICANE PREPAREDNESS

Hurricane season starts in June and runs through November with the worst months being from late August until October. Residents need to be aware of the evacuation zones and heed evacuation orders. Residents also need to know the difference between flood zones and evacuation zones.

Outcomes

- Improved efficiency of hurricane evacuations.
- Minimized loss of life and injury.
- Minimized damage to property and belongings.

TOPIC 8: PET PREPAREDNESS

Residents should assess their risks and know their home's vulnerability to storm surge, flooding and wind and locate pet friendly shelters in advance. People should develop a plan for protecting themselves, their homes and pets

Outcomes

- Reduce loss life for both people and pets due to people not wanting to leave their pets behind.

TOPIC 9: FLOOD ECONOMICS

Making homes and infrastructure more flood-proof provides positive economic, environmental, and social benefits for communities. Residents should be aware of the potential costs related to damage from flood. Communities should build with the future in mind, providing benefits that include minimizing loss of property and infrastructure, enhancing the natural systems and improving public spaces to attract businesses and recreational enthusiasts.

Outcomes

- Increase in awareness of the expense of flooding.

TOPIC 10: RESILIENCY AND SUSTAINABILITY

In Pinellas County, communities must be able to anticipate, prepare for, respond to and recover from flood events by incorporating long term strategies that reduce flood risk while also concerning environmental, social, and economic factors. Residents should not only be aware of their current flood risk but should be aware that their risk can change or even be heightened in the future. The impacts of sea level rise, future climate and development conditions aren’t

included in FEMA maps, so communities should prioritize how to understand and then inform residents on future risk and activities to mitigate it.

Outcomes

- Increased understanding of future flood risk.
- Future reduced localized flooding.
- Future reduced flood insurance claims.
- Future reduced property loss from flooding.

6 PROGRAM FOR PUBLIC INFORMATION (PPI) PROJECTS

The FRMPIWG evaluated each jurisdiction's existing outreach projects to determine whether they could be improved as well as identified opportunities to consolidate similar individual projects into countywide projects and identified new projects to increase flood awareness and educate residents about the resources available throughout the County. Research has shown that the credibility and visibility of outreach messages are enhanced if they are sent by numerous sources. As such, several projects are delivered by stakeholders, which are organizations or agencies other than County and municipal staff, such as real estate agents. Additionally, several projects are directed to specific audiences such as, buyers of real estate.

The committee tracks specific information about current projects, including the audience, specific messages and outcomes, distribution methods, stakeholders, and assigned staff using a web application. The web application is accessible to members of this multi-jurisdictional committee and allows for better tracking and organizing of the outreach projects across the participating municipalities. It also serves as a calendar of reminders as to when a project is due. Figure 6-1 illustrates the project tracking portal and Figure 6-2 illustrates an example of uploading an outreach project to the system. Appendix D summarizes the status of the PPI projects.

Figure 6-1 PPI Project Tracking System

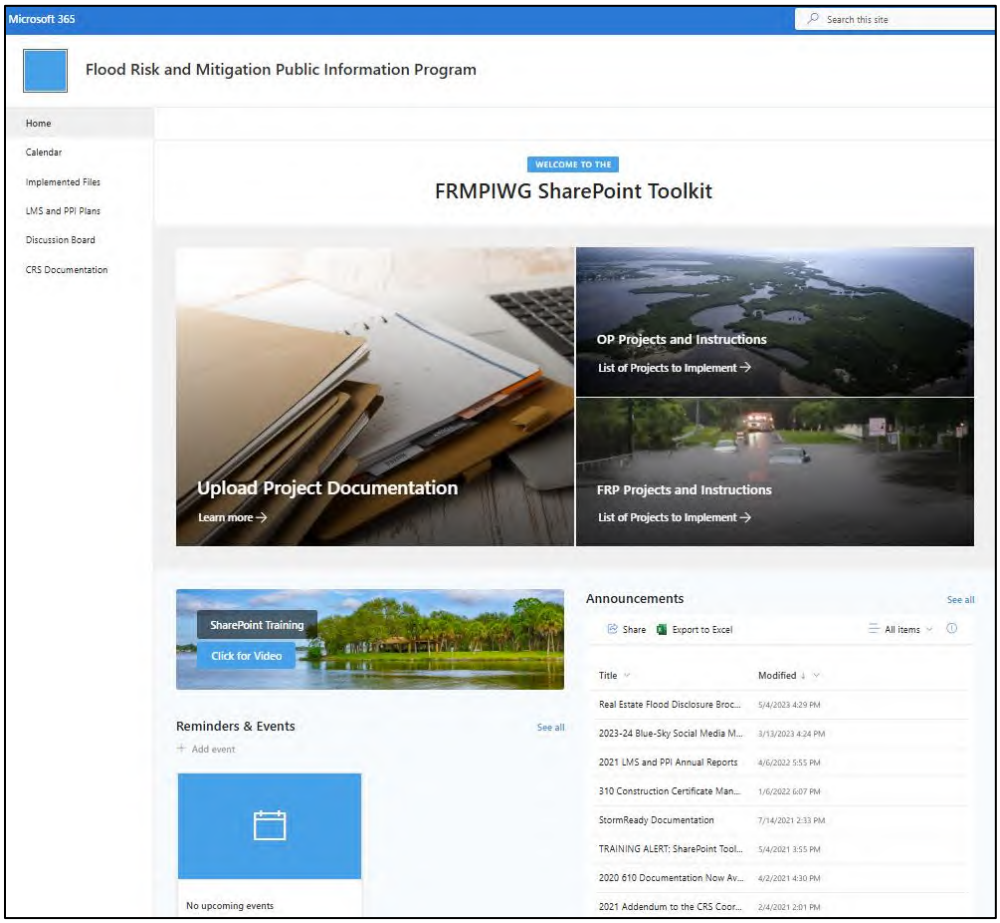
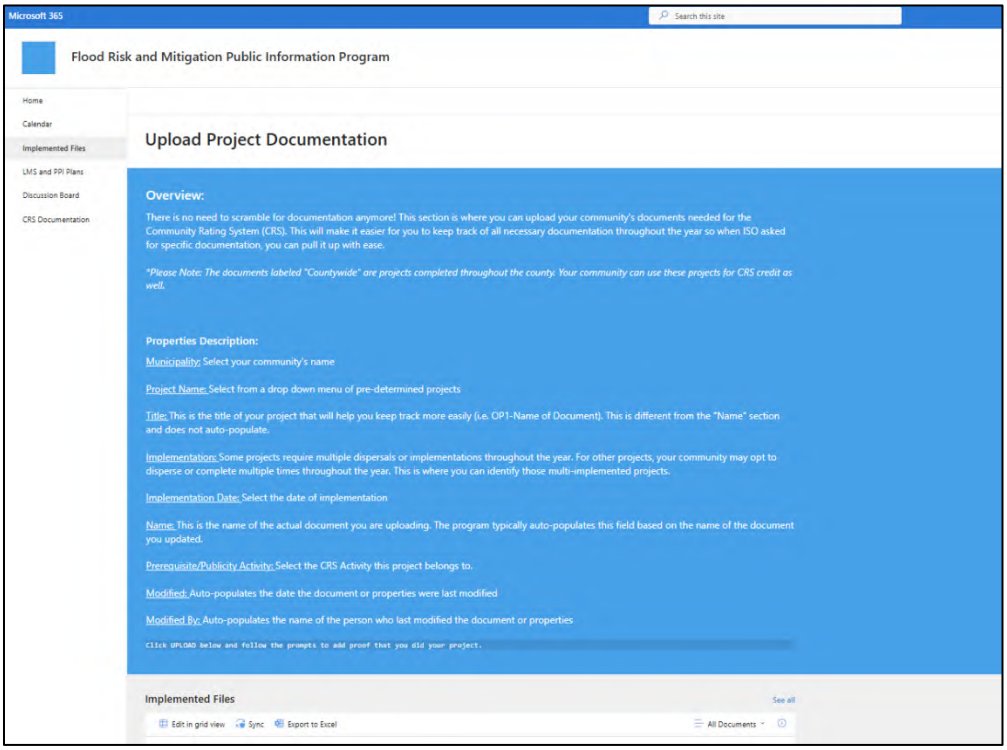


Figure 6-2 PPI Project Upload



OUTREACH PROJECTS

Every year, the FRMPIWG makes recommendations and updates to the following priority projects, which affect all members of this multi-jurisdictional PPI.

- Flood risk and information letter mailed to Repetitive Loss Areas (RLAs)
- Utility bill insert containing flood information and a message from a County commissioner about flood insurance
- Flood Guide made available online, at libraries and County and Municipal buildings, and at events
- Hurricane Guide made available online, at libraries and County and Municipal buildings, and at events and distributed to private organizations for distribution (E.G. Walgreens, churches, etc.)
- Social Media
    a. Facebook
    b. Instagram
    c. Twitter
    d. NextDoor
- Real Estate Agents Flood Information and Disclosure Brochure completed and distributed by real estate professionals to new home buyers and renters

- Pinellas/Pasco Realtor Organization Newsletter
- Flood Map Service Training
- Landscape BMP Certification classes (English & Spanish)
- Events and Meetings via Pinellas County's Speakers Bureau
- Bus Wraps
- LMS and PPI Annual Update Press Release
- Hurricane Season Press Release

Additional projects are also implemented as resources are available. Not all municipalities may implement these projects. The Project Tracking System provides a portal for municipalities to track and upload these projects as they are implemented.

- Commissioner Newsletter
- CRS Users Group Meetings
- Local Mitigation Strategy (LMS) Stakeholder Meetings
- Outreach Materials for Speakers of Other Languages
- New Homeowner Brochure made available online and distributed by real estate and title companies
- Stakeholder Flood Insurance and Mitigation Techniques community workshops
- Hurricane Preparedness workshops
- Training for Contractors & Builders
- Training for Surveyors
- Parks & Recreation Educational Materials
- Informational Videos
- Homeowners Associations Meetings
- Tampa Bay Home Show
- Veterinarian email blasts to clients
- Email blast utility service customers
- Community newsletter/magazine
- TBN Weekly

- Storm drain Markers/Murals
- Vehicle Wraps
- Only rain down the drain signage
- Letters to Real Estate Professionals, Insurance Companies, and Landscapers

The FRMPIWG has also identified new Countywide and Jurisdiction specific projects which have not yet been implemented. These project ideas are highlighted below:

- Social Media – Podcast
- Home Inspector Training
- Insurance and Mortgage Association Training
- Veterinarian Email Blasts
- DIY High Water Marks Flyer
- Boat and Dock Handouts
- Letter to Homeowner Associations (HOA)
- Bus/Trolley Stop Posters
- Flood Knowledge Scout Badge

Each of the projects above were developed to deliver messages associated with one or more of the flood topics identified in Section 0 (

The list of audiences has grown since the previous PPI update, now including additional groups such as churches, private schools, and aquarium staff, among others. During the recent FRMPIWG meeting, members not only identified potential new audiences but also explored project ideas. They also emphasized the importance of engaging these groups as future stakeholders. Many of the identified audiences share similar interests, allowing for activities that can effectively address multiple groups. Key recommendations from the working group are outlined below:

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Property Appraisers - **Project Idea #1/Training**: Conduct annual training sessions for private property appraisers with Continuing Education Credits (CEC).

Messages and Outcomes). See Appendix D for the detailed list of all projects by jurisdiction, including those implemented by stakeholders and those implemented for particular targeted audiences. **In the coming year, the committee aims to update the New Homeowner Brochure. Additionally, the County plans to develop a complementary webpage to enhance accessibility and provide further support for new homeowners.**

Pinellas County Flood Map Service

In 2020, Pinellas County developed a new comprehensive Flood Map Service that improves the dissemination of flood risk data and available measures for homeowners and residents of Pinellas County and its municipalities. The intent of the service is to:

- Make flood risk information and measures more accessible to the public.
- Develop ADA compliant content.
- Better organize the content in a way that is easier to understand and navigate to the needed information.
- Provide data that is more specific to the user by allowing to search by an address and providing site specific information.
- Educate the public about the various nature of flood hazards, including riverine flooding, hurricanes, coastal hazards, natural floodplains and other pertinent information.
- Provide the public the ability to search and download elevation certificates.
- Describe the service available from the County, such as the access to the County's flood insurance advocates and flood protection technical assistance.

Figure 6-3 and Figure 6-4 illustrate the new and improved flood map service.

Figure 6-3 Pinellas County Flood Map Service Main Page

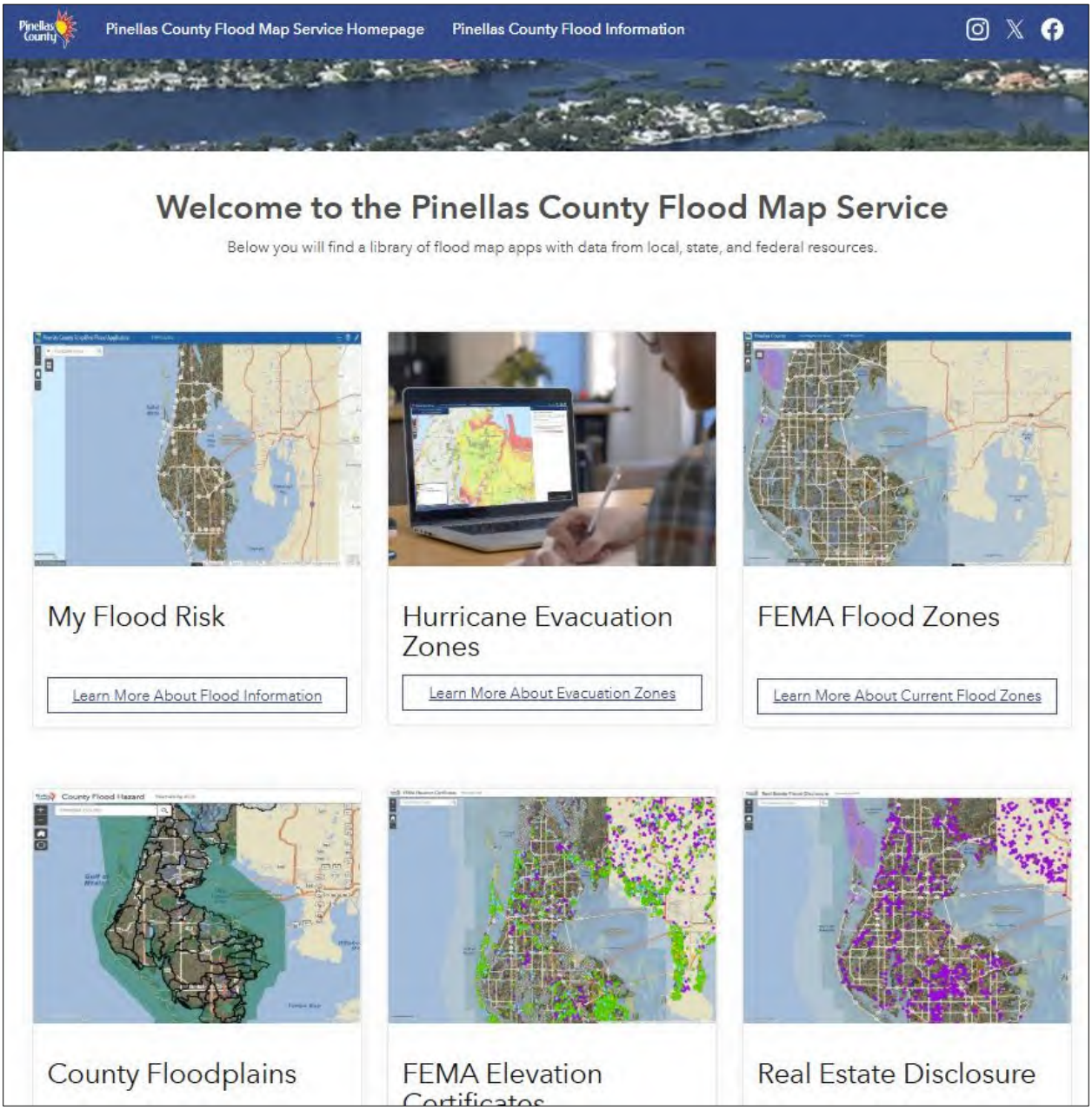
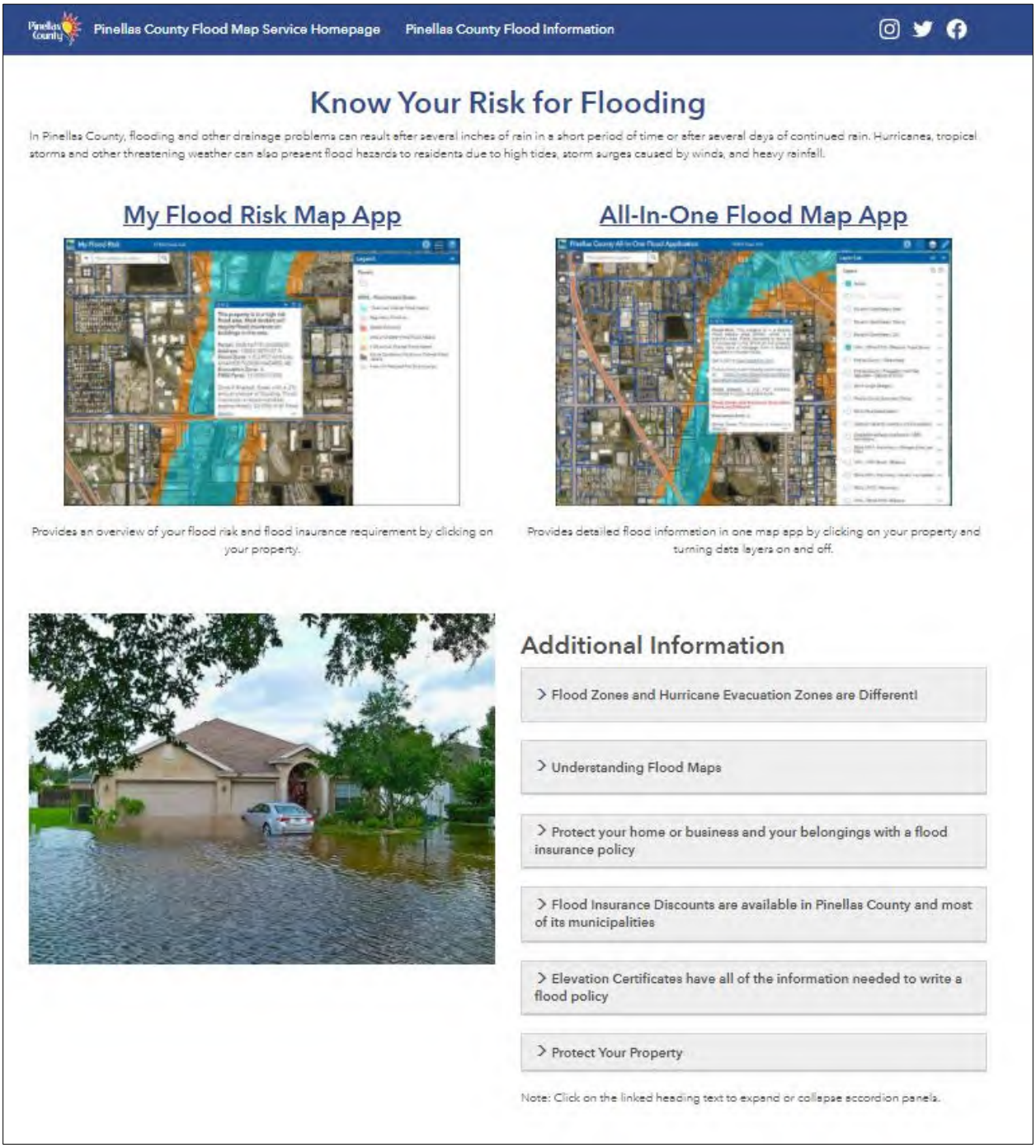


Figure 6-4 Pinellas County Flood Map Service Flood Risk Page



Blue Sky and Gray Sky Messaging

Pinellas County previously had a messaging toolbox for flood response planning that includes:

- Messages for before, during and after flooding events.
- Messages for the appropriate types and severity of hazards.
- Appropriate distribution channels for the hazards (i.e., social media, billboards, door hangars, TV, etc.)

In 2020, the committee recognized that a similar comprehensive toolbox should be developed for blue-sky and gray-sky conditions. These messages should be regularly distributed to homeowners and residents during non-emergency conditions in order to promote better preparation for hazards. Messages are intended to better prepare residents and seasonal visitors alike. Social media is also a widely used medium that the County can develop messages for. The County tailored the blue-sky messages for different types of social media, ensuring that it meets specific topics and length requirements for each. In addition, the PPI committee worked with the communications department to develop optimized schedules for distributing information in a timely manner including before the hurricane season, during the hurricane season, as well as considering seasonal residents.

The blue-sky and gray-sky messaging toolkits can be found in Appendix C.

Distribution Methods

Pinellas County uses several methods to publicize the flood information and the services that the County offers. These methods include advertising in newspapers, websites, social media, utility bill inserts, flyers and brochures, and presentations to the public. Certain methods are more costly than others, while others may be more effective in publicizing the information. The publicity and distribution methods for each project will depend on the type of project, how much information needs to be included, cost of implementation, and target audience. Direct mail that includes too much information can be lost to the audience and ultimately thrown in the trash – especially if that mail is accompanied by other advertisements and clippings often included in our daily mail these days. This method is also costly.

Today, most people, including senior citizens, are looking to the internet for information in lieu of traditional sources of information like newspapers or magazines. They are using search engines for specific information and social media threads for answers to posted questions and news. People have come to expect instant answers when they search for information (*Smith, 2014*). The internet is more popular than newspapers and radio as a news source, ranking just behind TV (*Kristen Purcell, 2010*).

Although Pinellas County and its municipalities use the direct mail method, the preferred method would:

- minimize the probability of information being discarded
- increase the frequency of distribution
- minimize cost so that resources can be used to increase frequency of distribution and/or provide for multiple distribution methods instead

Based on the criteria above and recent trends in technologies, the FRMPIWG concluded that the most effective way to reach the community is through a combination of communication tools, including:

- Pinellas County Flood Information Website
- Pinellas County Social Media (Facebook, Twitter, NextDoor, Instagram)
- Email blasts (e-Lert, e-News)
- Utility Bill Insert(s)
- Informational materials at static locations and events throughout the County
- Direct mail to select target audiences
- Flood and Hurricane Information events
- Professional training sessions
- Press Releases for Flood Warning and Response

To conserve resources, both environmental and financial, the use of print materials will be reduced and will contain succinct information and direct residents to the flood information website for additional information. This combination of outreach will relay pertinent information to residents and businesses, including how they will be they will be warned and the safety measures they should take during a flood and about the County regulation that prohibits dumping in waterways. This combination of communication tools will also publicize flood related services, including flood map information, property protection assistance, and flood insurance guidance, to the entire community.

FLOOD RESPONSE PROJECTS

The FRMPIWG identified new, or improvements to existing, public information activities prepared in advance of the next flood. There are key messages that need to be disseminated before, during, and after a flood. The County's flood response messages and the tools used to disseminate them are consolidated into a Flood Warning and Response Messaging Toolkit (Appendix C). The messages and dissemination tools in this package are centered on flood warning and response. They were prepared in advance and will not be delivered until a flood is impending or occurs. The procedures for implementing the materials should be followed in accordance with the Pinellas County Emergency Management Warning and Notification Standard Operating Guidelines (SOG), and the Marketing and Communications Emergency Support Function (ESF) #14 - Public Information Office SOG, which are part of the County's overall flood warning and response plan. Both the procedures and the project materials are reviewed annually and updated as needed.

Following the implementation of the initial messaging, the County recognized the need for more targeted communication at specific times. In 2024, the committee convened to discuss enhancements to the tool to better serve the community. It became clear that messaging solely focused on the periods before and after a storm was insufficient, as different stages of an event require distinct communication strategies. Recognizing this, the County revamped its gray-sky messaging by introducing additional timeframes. What was once limited to "before" and "after" has now been expanded to include "before (days)," "before (hours)," "during," "after (days)," and "after (hours)," ensuring more precise and effective communication throughout all phases of an event.

The FRMPIWG makes recommendations and updates to the Flood Warning and Response Projects, which is a coordinated effort affecting all the participating municipalities. The following projects are included in the Flood Response Preparations Package:

- Emergency Alert System (EAS) via EMNet
- Alert Pinellas
- Wireless Emergency Alerts (WEA)
- Intelligent Transportation System (ITS)
- Billboard Emergency Alert System
- Digital Billboards
- Pinellas County Website (www.pinellas.gov/)
- E-News
- Press Release(s)
- Media Alert(s)

- PCC TV
- Social Media
    - Facebook
    - NextDoor
    - Twitter
    - Instagram
- Substantial Damage Door Hanger
- After the Flood Brochure
- Ready Pinellas App
- Citizen Information Center (Call Center)

These tools will be used to disseminate select flood warning and response messages on an as-needed basis depending on the time and type of event.

Appendix C contains the Flood Warning and Response messages reviewed.

EXAMINATION OF OTHER PUBLIC INFORMATION INITIATIVES

The FRMPIWG looked at other public information activities in addition to outreach projects. This included how best to set up a website on flood protection (CRS Activity 350). In addition to the six priority CRS topics, Pinellas County will include on their flood protection website information relating to hurricane preparedness, flood economics and Sea Level Rise. The County will also provide links to real-time gage data and post elevation certificates on their website.

The FRMPIWG also examined the types of technical assistance that are needed throughout the community and the best ways to publicize these flood protection services (CRS Activities 320, 350 and 360). As a result, the County's flood protection website will list specific methods that can be used to protect a property or home. In addition, these services and contact information for these services will be listed on the flood flyers, county websites and advertisements in newspapers, television crawls, and social media. Resources for technical assistance will also be described and listed in letters sent to repetitive loss properties and other properties located in repetitive loss areas.

Projects developed through the FRMPIWG will ultimately enhance the County's CRS. Projects that can be related back to creditable activities in the CRS include:

Activity 320 – Map Information Service

Flood Map Service - The Pinellas County Flood Map Service provides FIRM information, access to available elevation certificates, and other hazard information. This will improve the County's ability to query and distribute the information to the public. This service will be made available online and will be linked to the County's web map service, which is publicized on a brochure will be distributed annually through several media outlets. County staff and other municipalities also

use this service to provide information to people who call in, email or visit in-person to inquire about their flood risk. Flood Map Service trainings are also provided.

The FRMPIWG recognizes that awareness of the flood risk and insurance requirements for potential investments is of the utmost importance for buyers of real estate and identified real estate agents as the target audience to receive information about the Flood Map Service. These real estate agents service all the areas encompassing Pinellas County and its municipalities. Written content for the publicity was developed by the committee and sent to ISO for review before being sent to the recipients. In addition, the content will also be publicized in the utility bill inserts that goes out to its residents. Other municipalities not serviced by the County's utility will use the content in their own newsletters as well.

Activity 340 – Hazard Disclosure

Real Estate Agents Flood Information and Disclosure Brochure – Real estate professionals will have access to the County's flood information tools and provide valuable FIRM information to potential buyers. The committee discussed ways to disseminate the flood risks to potential buyers and reviewed several disclosure forms and brochures which real estate agents provide to potential buyers. In this program, real estate agents will advise house hunters about the flood hazard and provide the brochure to clients interested in purchasing properties located in the SFHA, countywide, so that they are made aware of the flood hazard and the flood insurance purchase requirement.

The committee developed a brochure that agents can fill out with flood hazard information specific to the property and providing that to potential buyers. In addition, the committee also conducts outreach through local realtor organizations for training on flood risk topics, and on what resources are available at the county to help fill out the brochure that they can give their home buyers. Real estate professionals are contacted at least annually, and representatives are members of this PPI committee.

Activity 350 – Flood Protection Information

Flood Protection Information Website – The FRMPIWG reviewed the County's website to be sure messages are consistent with the CRS topics. The committee discussed several messages to convey to the public with regards to the topics as discussed in Section 5. The committee evaluates the flood protection content on a regular basis to make sure the information is still relevant, is easy to understand and add new information as needed. Since the website and map information service has been developed, there have been many revisions to the content based on feedback from this committee. At first, the website was not consistent in the messages related to flood risk and mitigation. The layout was not intuitive enough. The committee received feedback from users regarding the effectiveness of the website and map information services, including functionality, ease of use, and content. The committee has made many recommendations to both the flood protection website and related flood map information services that were implemented. Changes initiated by the committee to improve the websites' effectiveness have included layout changes, additional functionality, and additional content. The flood protection website and map information services are publicized annually through several media outlets, including letters to lenders, real estate and insurance agents, brochures, newsletters and social media.

Activity 360 – Flood Protection Assistance

Flood Protection Assistance – The FRMPIWG will review the County's property protection advice (PPA), property advice provided after a site visit (PPV), and financial assistance advice (FAA) procedures. The committee will also review ways to publicize the County's services for PPA, PPV and FAA on an annual basis.

Currently, Pinellas County and all of the participating municipalities provide one-on-one consultations, and site visits as appropriate, to advise inquirers about property protection measures, such as retrofitting techniques and drainage improvements.

This service is available to all residents, regardless of whether they call, email, write or walk in to receive the service. The service is publicized on the County's Flood Information website and in the Flood Guide. The committee evaluated several other methods to publicize the service in such a way that the information will be received by homeowners and motivate them to take action. Methods that were used to publicize the service included sending out flyers and utility bill inserts to all property owners. Having piloted this approach, the County received many requests for consultations for properties without drainage issues. These consultations took away from County resources that otherwise would have been used to help residents with drainage issues. The committee decided that a more effective approach that targets the property owners who most need this service will be a more efficient use of the available resources. This will translate into more advice and visits to areas that need and will benefit from the service and have the greatest potential to reduce risk and damage due to flooding throughout the County and its municipalities.

Those most likely to experience flooding and benefit from this assistance include residents and businesses in repetitive loss areas (RLAs). It is critical that these homeowners know the options that are available to them to help prevent further losses. Therefore, the FRMPIWG decided that a letter containing information about this service should be mailed directly to residents and businesses in Repetitive Loss Areas annually. Additionally, the Real Estate Flood Information and Disclosure Brochure, which also includes information about this service, will be provided by real estate agents to home buyers. These two target audiences have the greatest potential to help reduce the risk and damage from flooding as well as educate homeowners and buyers who may have plans to renovate or improve their property.

Repetitive Loss Property / Repetitive Loss Area Letter – The committee reviewed the current repetitive loss property/areas letters to identify improvements that can be made to disseminate information about flood protection assistance services that the County offers. The letter is sent out annually to property owners.

Activity 370 – Flood Insurance Promotion

Flood Insurance Coverage Evaluation – Pinellas County and participating municipalities performed a flood insurance coverage evaluation to determine the level of coverage and needs. The flood insurance coverage assessment, messages and projects were developed as part of a Flood Insurance Coverage Improvement Plan currently being implemented.

Flood Insurance Technical Assistance – The County provides valuable information about flood insurance through the flood protection information website, including information about flood insurance requirement, rates, eligibility, the claims process, and other resources to help homeowners. In addition, flood insurance providers on the committee also serve as insurance advocates to the County and municipalities to advise people who have questions about flood insurance. There are currently seven (7) flood insurance professionals ready to provide technical assistance to homeowners and renters. The FRMPIWG developed messages to promote flood insurance and publicizes the messages and services through various methods, including newsletters, web and direct mailouts. A critical target audience are those homeowners that are most affected by flooding, including repetitive loss properties, so that they can be better prepared. Therefore, letters to properties in repetitive loss areas must include the topic of insurance and the availability of this service. Pinellas County unincorporated and barrier island residents receive utility bill insert(s) from Pinellas County Utilities, while other municipalities send similar newsletters via their utility departments. Newsletters provide an opportunity to develop attractive content that can engage readers to action. Numerous departments have already taken advantage of the newsletter with great results, and it has proven to be an effective method to drive the reader's attention to important news and services. The committee decided, therefore, that the service should also be publicized in newsletters that go out to homeowners once a year or more. The committee also decided to publicize the service in the flood brochure.

Pinellas County and its municipalities are proactive in identifying flood risk and developing projects to mitigate those risks. **Commissioners recognize the importance of having a robust capital improvement program and outreach program centered around flood risk mitigation. The FRMPIWG worked with county commissioners to develop a newsletter with a focus on promoting flood insurance.** A newsletter from a county commissioner will be included in the utility bill insert and released to the press annually. These newsletters go out to residents of both unincorporated Pinellas County and municipalities. Many services at the County are available countywide.

Activity 540 – Drainage System Maintenance

Drainage System Maintenance – The FRMPIWG reviewed and suggested improvements to the messages for regulations prohibiting dumping in streams and ditches. These messages were also sent to ISO for review and revised based on their feedback. The committee evaluated the "Only Rain Down the Drain" campaign as an effective way to educate the public about the importance of maintaining the drainage systems. This campaign focuses on consistency in messaging across several media outlets such as social media, web, newsletters and other initiatives. Newsletters provide an effective way to publicize the regulation in a way that the public can easily understand. The committee discussed additional ways to publicize the service, including vehicle wraps and drain markers, which are also effective because they direct attention to the source. Because lawn clippings, foliage and other debris can significantly degrade the functionality of storm drains, ponds, and ditches, the committee decided that incorporating training for landscapers will be a very effective method to publicize the regulation and educate the landscapers about why it is important.

7 IMPLEMENTATION, MONITORING AND EVALUATION

The FRMPIWG meets three times a year to implement, monitor, and evaluate the progress of the projects. The committee evaluates each project's effectiveness and revises the project as necessary to achieve the desired goals. The projects are updated as necessary to reflect changes to the status or implementation of the projects. The FRMPIWG develops an annual evaluation noting the status of existing projects and/or provide information on new initiatives. The annual evaluation will be incorporated into the PPI report, which will serve as a living document that is updated on an annual basis. The annual evaluation report will be submitted to the governing body of each participating community. Appendix D summarizes the status of the PPI projects.

The PPI is part of the County's multi-jurisdictional Local Mitigation Strategy (LMS). Each year the updated PPI is approved by the committee and submitted to the Pinellas County Board of Commissioners as part of the LMS annual update.

8 PPI ADOPTION

The Pinellas County Multi-Jurisdictional PPI was adopted by the Pinellas County Board of Commissioners on April 21, 2020. The committee submits an annual update to the board.

The following municipalities also adopted this PPI through their local elected officials.

Table 8-1 PPI Adoption

Municipality	Adoption Date
Town of Belleair	April 7, 2020
City of Belleair Beach	
City of Clearwater	May 7, 2020
City of Gulfport	April 21, 2020
City of Indian Rocks Beach	June 20, 2020
Town of Indian Shores	June 9, 2020
City of Madeira Beach	June 30, 2020
City of Oldsmar	September 3, 2020
City of Pinellas Park	June 25, 2020
Town of Redington Beach	May 6, 2020
City of Safety Harbor	
City of South Pasedena	
Town of Redington Shores	May 13, 2020
City of St. Pete Beach	June 23, 2020
City of Tarpon Springs	August 4, 2020
City of Treasure Island	August 4, 2020

9 BIBLIOGRAPHY

Kristen Purcell, L. R. (2010). *Understanding the participatory news consumer.* Washington, DC : Pew Research Center.

Smith, A. (2014). *Older Adults and Technology Use.* Washington, DC: Pew Research Center.

APPENDIX A

PPI Meeting Minutes

Flood Risk and Mitigation Public Information Working Group (FRMPIWG)

Friday, January 31st, 2020

Tampa Bay Regional Planning Council

AGENDA

11:00 AM Collect lunch and be seated

11:05 AM Call meeting to order – Introduction of participants (by jurisdiction)

11:15 AM Status of FRMPIWG

- Review and clarification of 1:1 official staff/stakeholder ratio for documentation purpose
- Review of future time and attendance commitment

11:20 AM Status of LMS and PPI

- 5-year plan content overview (Chris Z – LMS; Khan - PPI)
- LMS website and story map (Smita or Lisa)
- CRS/ISO courtesy review (Khan)
- Annual LMS and PPI (unincorporated) update reports (Smita or Lisa)

11:50 AM Implementation – Next Steps

- Review of steps local jurisdictions need to take to use the PPI document (Lisa)
    - Toolbox Update
- FRMPIWG Needs
    - Municipality project sheet – missing data (Cece)
    - Review of projects all municipalities have committed to (Lisa):
        - Utility Bill Insert
        - Repetitive Loss Area Mailing
        - Flood guide
        - Hurricane Guide
        - Real Estate flood disclosure brochure
        - Library materials
        - Web content - Muni links to County Flood website
        - Only Rain Down Drain – storm drain markers, publicity
        - Providing flood map information – keep log

- Providing property protection information and site visits as needed – keep log
- Social media – blue sky and gray sky
- FWRPs
- Community Newsletter/Beach Newspaper - Need content and coordination lead
- Veterinarian Email Blast - Need content and documentation steward

12:50 PM Reminders

- Follow Sunshine Meeting Standards

1:00 PM Discuss any additional needs from Municipalities

1:30 PM Public Comment

1:45 PM New Action Items/Tasks/Next Meeting

2:00 PM Adjourn

2:00-3:00 Toolbox how-to for municipal staff

MEETING MINUTES

PROJECT NAME:	CRS Support/Flood Risk and Mitigation Public Information Working Group (FRMPIWG)
MEETING DATE:	Friday, January 31st, 2020
LOCATION:	Tampa Bay Regional Planning Council

1.0 INTRODUCTION OF PARTICIPANTS (CECE)

- Cece went through the sign in sheet and had jurisdictions stand with their stakeholders. Meeting participants are listed on the sign-in sheet.
- Cece reiterated the importance of the 1:1 staff/stakeholder ratio in order to meet requirements for carrying forward the PPI (Program for Public Information) and LMS (Local Mitigation Strategy) Working Group effort.
- Cece also discussed future meetings this year (May & October, and perhaps one in late summer) and asked for a commitment from participants. All agreed.
- Cece also introduced the Flood Insurance Advocates as a resource for everyone and Lisa reminded them that they must attend this meeting for a year to qualify to be listed on the Pinellas County website. We also discussed how they keep a log of the calls received for documentation purposes.

2.0 STATUS OF LOCAL MITIGATION STRATEGY (LMS) AND FLOOD RISK AND MITIGATION PUBLIC INFORMATION WORKING GROUP (FRMPIWG)

- Lisa explained the additional applications of this group in addition to the PPI (Program for Public Information). This group will serve as the working group for the FRP (Flood Response Plan), FIP (Flood Insurance Plan) and FMP (Floodplain Management Plan), which is a component of the larger LMS. This is available for each local jurisdiction to use in their CRS reviews.
- Chris Zambito, Atkins Global, provided an overview of the current status of the LMS and the "official" version of that presentation is attached. We saw the "fun" version.
    - Chris indicated that the draft update had been submitted to Florida Division of Emergency Management (FDEM) and that FDEM has provided recommended and required revisions.
    - The revised version with updated language is scheduled to be resubmitted to FDEM before the end of February.
    - The FRMPIWG had no additional comments regarding the 5-year update.
    - Chris noted that Pinellas County also received their notice from FDEM indicating that the annual LMS status update (required by Florida Administrative Code) is compliant for the 2020 year.
    - Chris and Lisa Foster demonstrated the online StoryMap.
    - Lisa noted that the LMS had also been submitted to ISO for review
- Khan Boupha, Jones Edmunds, explained the latest activities regarding the Community Rating System (CRS)/Insurance Services Office (ISO) review of the new PPI document. We are waiting for the results of that review. Pinellas County is hoping to adopt the document at the March Commission Meeting. Municipalities can move forward with their own adoption processes at that time as well.

- We have been asked by ISO to come up with our own scoring sheet that will be used by the County as well as the municipalities. The score sheet is under development and will be shared with the communities once completed.
- Khan explained that the PPI report can serve as the official multi-jurisdictional PPI, but the communities still need to track their activities. He highlighted examples of how communities should document their activities.

3.0 IMPLEMENTATION

- PINELLAS RESOURCES TOOLBOX
    - Lisa demonstrated the new and improved toolbox which will allow all the participating communities to not only access the sharable resources compiled by Pinellas County but also upload their documentation of completed projects making Community Rating System (CRS) reviews by Insurance Services Office (ISO) easier and automated! Webinar training will be planned in the coming weeks.
- FRMPIWG NEEDS
    - Municipality project sheet – Cece reviewed the following items
    - Review of priority areas and audiences
        - The committee discussed an additional audience of condo associations and their residents, and how best to reach them. Options included a combination of contacting the condo management agencies as well as providing links and/or attachments in the emails sent out to utility bill customers.
        - Community Newsletter/Beach Newspaper – This is a project that targets multiple audiences and areas, including the priority areas along the Gulf Coast. Need content and coordination – Cece will take the lead on this (May/Anamarie)
        - Veterinarian Email Blast – The committee will develop, and review PPI messages targeted for pet owners. Need content and documentation steward – (Sarah Kessler)
        - Small businesses were identified as a target audience and a potential project was discussed by Mary Burrell (see below).
    - Review of other public information efforts
        - Annual Community Meetings – Document Topics, Agenda and Photo – Mary Burrell offered Pinellas' Speaker's Bureau to all the Municipalities for their use.
        - She also mentioned Small Business Workshops will be offered which Municipalities may get credit for if they are held in their communities.

    - Review of projects all municipalities have committed to:
        - Utility Bill Insert
        - Repetitive Loss Area Mailing
        - Flood Guide
        - Hurricane Guide – Mary Burrell provided and update
        - Real Estate Flood Disclosure Brochure
        - Library Materials
        - Web Content – Muni links to County Flood website
        - Only Rain Down Drain – storm drain markers, publicity – Anamaria mentioned the TBRPC funding opportunity for Municipalities to get copies of Door Hangers and Placards.
        - Providing flood map information – keep log

- Providing property protection information and site visits as needed – keep log
- Social Media – blue sky and gray sky
- Flood Warning Response Plans

4.0 **REMINDERS**

- We continue to follow Sunshine Meeting Standards
- All documents on the web must be ADA compliant, linking to the Pinellas County website for communication of your flood risk information meets requirements

5.0 **NEEDS/TASKS**

- Cece asked if the communities had any additional needs, none were heard.
- The floor was opened for public comment, no comments were heard.
- Please provide any feedback on the Floodplain Management Plan, Flood Response Plan and PPI to Lisa asap!

The FRMPIWG meetings for 2020 will be held May and October (with one late summer meeting possibly). You will be notified once the dates are selected and finalized.

Adjourn

Flood Risk and Mitigation Public Information Working Group (FRMPIWG)

Friday, May 29, 2020

Virtual

Join from your computer, tablet or smartphone. https://global.gotomeeting.com/join/926724509

You can also dial in using your phone. United States: +1 (312) 757-3121

- One-touch: tel:+13127573121,,926724509# Access Code: 926-724-509

AGENDA

12:00 PM Call meeting to order – Identify Communities meeting 50/50 Staff/Stakeholder Split (Cece)

12:15 PM Status of PPI (Khan)

- LMS, which includes our PPI and RLAA, was adopted by the County on April 22nd!
- Local jurisdictions need to adopt the LMS and/or PPI document.
- Review of Flood Insurance Coverage Improvement Plan

12:30 PM Update on LMS (Chris Zambito)

- The following communities have adopted the 2020 LMS Plan:
  - Town of Belleair
  - City of South Pasadena
  - City of Gulfport
  - City of Belleair Beach
  - City of Largo
  - Town of Redington Beach
  - Town of North Redington Beach
  - City of Seminole
  - City of Clearwater
  - City of St. Petersburg (When last asked, they were waiting to get their signed resolution to send to the State.)
  - Pinellas County

Open floor for input from jurisdictions who have done this and what steps they took.

GREEN - sent to the State and received FEMA and FDEM letters
BLUE - transmitted to FDEM and FEMA, waiting on the letter.
Still in process: City of Belleair Bluffs, City of Indian Rocks Beach, Pinellas Park, Oldsmar, and Treasure Island.

- **Each jurisdiction still needs to formally adopt the 2020 LMS Plan, to individually qualify for mitigation grant funding.**
  For those of you who are preparing for the LMS adoption process, please contact Smita Ambadi, Pinellas County Principal Planner at sambadi@pinellascounty.org if you have any questions or need help.

  Once adopted, all the signed resolutions will be added to Appendix F of the 2020 LMS Plan.

1:00 PM Pinellas Resources Toolbox Update (SharePoint) (Lisa)

- Access issues
- Review of critical resources
- Encourage local governments to upload documentation
- Demo after the meeting adjourns today for those who want to review

1:15 PM Elevation Certificate Entry Application for Municipalities (Lisa)

1:30 PM Discuss any additional needs from Municipalities (Cece)

1:40 PM Public Comment

1:45 PM New Action Items/Tasks/Next Meeting (September 25th, 12 – 2pm, Virtual?) (Cece)

2:00 PM Adjourn

1.1 MEETING MINUTES

PROJECT NAME: CRS Support/Flood Risk and Mitigation Public Information Working Group (FRMPIWG)
MEETING DATE: Friday, May 29, 2020
LOCATION: GoTo Meeting

2.0 INTRODUCTION OF PARTICIPANTS (CECE)

- Cece welcomed everyone to the Virtual meeting and Lisa encouraged participants to share their cameras so we could see as many participants as possible.
- Cece checked attendance to verify that each participating community met the required 1:1 staff/stakeholder ratio.
- Cece reiterated the importance of the 1:1 staff/stakeholder ratio requirement to ensure success with the CRS PPI (Program for Public Information) and LMS (Local Mitigation Strategy) Working Group effort.
- Cece shared that the October meeting for this year would most likely be Virtual as well. All agreed. A date of October 16th from 12:00 – 2:00 was tentatively set.

3.0 STATUS OF PPI

- Khan Boupha, Jones Edmunds, reviewed the current status of the multijurisdictional LMS, which includes the multijurisdictional PPI and RLAA (Repetitive Loss Area Analysis) countywide overview and detailed unincorporated analysis. He thanked everyone for their input and advised that ISO had conducted a courtesy review. He noted that:
    - Highlighted projects must have specific precise publicity language.
    - Each jurisdiction's Annual Evaluation Report must be submitted to their own governing body for approval and submitted as part of their Annual Recertification.
    - Local jurisdictions need to adopt the LMS and/or PPI document and since our last meeting the County has shared specific language that ISO (Insurance Service Office) will be looking for in the Adoption Resolutions and the resolutions must be submitted to Cece so she can assist with getting them to ISO for approval. Per ISO, the communities that participate in the MJ PPI and have an LMS adoption resolution worded as specific as the Pinellas County resolution, will receive the PPI credit (assuming they implement their projects). The specific language is in the County toolbox. Let Cece or Lisa know if you are having trouble finding it.
    - Lisa sent the Flood Insurance Coverage Improvement Plan to FEMA for approval and FEMA acknowledged receipts and clarified that they were not required to approve the plan, but will offer suggestions that benefit Pinellas County.

- Lisa elaborated on the FEMA approval issue and showed the communities the projects for 2020 that she is compiling and showed where documentation is being kept. Social media is being saved as screen shots and communities may have to do their own social media so check with your ISO specialist to confirm what they will approve.
- Municipalities should have the Flood Guide and All Hazard Preparedness Guide at each of their events and should modify it with their specific logos and contact information.
    - Mary Burrell discussed an outreach effort that will be hosted by Pinellas County for the Barrier Island Zoom Webinar on June 4th.

4.0 STATUS OF LOCAL MITIGATION STRATEGY (LMS) AND FLOOD RISK AND MITIGATION PUBLIC INFORMATION WORKING GROUP (FRMPIWG)

- Chris Zambito, Atkins Global, provided an overview of the current status of the LMS
    - The Plan was approved
    - He reviewed a list of communities and where they are in the adoption process.
- Chris reviewed the CRS scoring for CRS FMP credit from ISO based on their review of the LMS Plan.

5.0 IMPLEMENTATION

- PINELLAS RESOURCES TOOLBOX UPDATE
    - Lisa again reviewed the toolbox which will allow all the participating communities to not only access the plethora of sharable resources compiled by Pinellas County but also upload their documentation of completed projects making CRS outreach project reviews by ISO easier
- INFORMATION AVAILABLE
    - Standardized messages for social and regular media in different weather scenarios.
    - Real Estate Disclosure Program email promotion content available, municipalities need to make an effort to connect with their local area Real Estate agents to further the success of this project for them.
    - Calendar is available, dates that are set are recommendations. Reminders are being sent.

6.0 ELEVATION CERTIFICATE ENTRY APPLICATION FOR MUNICIPALITIES

- Elevation Certificates are currently being uploaded to the Pinellas County website ECs from the FDEM database are also on the map but have not been reviewed for quality.
- Municipal ECs are being added to another map service by a contractor. Once complete, the municipalities will need to upload their ECS to the map service via the City EC Entry Application developed by the County. CRS credit is available to communities that make ECs available online and in a database. Pinellas County will hold a training on the EC app. Send Lisa your login for ArcGIS online or the name of the person that will be doing this upload for you so we can add them as

a user to the application. Each community should have one user for EC uploading.

7.0 STORM SEASON

- Lisa asked meeting participants to visit the Pinellas County COVID-19 information How to Help to see how you can help the communities with the upcoming storm season.
- Lisa asked the meeting participants to think about what messaging should be used for this year specifically.
    - Mary talked about people in cars being such a risk driving into water of unknown depth, is "Turn Around Don't Drown" not working anymore? Don't Drive, Stay Alive?
    - Mary talked about the Host Homes program that allows for people to evacuate and not have to go to a community shelter.

8.0 REMINDERS

- We will continue to post agendas and minutes on the website, although it may not be required.
- All documents on the web must be ADA compliant, linking to the Pinellas County website for communication of your flood risk information meets requirements.

9.0 NEEDS/TASKS

- Cece asked if the communities had any additional needs, none were heard.
- The floor was opened for public comment.
    - Sally Bishop talked about using our tools and good data to help residents assess their vulnerability so they can decide during the time of COVID-19 if they really need to evacuate during a storm.
    - Katrena from Indian Shores talked about continuing work on information for the tourists that provide listing of hotels available for emergency housing. We need to connect Katrena with Mary and Lisa to develop a packet. The hotel owners will be making the plan that they would give to the visitors.

The next FRMPIWG meeting will be Virtual and will be held on October 16 from 12 – 2 pm.

Adjourn

Flood Risk and Mitigation Public Information Working Group (FRMPIWG)

Friday, October 16th, 2020

Virtual

Join from your computer, tablet or smartphone. https://global.gotomeeting.com/join/304000061

You can also dial in using your phone.
(872) 240-3212 Access Code: 304-000-061

AGENDA

12:00 PM Call meeting to order – Identify Communities meeting 50/50 Staff/Stakeholder Split (Cece)

12:15 PM Review PPI for Annual Report (Khan)

12:45 PM Review components for LMS for Annual Report (Khan)

- 2020 LMS Plan Adoption Status
  - Identify if sent to the State and received FEMA and FDEM letters

    - Town of Belleair
    - City of South Pasadena
    - City of Gulfport
    - City of Belleair Beach
    - City of Largo
    - Town of Redington Beach
    - Town of North Redington Beach
    - City of Seminole
    - City of Clearwater
    - City of St. Petersburg
    - Pinellas County

  Open floor for input from jurisdictions who have done this and what steps they took.

  Once adopted, all the signed resolutions will be added to Appendix F of the 2020 LMS Plan.

1:00 PM Review of which FRMPIWG tasks have been accomplished by municipalities and uploaded to SharePoint (Everyone)

- Demo after the meeting adjourns today for those who want to review or look at what is already uploaded

1:20 PM Discuss any new project ideas (Lisa & Cece)

- Disseminate letters to utilities companies concerning tanks that must be elevated or anchored and heating, ventilation, and air conditioning (HVAC) equipment that must be elevated above BFE
- Tampa Bay Newspapers publicity
- Business Flood and Hurricane Outreach Program (Mary & Brian)

1:30 PM Discuss any additional needs from Municipalities (Cece)

1:40 PM Public Comment

1:45 PM New Action Items/Tasks/Next Meeting (January 2021, Virtual?) (Cece)

Virtual Real Estate Training – PRO, Oct 27th (see below) – Need Insurance Advocates to participate

2:00 PM Adjourn

Real Estate Flood Disclosure Program at PRO
October 27 via Zoom

10:30am - 12:30pm – Pinellas County Real Estate Flood Disclosure and Flood Map Service Center Training

The Pinellas County Real Estate Flood Disclosure Program is a joint effort between Pinellas County Government and the Pinellas REALTOR® Organization, to help ensure that real estate professionals understand flood risk and insurance requirements and know how to look up the information to provide to their clients. Join Pinellas County Floodplain Administrator, Lisa Foster, for an overview of the program, information about flood risks, maps and insurance, and instruction to use the Pinellas County Online Flood Map Information Service Application and Flood Disclosure and Information brochure.

12:30pm – 1:30pm – Pinellas County Property Appraiser Essentials

Join Pinellas County Property Appraiser, Mike Twitty, as he discusses several topics designed to help real estate professionals. Learn how to best estimate taxes for buyers, understand portability and locate often overlooked website features. Other topics include value trends, upcoming tax saving constitutional amendments and common missteps relating to homestead and portability.

MEETING MINUTES

PROJECT NAME:	CRS Support/Flood Risk and Mitigation Public Information Working Group (FRMPIWG)
MEETING DATE:	Friday, October 16, 2020
LOCATION:	GoTo Meeting

1.0 INTRODUCTION OF PARTICIPANTS (CECE)

- Cece welcomed everyone to the Virtual meeting and Lisa encouraged participants to share their cameras so we could see as many participants as possible.
- Cece assessed the RSVP list to assure the 1:1 staff/stakeholder ratio. A review after the meeting indicated that all communities met this requirement.
- Cece reiterated the importance of the 1:1 staff/stakeholder ratio to meet requirements for carrying forward the PPI (Program for Public Information) and LMS (Local Mitigation Strategy) Working Group effort.
- Cece shared that the January meeting for 2021 would most likely be Virtual as well. A date of January 15th from 12:00 – 2:00 was tentatively set.

2.0 STATUS OF PPI

- Khan Boupha, from Jones Edmunds, reviewed the current messaging in the PPI document. There were comments on the following messages:
    - Insurance
    - Road Flooding and DOT (we were given contact information for this issue)
    - Safety Tips
    - Resiliency messaging will replace the additional insurance-related topics for messaging which we currently have. All insurance messaging will be combined into one topic.
- Khan discussed the need for municipalities to give us feedback on the projects they implemented this year. An Excel spreadsheet will be sent to everyone to make it easier to report this information. Once Khan receives that information, he will create the Annual Evaluation Report.
- Documentation for each municipality's projects should be entered in the Pinellas County SharePoint site to assist with facilitation of ISO reviews of communities.
- Each jurisdiction's Annual Evaluation Report must be submitted to their own governing body for approval and submitted as part of their Annual Recertification.
- Feddy Azofeifa from Pinellas County demonstrated the Social Media Messaging Toolkit that is available to all municipalities. Mary Burrell highlighted the wide variety of messages available in the Toolkit.

3.0 STATUS OF LOCAL MITIGATION STRATEGY (LMS) AND FLOOD RISK AND MITIGATION PUBLIC INFORMATION WORKING GROUP (FRMPIWG)

- Khan talked about the LMS report updates. The documents were provided as attachments to the meeting invitation. Municipalities were asked to review the report to see if there were projects missing from each municipality and to review the project rankings.

- A web story map was created for the LMS to improve the LMS goals and objectives, current status and other hazard-related information to the public.
- Khan recently reviewed the LMS report with ISO. It received a very good score compared to previous versions. Congratulations to everyone that have contributed to the report.

4.0 **POTENTIAL PROJECTS**

- Tampa Bay Newspaper – Commissioner Robinson explained what they did in Redington Shores.
    - This weekly newspaper could be used for one of the publicity projects.
    - Cost share ideas were raised.
    - Prices will be determined and sent out via email at a later date.
- Mary Burrell talked about an effort to work with Businesses to have them assist with flood and hurricane outreach messages
    - CJ Reynolds from Tampa Bay Regional Planning Council (TBRPC) is interested in getting involved in this effort, especially for minority businesses.
- Lisa asked Cece to research the letters to utility companies project idea further.
- There was discussion about connecting with Home Inspectors regarding flood risk so they could assist in communicating information through their inspection reports.
    - It was recommended to first contact the people that serve as instructors for the Home Inspector program to find out how to make this part of the inspection reporting basics.

5.0 **MAP SERVICE**

- Lisa demonstrated the new Pinellas County Flood Map Service that provides simplified access to flood risk and other important information.

6.0 **NEEDS/TASKS**

- Cece asked if the communities had any additional needs, none were heard.
- The floor was opened for public comment.
- Lisa asked if municipalities needed the information page on the website that was created to explain the FEMA letters that residents have been receiving about insurance. No communities are sending residents to this page anymore and FEMA has stopped sending the letters out.
- CJ Reynolds from TBRPC invited participation in their Regional Resilience Plan Working Group. Interested parties can contact CJ at cjreynolds@tbrpc.org.

7.0 **REMINDERS**

- We continue to follow Sunshine Meeting Standards.
- All documents on the web must be ADA compliant, linking to the Pinellas County website for communication of your flood risk information meets requirements.

The next FRMPIWG notice for January 2021 will be send out as soon as the date is confirmed.

Adjourn

Flood Risk and Mitigation Public Information Working Group (FRMPIWG)

Friday, January 29, 2021

Virtual

Join from your computer, tablet or smartphone. https://www.gotomeet.me/CeceMcKiernan

You can also dial in using your phone.
United States: +1 (646) 749-3131
Access Code: 812-108-797

AGENDA

12:00 PM Call meeting to order – Identify Communities meeting 50/50 Staff/Stakeholder Split (Cece)

12:15 PM Review Annual Report - PPI, LMS, Flood Insurance Improvement Plan, Flood Response Plan (Khan)

- Schedule to submit to BOCC and muni commissions
- Schedule to publish LMS on pinellaslms.org
- Schedule for press release

1:00 PM Review of which projects have been accomplished by municipalities and uploaded to SharePoint (Everyone)

- Post Eta discussion
  - FRP items that worked
  - FRP items that did not work
- Updated FRP toolkit (workbook)
- Updated OP social media toolkit (workbook)
- Projects on hold
  - Disseminate letters to utility companies concerning tanks that must be elevated or anchored and heating, ventilation, and air conditioning (HVAC) equipment that must be elevated above BFE
  - Veterinarian outreach
- Demo after the meeting adjourns today for those who want to review or look at what is already uploaded

1:20 PM Discuss any new project ideas (Lisa & Cece)

- Tampa Bay Newspapers publicity – get it into FY 22 budget to implement in February 2022
- Business Flood and Hurricane Outreach Program (Mary & Brian)

- Flood and Hurricane Preparedness Webinar Series
- Elevation Certificate (EC) Digitalization and EC Entry Application for Municipalities

1:30 PM Discuss any additional needs from municipalities (Cece)

1:40 PM Public Comment

1:45 PM New Action Items/Tasks/Next Meeting in May 2021 (Cece)

- Should we have a virtual meeting option?

2:00 PM Adjourn

MEETING MINUTES

PROJECT NAME:	CRS Support/Flood Risk and Mitigation Public Information Working Group (FRMPIWG)
MEETING DATE:	Friday, January 29, 2021
LOCATION:	GoTo Meeting

1.0 INTRODUCTION OF PARTICIPANTS (CECE)

- Cece welcomed everyone to the Virtual meeting and Lisa encouraged participants to share their cameras so we could see as many participants as possible. Lisa also explained the purpose of the FRMPIWG.
- Cece assessed the RSVP list to assure the 1:1 staff/stakeholder ratio. Upon review of attendees, all communities met this requirement.
- Cece reiterated the importance of the 1:1 staff/stakeholder ratio to meet requirements for carrying forward the PPI (Program for Public Information) and LMS (Local Mitigation Strategy) Working Group effort.
- Cece shared that the May meeting for 2021 may be a hybrid event (virtual and in person). A date of May 21st from 12:00pm – 2:00pm was tentatively set. We will wait until the end of March to assess the situation and determine if the meeting will be only virtual or a hybrid event.

2.0 STATUS OF PPI

- Khan reviewed the content of the Annual Report and demonstrated the revised format. Khan also informed the group that the LMS annual update had been submitted to the state. Once approved, the LMS, which serves as the Floodplain Management Plan for many jurisdictions, and the PPI annual report must be submitted to each participating jurisdiction's commission. The County will issue a press release that the annual update is complete and available online at PinellasLMS.org.
- Maxine Moore reviewed the current project matrices (excel spreadsheets) that outlines which municipalities are completing projects. These matrices were a request from ISO to be submitted with the PPI documentation. They will also make it easier on the municipalities to ensure outreach projects are being completed annually and allow for the municipalities to see which projects are completed countywide.
- Maxine also discussed the resource that Pinellas County has created for Blue-Sky Social Media communications. This resource provides messaging for all topics outlined in the PPI documentation to meet ISO requirements along with suggested scheduling. Pinellas County has scheduled these messages to post on Fridays along with #FloodplainFriday to elevate their social media campaign and provide easy searching. Maxine encourages other municipalities to utilize this resource as a template to update their Blue-Sky Social Media communications.
- There was a lengthy conversation regarding messaging before and after Tropical Storm Eta and how effective it was as well as many questions regarding assistance for damaged properties. Lisa and the team at Pinellas County have updated the previously created Flood Response Preparations (FRP) Messaging Toolkit to include additional messages for "Flooding Recovery" based on the response after Tropical Storm Eta. The updated toolkit will be sent to the committee after the meeting along with other documents for review.

- Maxine informed members that all mentioned documentation will be also added to the FRMPIWG SharePoint Toolkit and encouraged the municipalities to utilize the SharePoint toolkit to its fullest potential. There will be a demo of the toolkit after the meeting for those who are interested or new to the group.

3.0 POTENTIAL PROJECTS

- Letters to Utility Companies – is on hold awaiting further information. This project would entail disseminating letters to utility companies about tanks that must be elevated or anchored. The letters would also discuss requirements for elevating heating, ventilation, and air conditioning (HVAC) equipment above the base flood elevation (BFE).
- Veterinarian Outreach – is on hold awaiting further information. This project would entail disseminating information to local veterinarians about pet preparedness for all hazards. The messaging would also encourage veterinarians to house pets for owners who need to shelter during storms and to remain open during storms to assist with emergency needs.
- Tampa Bay Newspaper – this continues to be on the wish list with hopes for implementation in February 2022. Anamarie Rivera mentioned that she already advertises in this publication for Environmental Management and could work with Floodplain Management to add some flood-related messaging. There was also a recommendation to look into the possibility of publishing content in some local Family Magazines. Deb Vitraelli will gather information and pricing for the magazines she had in mind to present at the next meeting.
- Mary Burrell discussed the Business Flood and Hurricane Outreach Summit which is an effort from Pinellas County Emergency Management to work with businesses to help them develop response plans and continuity plans. Emergency Management has scheduled a series of webinars for Hurricane Preparedness focusing on different audiences, such as Mobile Home Parks, condominiums, faith-based organizations, barrier islands, and small lodging. For instance, the small lodging summit will allow for the managers/owners to create and establish a hurricane readiness plan they can utilize in their businesses. The dates for these webinars will be posted on the Pinellas County website and a flyer will be sent out.
- Allison demonstrated the Elevation Certificate Digitization and EC Entry Application for the municipalities. If you still need access contact Maxine or Cece and we will get your information to Allison at Pinellas County.

4.0 NEEDS/TASKS

- Cece asked if the communities had any additional needs, none were heard.
- Lisa discussed the SBA Disaster Loan Program. It was suggested that we need to do some outreach to educate how to collect damage data, how to document loss and provide resources to the community regarding availability of funds when disaster strikes. Pinellas is planning a press release on this topic.
- Keith Bodeker requested some type of checklist that can be given to residents after a flooding event to help them quickly compile damage to valuables. Perhaps our insurance advocates already have something that can be utilized or revised to fit our needs. Lisa suggested creating a focus group with the insurance advocates, Keith, and others to work on this request.

- A few municipalities requested SharePoint Toolkit training. Maxine reiterated that there will be a demo of the toolkit at the end of the meeting, but that Pinellas County would schedule a full training in March.
- The floor was opened for public comment.

5.0 **REMINDERS**

- We continue to follow Sunshine Meeting Standards.
- All documents on the web must be ADA compliant.

The next FRMPIWG notice for May 21st, 2021 will be sent out after an assessment of meeting conditions is made at the end of March.

Adjourn

Flood Risk and Mitigation Public Information Working Group (FRMPIWG)

Friday, May 21, 2021

Virtual

Join from your computer, tablet, or smartphone. https://www.gotomeet.me/CeceMcKiernan

You can also dial in using your phone.
United States: +1 (646) 749-3131
Access Code: 812-108-797

AGENDA

12:00 PM Call meeting to order – Identify communities are meeting 50/50 Staff/Stakeholder Split (Cece)

12:15 PM Review PPI Annual Report and projects (Maxine)

- LMS and PPI Annual Reports submitted to Pinellas County BOCC on April 27th Meeting
- Review of project matrix (OP)
- Flood Response Projects (FRP) Spreadsheets
- Blue-Sky Social Media Messaging Toolkit
- Pinellas County Flood Map Service
- Flood Awareness Week recap
- Hurricane Awareness Week recap – Mary Burrell
- Issues or questions from Local Governments

1:00 PM Review of FRMPIWG tasks accomplished by municipalities (Everyone)

- Real Estate Disclosure Program – Uploaded brochures and postponed training
- Emergency Management Annual Summits (Faith-Based, MHPs, Businesses, Condominiums, Barrier Islands, and Small Lodging) – Mary Burrell
- SharePoint Toolkit Training on May 17th at 2pm
    - Toolkit feedback from municipalities
- Flood Awareness Week Social Media Campaign in conjunction with Sarasota County
- Maxine demonstrated the Elevation Certificate Digitization and EC Entry Application for the municipalities. Two trainings were conducted.

1:20 PM Discuss any new project ideas (Maxine & Cece)

- 2021 Hurricane Outreach –
    - Hurricane Guide
    - Emergency Management Annual Summits
    - City Flood/Hurricane workshops
    - Hurricane Preparedness Week Social Media
    - FRP Messages Toolkit
    - Other projects going on?
    - Other needs or ideas?

1:30 PM Discuss any additional needs from municipalities (Cece)

1:40 PM Public Comment

1:45 PM New Action Items/Tasks/Next Meeting October 2021 (Cece)

2:00 PM Adjourn

MEETING MINUTES

PROJECT NAME:	CRS Support/Flood Risk and Mitigation Public Information Working Group (FRMPIWG)
MEETING DATE:	Friday, May 21, 2021
LOCATION:	GoToMeeting

1.0 INTRODUCTION OF PARTICIPANTS (CECE)

- Cece welcomed everyone to the Virtual meeting and Lisa encouraged participants to share their cameras so we could see as many participants as possible.
- Cece assessed the RSVP list to assure the 1:1 staff/stakeholder ratio. Upon review of attendees, all communities met this requirement.

2.0 REVIEW PPI ANNUAL REPORT AND PROJECTS

- Maxine Moore, Pinellas County, welcomed the City of Belleair Beach to the group as they have just recently joined. Khan Boupha, Jones Edmunds, reviewed the PPI Annual Report that was submitted to the Pinellas County BOCC on April 27th. Khan will update the PPI as needed based on projects that have been added in SharePoint. Khan highlighted that information sharing is going on with Sarasota County to help inventory other public information efforts as well as provide opportunities to coordinate messages.
- Maxine presented the LMS annual report submittal to the BOCC. The PPI is included in Appendix H of the LMS.
- Maxine discussed the project matrix for OP and FRP, showed the matrix and asked the communities to make changes to reflect what was accomplished and the status of the projects. Not all projects in the PPI are required for each community and communities can add their own specialty projects. Maxine will send the updated projects list out to the communities to plan for 2021 projects. FRP projects implemented by Pinellas County are usually countywide initiatives; however, local governments can also implement their own using the tools provided by the County. Lisa asked the group to look at the flood response package and add any additional activities that are being done. The matrix is great for the community to give to their public information staff to use for different situations. The flooding recovery tab was added this past year and Maxine encouraged people to add to the matrix. Some new messages were created based on lessons learned from Hurricane Eta.
- Maxine updated members about the Blue-Sky Social Media Messaging Toolkit, which the committee was in support of developing, to help with pushing out regular messages throughout the year. Local governments can use this schedule or make their own, but it is coded (#FloodplainFriday) to make the messaging easier to identify. The messages often incorporate upcoming holidays to allow for the general public to easily relate to the message as well as providing a shortened web link for more information. Communities may contact Maxine if they have difficulty accessing these messages.
- Maxine showed the Pinellas County Flood Map Service site, which is easy to view on tablets and phones based on the latest update. She highlighted the Real Estate Disclosure app as well as the Elevation Certificate upload site. Maxine provided the link to the communities and asked for feedback on use of site. Lisa mentioned that Pinellas County received the new FEMA FIRM data and that it will be getting loaded on the website soon.

- Maxine talked about Pinellas County's collaboration with Sarasota County. One of the collaborative initiatives is the use of Floody the Frog for messaging for Flood Awareness Week. Pre-scripted messaging from the Florida Floodplain Managers Association (FFMA) was used for the week. If communities would like to use Floody the Frog messaging throughout the year, they can reach out to Sarasota County. Contact Maxine for the specific person to connect with.
- Maxine shared the engagement stats for all the social media messaging.
- Hurricane Awareness Week, starting May 9, 2021, was recapped by Mary Burrell of Pinellas County Emergency Management (PCEM). Using the National Weather Service (NWS), Pinellas County pushed consistent messages out during the week and provided messages in Spanish. Other municipalities can use the messaging and can add their website customization. Pinellas County uses #GetReadyPinellas for emergency-related planning messages. Mary discussed ways to get messages across to the general public and continuously reinforce them through multiple opportunities. Maxine took the messages Emergency Management released during Hurricane Awareness Week and put them into the SharePoint toolkit along with the associated images. The Hurricane Tax Free Holiday starts May 24, 2021. During this period, Pinellas County will be pushing out those messages too.

REVIEW OF FRMPIWG TASKS ACCOMPLISHED BY MUNICIPALITIES

- Maxine discussed the Real Estate Disclosure Program, which is an effort to work with our Stakeholder, Pinellas/Pasco Realtor Organization (PRO). The next training is June 15, 2021 at 9am and includes the Property Appraiser, Pinellas County Floodplain staff, and Flood Insurance Advocates as speakers. The training informs real estate professionals on how to use flood information to inform potential buyers of flood risk. Cece and Lisa both discussed the importance of each community connecting with local realtors to get training and become a community real estate stakeholder. This relationship will help to add value to the real estate professional's services to their clients as well as help the community spread the PPI messages. In addition, this will provide opportunities for the community to collect the brochures which apply to this project in the PPI and, in turn, allow the community to gain additional CRS credits. Lisa mentioned that Pinellas County reaches out twice a year to agents.
- Maxine discussed the recent SharePoint Toolkit Training and where to find the recording as well as highlighting the discussion board. Please reach out to Maxine if you still have questions.
- Mary Burrell discussed the Emergency Management Annual Summits which PCEM has been hosting and providing to various groups as in-person, virtual, or hybrid events. These summits bring experts together to talk with attendees about hurricane preparedness, provide resources such as hurricane guides, discuss past experiences, and lessons learned. Each summit is focused on a targeted audience such as barrier islands, mobile home parks, condominiums, businesses, small-lodging, and faith-based organizations. Pinellas County received several calls after the events asking for resources and provided positive feedback, which is an indication that the summits were effective. The Small-Lodging Summit will take place in June. Mary stated that these summits will occur annually since there was such positive feedback from the attendees. Lisa stated that since these events are targeted, will be occurring on an annual basis, and provide messaging supported by the PPI, communities could possibly receive CRS credit for them. The PPI will be revised to update the priority areas and audiences as necessary. Lisa wants to investigate how crediting would work for

these events and how the virtual events will be credited. Khan will check with ISO. Lisa asked for Mary to pull together a list of annual events PCEM provides/hosts/attends and to identify which ones will be virtual, in-person, or hybrid.

- Maxine talked about the Elevation Certificate (EC) Upload Application and told everyone about the training provided as well as upcoming trainings. Right now, bulk download of all attached certificates per municipality is not a capability, but Pinellas County will try to facilitate this in the future. Maxine reminded everyone that municipalities must keep track of their floodplain-related construction certificates, such as ECs, to satisfy the CRS requirement. Pinellas County is developing Standard Operating Guidelines (SOG) for how floodplain-related Construction Certificates are collected, maintained, and reviewed which is a new pre-requisite for a CRS Class 9 status. The County will share this once it is finalized. Lisa stressed that our Local Mitigation Strategy (LMS) is used as the Floodplain Management Plan and includes with it our Flood Warning and Response Plan, both of which are available through the SharePoint toolkit. Therefore, the toolkit is beginning to go beyond just outreach.

3.0 NEW PROJECTS

- Map update outreach plan under development
- Risk Rating 2.0 outreach plan to be developed
- Hurricane Guide for 2021 will be distributed May 27th.
    - Local governments shared their meetings as well.
- Maxine reviewed the Flood Response Program Toolkit (Tropical Storm Eta)
- The group is wanting to hold a Home Inspector training. If any municipality has a contact or knows the best way to get ahold of Home Inspectors, please let Pinellas County know.
- Pinellas County talked to Insurance and Mortgage Associations about flood hazards, maps, and development requirements. They may make this an annual event.
- The newspaper insert will start Fiscal Year 2021-2022 (FY22).
- Municipalities are looking for examples of permanent storm surge signs or markers. Several communities were mentioned such as Gulfport, Pinellas Park, Redington Shores, and Tarpon Springs. This will be added as a project in the PPI and will be added to the SharePoint for implementation documentation for communities that elect to implement.
- October 25, 1921 was the last major hurricane to hit Pinellas County. This was a literal 100-year storm event. This event created John's Pass and we should not maintain complacency. PCEM would like to use this as a teaching tool for the public and stress how important storm readiness is.

4.0 REMINDERS

- We continue to follow Sunshine Meeting Standards.
- All documents on the web must be ADA compliant per law. If a municipality or stakeholder is linking to the Pinellas County website for communication of your flood risk information, then the ADA requirement is met.

5.0 ADDITIONAL NEEDS FROM THE MUNICIPALITIES

- Make a list of floodplain-related awareness weeks with dates such as Hurricane Preparedness Week or Flood Awareness Week. Maxine will create an on-going list of the awareness weeks and place it on the SharePoint. Please send in any new ones and check out Ready.gov.

6.0 PUBLIC COMMENT

- There was no public comment.

7.0 ACTION ITEMS

- Maxine will send the updated projects list out to the communities to plan for 2021 projects.
- The next FRMPIWG notice for October 22nd, 2021 will be sent out after an assessment of meeting conditions is made at the end of the summer.

Flood Risk and Mitigation Public Information Working Group (FRMPIWG)

Friday, Oct 22, 2021

Virtual

Join from your computer, tablet, or smartphone.
https://us02web.zoom.us/j/9400362555?pwd=Wkp1VUFubWVERVFtNm0rOFV3Tk5iZz09

or call 929-205-6099

Meeting ID: 940 036 2555

Passcode: 461115

AGENDA

12:00 PM Call meeting to order – Identify communities are meeting 50/50 Staff/Stakeholder Split (Cece)

12:05 PM Discussion regarding CRS Class 3 rating (Lisa)

12:15 PM Risk Rating 2.0 Update (Ashley)

12:25 PM Review PPI for Annual Report (Maxine)

1. Planning Committee
    a. Membership changes (PPI 1-2)
2. Public Information Needs (PPI 3-1)
    a. Pinellas County Vulnerability Assessment
    b. Risk Rating 2.0
    c. CRS Discounts
    d. Resiliency and Sustainability
    e. Flood Insurance Coverage Assessment (every 5 years)
3. Target Audiences
    a. Review Table 4-1
4. Messages and Outcomes (PPI 5-2)
    a. Premise, call to action, and reason why
    b. Resiliency and Sustainability messaging to replace the additional insurance-related topics for messaging
        i. “Understand Flood Insurance” will be combined into “Insure Your Property for Your Flood Hazard”
    c. Revamping the “Flood Economics” messaging to include more defined key messages
    d. Revise the insurance messaging to reflect Risk Rating 2.0
    e. Low Impact Development (LID) messages are under two topics (“Build Responsibly” and “Protect Natural Floodplain Functions”)

5. Projects (PPI 6-1)
    a. Critical Projects Implemented by all communities?
    b. Emergency Management Annual Summits
    c. Newspaper Article
    d. Social Media – Podcasts
    e. Veterinarian Email Blast
    f. Home Inspector training
    g. Insurance and Mortgage Association Annual Training
    h. Storm Surge Inundation Level Signage
    i. Check your Community on the OP Matrix

1:05 PM Review LMS for Annual Report (Maxine & Lisa)

- Quick Overview: Defines hazards to the community, last update was 2020, serves as the floodplain management plan
- Timeline:
    - All Updated documents including project lists and scoring sheets are due Nov. 30
    - Anything remaining and confirmation of updates are due Dec. 17
- LMS Working Group is currently updating the list of projects (Table D-1)
    - Added New Project: Mixed-Use Multi-Purpose Mobility Hub (City of Madeira Beach)
- Appendix C: CRS 610 Flood Warning and Response Plan
- Appendix H: PPI Annual Update
- Appendix I: RLAA needs updated – Review action items, what was implemented, and recommended changes

1:40 PM Open Discussion (Cece)

1:45 PM Public Comment

1:50 PM New Action Items/Tasks/Next Meeting January 2022 (Cece)

2:00 PM Adjourn

MEETING MINUTES

PROJECT NAME:	CRS Support/Flood Risk and Mitigation Public Information Working Group (FRMPIWG)
MEETING DATE:	Friday, October 22, 2021
LOCATION:	GoToMeeting

1.0 IDENTIFY COMMUNITIES, CRS CLASS 3 AND RISK RATING 2.O UPDATE

- Cece welcomed everyone to the Virtual meeting and Lisa reviewed how this group serves not only as the Multijurisdictional PPI committee but also as our Floodplain Management Stakeholder Working Group along with our Flood Response Messaging and our Flood Insurance Information Review Groups. This makes our meeting a very comprehensive review of the connectivity of all these aspects in floodplain management. The County made great effort to explain to the Insurance Services Office (ISO) how pulling everything into one focused meeting would best serve the County and all its municipalities.
- Cece assessed the attendance to assure the 1:1 staff/stakeholder ratio. Upon review of attendees, all communities met this requirement.
- Lisa announced that Pinellas County Unincorporated recently received a Class 3 Community Rating System (CRS) rating. Lisa recognized all the Working Group participants as having contributed to this success. This means a 35% discount on flood insurance for unincorporated residents. Communities outside the unincorporated area will benefit from the activities of this group and may see a different discount dependent on their individual activities documented through CRS with ISO. Sarah Kessler from the City of Clearwater asked Lisa to provide a presentation to the area CRS Working Group about how they achieved the Class 3 rating as Clearwater would like to also reach that level. Lisa spoke about the County's Stormwater Manual and Watershed planning process which is available to all the municipalities to adopt and use toward reaching the Class 5 goal initially.
- Lisa reviewed how the 35% discount applies through Risk Rating 2.0 (RR2). Ashley Tharp, Flood Insurance Advocate for Pinellas County and stakeholder on this committee, gave an update on recent activities in RR2. Any new business, such as new policies, in the National Flood Insurance Program (NFIP) as of October 1, 2021 will be rated with RR2. Some areas, especially near the coast are seeing higher premiums but some are also dropping. Factors that increase risk have changed from what we are accustomed to. Elevation Certificates, although not required with the new system, seem to help in some areas. Majority of Pinellas County Mayors/Leaders sent a letter to FEMA asking them to pause RR2 until identified issues have been resolved. Many legislators have written letters to FEMA so if you are having problems, reach out to your area legislator as they may have already contacted FEMA with their frustrations. It would be difficult to reverse though as many residents across the United States have realized cost savings from this new methodology. Transparency of how premiums are calculated would help with some of the frustration.

REVIEW PPI ANNUAL REPORT AND PROJECTS

- Maxine Moore, Pinellas County, started with the review of the Annual Report for the PPI which is Appendix H in the Local Mitigation Strategy (LMS). We started with a review of the

PPI Committee members **(PPI 1-2)**. We will only officially update the list in the document every 5 years but want to keep up with any changes in core staff or stakeholders.

- Maxine then covered the **Public Information Needs (PPI 3-1).**
    - The Pinellas County Sea Level Rise and Vulnerability Assessment is a countywide coastal flood risk assessment which maps sea level rise and storm surge. Many communities have adopted this Assessment so it will be added to this review process.
    - With the inception of RR2, the group will review the existing insurance messaging and develop (if needed) language to better communicate this. Lisa shared a press release that was sent out in September 2021 discussing the CRS Class 3 achievement as well as covering RR2 and encouraging residents to call their flood insurance agents. This can be a baseline for future messaging. The group is encouraged to send Maxine and/or Cece messaging ideas so they can be compiled and reviewed by the committee. Keith Bodeker, Town of Belleair, asked if we had any outreach materials that could be shared as an infographic. We will add that to our future projects. Linda Yang, Stakeholder, shared that there was confusion among flood insurance professionals between the Pinellas County Flood Maps and FEMA Flood Maps that are both available. Lisa clarified that flood insurance is based on FEMA maps and local development decisions should be based on both the Pinellas County Flood Maps and FEMA Flood Maps. Pinellas County will clarify this in the messaging and will provide it to the group for review in the Annual Report.
    - CRS Discounts for the various municipalities needs to be clarified as there are so many and confusing for residents. The committee will ponder ways to get this messaging across and will discuss more in depth in the next meeting.
    - This group reviews the Flood Insurance Coverage Assessment officially every 5 years for the PPI but also does so annually just to identify areas that may need further outreach. We are waiting for the current data to be sent from FEMA. Each community needs to request that data from FEMA independently. Once the data is received, it will be reviewed and assessed for updates to the Flood Insurance Coverage Assessment.
- Maxine reviewed the **Target Audiences** based on the Table in the PPI and asked for changes.
    - Veterinarians were mentioned as this is a project the committee would like to proceed with.
    - Jamie Viverios from Treasure Island recommended adding renters, this will be incorporated into our messaging and could be its own outreach project at a later time.
    - Dawn Forrest, Wright Flood, recommended adding Mobile home park residents.
- Maxine then covered the **Messages and Outcomes (PPI 5-2)**.
    - We need to add premise, call to action and reason why.
    - Adding resiliency and sustainability.
    - "Understand Flood Insurance" will be combined into "Insure Your Property for Your Flood Hazard". The topic of Resiliency and Sustainability was added. Maxine worked with Hank Hodde, Pinellas County Resiliency Coordinator, to develop key messages for this topic. The committee was asked to send their ideas to Pinellas County, so they can be compiled and reviewed by the committee.
    - The committee discussed adding language to explain Coastal A Zone and LIMWA. Khan Boupha also mentioned to add proper construction practices.
    - Adding to the "Flood Economics" messaging to include more defined key messages, such as the CRS Discount.
    - Revise the insurance messaging to reflect Risk Rating 2.0. Dawn Forrest, mentioned to add that the NFIP policy is transferrable.
    - Low Impact Development (LID) messages are under two topics ("Build Responsibly"

and “Protect Natural Floodplain Functions”) and will need to be reviewed more in depth.
    - The group was asked to look at the blue highlighted messages and add additional call to actions and reasons why.
- Maxine reviewed **Projects (PPI 6-1).**
    - Projects are listed in the Outreach Project (OP) Matrix. Each municipality does not have to do all the projects listed but needs to identify which projects are complete for the annual report.
    - TBN Newspaper article is planned for 2022. Anamarie Rivera from Pinellas County Environmental Services mentioned that their section already has TBN Newspaper articles relating to environmental regulations. We should be able to use this as a Multijurisdictional effort. Maximum credit for this should be approved by ISO. Shooting for wide coverage throughout the year.
    - Sarah Kessler got the email list of all Veterinarians in the area, but we are still looking for a stakeholder to run with this project. Pinellas County already has content that we can use. We can ask someone from Animal Services to assist. Cheryl Morales, Pinellas Public Library Cooperative, would also like to be involved.
    - We are looking for a connection with the Home Inspector Council/Association for training.
    - Insurance and Mortgage Association Annual Training is in the process of being planned for 2022.
    - Storm Surge Inundation Level Signage has been added as a project since many of the participating communities have these.
- Maxine then opened discussion on the **LMS for the Annual Report**
    - Maxine reviewed what the LMS is and how it serves as the Floodplain Management program. It is required by FEMA and FDEM and our updates are needed by December 17. Local governments will have to manage their own process with their elected officials.
    - Is there anything this group needs to update with the LMS? Maxine will send out the latest list for review.
    - Appendix C: CRS 610 Flood Warning and Response Plan, Appendix H: PPI Annual Update, and Appendix I: RLAA needs updated – Review action items, what was implemented, and recommended changes.
    - Linda Portal from Madeira Beach reviewed a new project and discussed those details regarding a multimodal hub for storm response and emergency management station and parking facility to store critical equipment above floodwaters.
    - Everyone got a homework link so please review this link and provide input to Maxine before November 30th.

REMINDERS

- We continue to follow Sunshine Meeting Standards.
- All documents on the web must be ADA compliant per law. If a municipality or stakeholder is linking to the Pinellas County website for communication of your flood risk information, then the ADA requirement is met.

FORMING A MESSAGING TASK FORCE

- Send an email to Cece if you are interested in participating on the Messaging Task Force and we will schedule a working session for next year.

ADDITIONAL COMMENTS

- Bill Jonson, former Clearwater Council Member, lead a discussion on the importance of reaching out to those most vulnerable. Noah Taylor talked about derelict/abandoned housing

after a significant storm event. Lisa and Maxine will investigate whether this is codified or if it is just part of a recovery plan.

- Linda Yang mentioned RR2 is bringing in more calls to our Flood Insurance Advocates and encouraged other flood insurance agents to become an advocate.

PUBLIC COMMENTS

- There were no public comments during this meeting.

ACTION ITEMS

- Send any ideas about meeting places to Cece where we can hold a hybrid meeting, preferably a large room with good sound, Wi-Fi and technology. Pencil this meeting in for January 21st at noon.

Flood Risk and Mitigation Public Information Working Group (FRMPIWG)

Friday, January 28, 2022

Virtual

Join Zoom Meeting
https://us02web.zoom.us/j/83179906232?pwd=RWpmQUlTNk5tU2dodFdqbnpWN1ZRQT09

or call 929 205 6099
Meeting ID: 831 7990 6232
Passcode: 933042

AGENDA

12:00 PM Call meeting to order – Identify communities are meeting 50/50 Staff/Stakeholder Split (Cece)

12:05 PM Review LMS Annual Report and PPI Progress for 2022 (Maxine)

- LMS Annual Report was approved by the LMS Working Group
- Review of PPI project matrix (OP and FRP) for any additional updates
- Timeline of the PPI Projects
- Issues or questions from Local Governments

1:00 PM Review of FRMPIWG tasks accomplished by municipalities (Everyone)

- Real Estate Disclosure Program – February 15 Training (Virtual)
- FRP Messages Toolkit Updates – Gage Messaging
- Flood Guide Updates
- Blue-Sky Social Media Toolkit Updates
- SharePoint Toolkit feedback from municipalities
- Elevation Certificate Digitization and EC Entry Application
- Emergency Management Annual Summits 2022 schedule (Mary)
- Flood Map Service Review and Survey (bit.ly/PCFloodDataSurvey2022)

1:20 PM New Project Status (Maxine & Cece)

- Risk Rating 2.0 impacts
- Home Inspector training
- Insurance and Mortgage Association Annual Training
- Veterinarian Outreach
- Newspaper inserts
- Storm Surge signage

1:30 PM Discuss any additional needs from municipalities (Cece)

1:40 PM Public Comment

1:45 PM New Action Items/Tasks/Next Meeting May 2022 (Cece)

2:00 PM Adjourn

MEETING MINUTES

PROJECT NAME:	CRS Support/Flood Risk and Mitigation Public Information Working Group (FRMPIWG)
MEETING DATE:	Friday, January 28, 2022
LOCATION:	GoToMeeting

IDENTIFY COMMUNITIES, LMS Annual Report and PPI Progress Reports for 2022

- Maxine Moore, Floodplain Technician with Pinellas County welcomed everyone to the Virtual meeting, introduced Lisa Foster, Pinellas County Floodplain Administrator and Cece McKiernan, consultant and mentioned that Cece takes care of making sure all the participating communities maintain a 50/50 staff/stakeholder split to qualify for the PPI. Maxine invited everyone to open their microphone, put a comment in the chat or email any one of the three meeting leaders with any questions or comments.
- Cece assessed the attendance to assure the 1:1 staff/stakeholder ratio. Upon review of attendees, all communities met this requirement.
- Maxine mentioned that the agenda was just sent to everyone via email, was also up on the screen and will be available on the Pinellas County Flood Information Website.
- Maxine explained that this meeting is used as the official review of the LMS and PPI Annual Reports. The PPI Report is submitted as part of the LMS Annual Report. We have circulated the PPI Report and asked for any comments that have not already been addressed. No additional comments were mentioned. The LMS report was approved last week by the LMS Working Group and is submitted to the State.
- Maxine discussed the Outreach Project Matrix spreadsheet and reminded the communities of the importance of keeping this list up to date. This group has identified projects we think are important, but each community does not have to complete all these projects. Communities only get Community Rating System (CRS) points for the projects they complete but will also get points for projects that Pinellas County completes for the entire County. Maxine encouraged communities who have not provided updates to the sheet, to do so and add dates to assist with documentation and tracking.
- Maxine highlighted and demonstrated the SharePoint toolkit which keeps track of all the documents, projects, and schedule of what will be accomplished throughout the year. Maxine has updated the SharePoint with events for 2022. Community leads can add their own event or send it to Maxine to add.
- Maxine also discussed the Flood Response Project Matrix and showed how to review it.
- Anyone can get view access to the SharePoint, so please email Maxine or Cece to be added to the site.

REVIEW OF TASKS ACCOMPLISHED BY MUNICIPALITIES

- Maxine talked about the Real Estate Disclosure Program and the next training is scheduled for February 15th. Send any Real Estate agents to the Pinellas Realtor Organization website to sign up. An updated brochure will be ready for this meeting and shared with the group.
- The FRP Messages Toolkit has been updated with Gage Messaging. Messages are categorized by event and can be used by all communities. Requests have been made to make messaging searchable for ease of use. The committee decided to revamp this toolkit after hurricane season this year.

- The Flood Guide will be updated to reflect requests from past meetings and will be distributed when ready.
- The Blue-Sky Social Media Toolkit is also being updated and Maxine will share that with the group when ready.
- Maxine asked if there were any comments on the Elevation Certificate entry program and none were provided during the meeting.
- Mary Burrell talked about the schedule for the Annual Summits. Series of Annual Webinars from 1 – 2 pm, Feb 23rd will be for Mobile Home Parks. March 23rd, condominiums, April 27th will be general business and May 25th for Faith Based. They will be recorded and put on the YouTube channel. Maxine will add this information to the events calendar on SharePoint.
- Severe weather preparedness will be held Feb 9th. The Great Tornado Drill will also be conducted again this year.
- The Hurricane Guide will be updated along with the website, weather radios will be distributed to residents.
- Lisa reviewed the Flood Map Service website to show where the data is stored along with links to a survey, we are asking everyone to participate in that looks at what municipalities use for their data.
- Noah Taylor, CRS Coordinator for St. Petersburg mentioned that using the FEMA data can be an issue as their website is often down so links from Pinellas County to that data can be impacted. Pinellas hesitates to not keep a direct feed of the FEMA data because they do not want to provide data that is not the most recent from FEMA. Lisa will discuss this again with Pinellas County BTS to determine best approach and data practice. Housh Ghovaee, President & CEO of Northside Engineering, Inc, asked about the use of the vulnerability studies. Pinellas County uses best available data to ensure development is reasonably safe from flooding from up to the 100-yr storm event. The FEMA maps are based on data that was available in 2012; Pinellas' maps are based on data that was available in 2018.

NEW PROJECT STATUS

- Pinellas will continue to update the group with Risk Rating 2.0 impacts.
- Still looking for Home Inspector contacts as well as Insurance and Mortgage training.
- Sarah Kessler, CRS and MS4 Coordinator for the City of Clearwater, has continued gather veterinarian contacts to work on that project.
- Tampa Bay Newspaper inserts are underway, Maxine showed an example. The Pinellas County graphics team is working on three, check out the events calendar for a schedule. Not all locations will be covered. Not all messages will be covered every time, but a few editions will have the entire page and cover all messages. We will highlight an edition that targets our seasonal residents. Proofs will be shared with the team.
- Storm surge signage was added as a new project so those communities that have them can start getting credit through the PPI. We ask communities that have those signs, please share pictures to give examples to other communities.

REMINDERS

- We continue to follow Sunshine Meeting Standards.
- All documents on the web must be ADA compliant per law. If a municipality or stakeholder is linking to the Pinellas County website for communication of your flood risk information, then the ADA requirement is met.

FORMING A MESSAGING TASK FORCE

- We still plan to form this task force, please send an email to Cece if you are interested in participating on the Messaging Task Force and we will schedule a working session for later this year.

ADDITIONAL COMMENTS

- One more request to show the SharePoint, we ask anyone that wants read-only access, please let us know. Maxine also mentioned the online training session that is available. She showed additional 310 information. Automatic emails are sent out when the calendar is updated.
- Maxine also mentioned the Discussion Board which is another great resource for everyone.

PUBLIC COMMENTS

- There were no public comments during this meeting.

ACTION ITEMS

- Send any ideas about meeting places to Cece where we can hold a hybrid meeting, preferably a large room with good sound, Wi-Fi, and technology. Pencil this meeting in for May 6th at noon.
- Once the PPI and LMS are back from the State and approved, each community must get it on their elected officials' agenda as a consent agenda item to be recognized by ISO as approved. Save that agenda and minutes saying they approved the reports as documentation. Communities just need to produce the Pinellas report and can show their elected officials their own projects. Pinellas will send everyone an email once the reports are approved and tell the communities what is needed.
- Mary asked any community that will be doing a Hurricane prep event, bring it to the May 6 meeting so Pinellas County can cross promote it.

Flood Risk and Mitigation Public Information Working Group (FRMPIWG)

Friday, May 6, 2022

Hybrid

Join Zoom Meeting
https://us02web.zoom.us/j/83179906232?pwd=RWpmQUlTNk5tU2dodFdqbnpWN1ZRQT09
or call 929 205 6099
Meeting ID: 831 7990 6232
Passcode: 933042

AGENDA

1:00 PM Call meeting to order – Identify communities are meeting 50/50 Staff/Stakeholder Split (Cece)

1:05 PM Review LMS Annual Report and PPI Progress for 2022 (Maxine)

- LMS Annual Report going to BOCC on May 24, 2022
- Review of PPI project matrix (FRP) for any additional updates
- Issues or questions from Local Governments

2:00 PM Review of FRMPIWG tasks accomplished by municipalities (Everyone)

- Real Estate Disclosure Program – TBD (In-Person)
- FRP Messages Toolkit Updates – Hurricane Season (https://www.tbnweekly.com/pinellas_county/article_8b80f0a2-c25a-11ec-b9c2-a3c5ef18e42b.html)
- Flood Guide Updates
- Blue-Sky Social Media Toolkit Updates – through August
- Repetitive Loss Area Mail-Outs
- SharePoint Toolkit feedback from municipalities
- Elevation Certificate Digitization and EC Entry Application
- Emergency Management Annual Summits 2022 schedule (Mary)

2:20 PM New Project Status (Maxine & Cece)

- Risk Rating 2.0 impacts
- Home Inspector training
- Insurance and Mortgage Association Annual Training
- Veterinarian Outreach
- Newspaper Inserts
- Storm Surge signage

2:30 PM Discuss any additional needs from municipalities (Cece)

2:40 PM Public Comment

2:45 PM New Action Items/Tasks/Next Meeting May 2022 (Cece)

3:00 PM Adjourn

MEETING MINUTES

PROJECT NAME:	Flood Risk and Mitigation Public InformationWorking Group (FRMPIWG)
MEETING DATE:	Friday, May 6, 2022
LOCATION:	**Hybrid Meeting – On Teams and In-Person at** Pinellas County Property Appraisers Office – Training Center 2500 34th St. N 2nd Floor (above the Department of Motor Vehicles) St. Petersburg, FL 33713

IDENTIFY COMMUNITIES, LMS Annual Report and PPI Progress Reports for 2022

- Cece McKiernan, consultant for Pinellas County, welcomed everyone to the Hybrid meeting, introduced Lisa Foster, Pinellas County Floodplain Administrator and Maxine Moore, Floodplain Technician with Pinellas County. Lisa mentioned that Cece will review attendance making sure all the participating communities maintain a 50/50 staff/stakeholder split to qualify for the PPI. Lisa explained the purpose of the Working Group in providing consistent flood risk messaging across all the municipalities and thanked them for their participation. Maxine took over the meeting.
- Maxine explained that this meeting is used as the official review of the LMS and PPI Annual Reports. The LMS Annual Report will be going to the Board of County Commissioners (BOCC) on May 24th, along with the PPI Annual Report which is included as part of the LMS. Communities, remember, these reports need to go to each of your individual governing Boards for approval for you to receive Community Rating System (CRS) credits. These reports can be found on the SharePoint Toolkit.
- Maxine also discussed the Flood Response Project (FRP) Matrix and mentioned we should be looking at this as we head into hurricane season. She showed how to access the Matrix and then reviewed it to highlight some additions. Maxine will send this to the group to review with their Stakeholders and decide which projects they will do in the event of flooding or an emergency this year. These are not like your annual outreach projects; these are only done in response to flooding events. The projects highlighted in orange are those still waiting to be implemented. After the flood brochure, kiosk messages in municipal buildings, social media podcasts. Please review. Maxine reviewed the other current projects and discussed those projects that communities can choose to take on.
- Anyone can get view access to the SharePoint, so please email Maxine or Cece to be added to the site.

REVIEW OF FRMPIWG TASKS ACCOMPLISHED BY MUNICIPALITIES

- Real Estate Disclosure Program continues and is planned to return in person to the Pinellas Realtor Organization (PRO) this July. Everyone will be informed of this next training session on the SharePoint Calendar. The County has updated the brochure for that to change the Flood Insurance to include new topics and include Risk Rating 2.0. It will be on the SharePoint soon and is connected to the map the agents currently fill out and submit.
- The FRP Messages Toolkit has been updated and Maxine brought that list up and showed anyone who is new how to use it. It has been revised to make it searchable and will be put up on the SharePoint. Levels of flooding, risk and recovery are listed along with associated methods of messages are shown before, during and after the event. Maxine demonstrated a

few scenarios.

- Flood Guides are being updated with better flow of information. Maxine showed how to access them online. Our Flood Insurance Advocates were mentioned if communities have residents with questions or have questions themselves.
- The Blue-Sky Social Media Toolkit is also being updated and Maxine mentioned it is updated until August and is available on the website. #floodplainfriday
- Repetitive Loss Area mailouts were discussed. Pinellas County Unincorporated will be mailing those out. An example is on the website. Maxine mentioned that many Mobile Home Parks don't have individual addresses so the County will print out the number of letters a Park will need and mail those to the management office. We ask them to disseminate the letter to each homeowner. There was a discussion on the lengthy amount of time it takes for communities to get their repetitive loss data. Lisa will reach out to FEMA Region IV again to see if we can assist in any way to expedite that process. Several communities asked for help. Lisa will send a template of their request. If you have not received updated data, you can use your most recent data and ISO has told us they will accept that.
- Maxine showed everyone where the LMS and PPI Annual reports are kept so local government's can use in getting their Boards to approve. Feel free to reach out to Maxine to get access to the SharePoint where all this information is located. Real Estate Brochures are also kept here for you to download. There is also a training video on the main page showing how to use the SharePoint. When you look up your municipality also add County Wide projects because individual municipalities get credit for County Wide projects. Real Estate Brochures now also show who submitted them because a community needs five brochures from five different agents to qualify for this stakeholder project.
- The SharePoint calendar was reviewed and discussed. Several communities have events coming up and those can be added to this group calendar. You can add this calendar to your Outlook calendar to transfer events to your own calendar. Announcements are sent to members of the SharePoint. Only big events will be added there to prevent too much mail.
- Lisa discussed the Tampa Bay Newspapers article Emergency managers prepare for active hurricane season | Pinellas County | tbnweekly.com
- Mary Burrell updated the group on the updated Evacuation Zones in the areas, 98,000 people are impacted (low to high and high to low). Pinellas is planning a bigger announcement in the coming weeks. Postcards will be directly mailed to impacted households. Mary will be preparing simple talking points for these changes and sharing those with the local governments. Storm.PinellasCounty.org will be used for announcements, information, and a place to report damage. Pinellas County Storm Events
- All Hazard Preparedness Guide is available, smaller size, activities for kids, in English, Spanish and Vietnamese. Paper copies are delivered to city halls, libraries, fire stations, Lealman Exchange, and Palm Harbor Center for bulk pickup. Several other partners get these out.
- Ready Pinellas App will provide content based on the situation, blue sky, storm approaching, damage reporting, shelter in place and make this all live. It also has notifications like Alert Pinellas, from the National Weather Service and include real time emergency notifications that can go right to resident's phones.
- Pinellas County received 1700 Emergency Weather Radios from a State Grant that will be delivered to at risk communities (MHP) soon. The County is looking for partners to deliver to specific parks in July. Documentation of delivery and help with setup for residents will need to be done. Not a part of the PPI due to this not being an annual activity.

NEW PROJECT STATUS

- Lisa gave everyone an update on Risk Rating 2.0. There are discrepancies regarding the CRS discount, and we suggest residents contact the Office of the Flood Insurance Advocate at 202-646-2953 with issues. Maxine reminded everyone that someone that buys a home should try to assume an existing policy from the previous homeowner. It could save them a great deal of money. We won't be doing a new project until the messages become clearer. Dawn Forrest from Wright Flood commented on policy assumptions.
    - Additional discussion included talking about Elevation Certificates and how although these are no longer required for flood insurance quotes, we hear that having one really helps with proper evaluation of risk. Maxine showed how to look up ECs in the Pinellas County database. FEMA will be updating the EC to better streamline the process and provide more information to the Risk Rating 2.0 software.
- Still looking for Home Inspector contacts as well as Insurance and Mortgage training. Looking for someone to run these projects. Terri emailed Lisa the address for the Home Inspector Association.
- Sarah Kessler, CRS and MS4 Coordinator for the City of Clearwater, has continued gather veterinarian contacts to work on that project. Looking for someone to run this project.
- Tampa Bay Newspaper inserts have been created and went out to a certain area. The maps of where these went are on the SharePoint. Two or three municipalities were not covered. We added the "calling all seasonal resident" section as the group recommended.
- Storm surge signage was added as a new project so those communities that have them can start getting credit through the PPI. We ask communities that have those signs, please share pictures to give examples to other communities. A few pictures of signs were shared but most are old and outdated.

PUBLIC COMMENTS

- Discussion on what the practice exercise was for Hurricane Season.
- Discussion on elevating homes to help with damage reduction but not having to bring entire home into total compliance. There is legislation on the ballot this November to advocate for this exact issue. It's a provision added to the Calamity Clause.

REMINDERS

- We continue to follow Sunshine Meeting Standards.
- All documents on the web must be ADA compliant per law. If a municipality or stakeholder is linking to the Pinellas County website for communication of your flood risk information, then the ADA requirement is met.

ACTION ITEMS

- Next Meeting in October

Flood Risk and Mitigation Public Information Working Group (FRMPIWG)

Friday, October 28, 2022

Virtual

Join GoToMeeting
https://meet.goto.com/CeceMcKiernan
Dial: +1 (646) 749-3131
Access code: 812-108-797 #

AGENDA

12:00 PM Call meeting to order – Identify communities are meeting 50/50 Staff/Stakeholder Split (Cece)

12:05 PM Review PPI for Annual Report (Maxine)

1. Planning Committee
    a. Membership changes (PPI 1-2)
2. Public Information Needs (PPI 3-1)
    a. Pinellas County Vulnerability Assessment Phase 2 – Outreach & Stakeholder Input Task (Hank Hodde)
        - Resiliency and Sustainability (Hank Hodde)
    b. Flood Zone/Evacuation Zone/Storm Surge Depth Clarity
    c. Flood Insurance Coverage Assessment (every 5 years - 2024)
        - Understanding Risk Rating 2.0 and CRS Integration (Ashley Tharp)
3. Target Audiences
    a. Review Table 4-1
4. Messages and Outcomes (PPI 5-2)
    a. Premise, call to action, and reason why
    b. Updates to the FRP messaging toolkit
5. Projects (PPI 6-1)
    a. Review the OP Matrix
    b. New Projects needs discussion

1:00 PM Review LMS for Annual Report (Maxine & Lisa)

- Quick Overview: Defines hazards to the community, last update was 2020, serves as the floodplain management plan
- Timeline:
    - All Updated documents including project lists and scoring sheets are due Nov. 30
    - Anything remaining and confirmation of updates are due Dec. 17
- LMS Working Group is currently updating the list of projects (Table D-1)
    - Added New Project:
- Appendix C: CRS 610 Flood Warning and Response Plan
- Appendix H: PPI Annual Update
- Appendix I: Community RLAA needs updated – Review action items, what was implemented, and recommended changes

1:40 PM Discuss any additional needs from municipalities (Cece)

1:45 PM Public Comment

1:50 PM New Action Items/Tasks/Next Meeting January 2023 (Cece)

2:00 PM Adjourn

MEETING MINUTES

PROJECT NAME:	CRS Support/Flood Risk and Mitigation Public Information Working Group (FRMPIWG)
MEETING DATE:	Friday, October 28, 2022
LOCATION:	**Virtual GoToMeeting** https://meet.goto.com/CeceMcKiernan Dial: +1 (646) 749-3131 Access code: 812-108-797 #

IDENTIFY COMMUNITIES

- Cece McKiernan, consultant for Pinellas County welcomed everyone to the Hybrid meeting and stated she will review attendance making sure all the participating communities maintain a 50/50 staff/stakeholder split to qualify for the PPI. Cece then turned the meeting over to Maxine Moore, Floodplain Technician with Pinellas County.

PLANNING COMMITTEE

- Maxine reminded the group that this meeting is to prepare the PPI annual report which coincides with the LMS annual report. Communities are reminded that these reports need to go to each of your individual governing Boards for approval for you to receive Community Rating System (CRS) credits. These reports can be found on the SharePoint Toolkit. Maxine started reviewing the sections for update within the PPI including the municipal members, primary and secondary committee members and asked for input from those on the call for updates or changes.

PUBLIC INFORMATION NEEDS

- Hank Hodde, Pinellas County Resiliency Coordinator, brought the group up to speed on his office's latest efforts including the Vulnerability Assessment Phase 2 and how that pertains to stakeholder input. Pinellas also wants to become compliant with the Resilient Florida Program. Work has been funded by Restore Act in the past, but legislation has now been created to bring money from the Resiliency Trust Fund to use for mitigation activities. The County received a $700,000 planning grant to collect data to further become compliant with the Resilient Florida Program. Filling gaps on asset data collection is primary along with exposure and sensitivity analysis. Data will be available to the entire County although initially run-on Unincorporated Pinellas County. Hank encouraged municipalities to submit for planning grants in the future to match the efforts the County is doing. Maxine asked Hank if this group could facilitate in outreach to municipalities to submit for grants. Also, external outreach for this will be discussed later in this meeting. The group agreed to assist in developing messaging for those projects.
- **Flood Zone/Evacuation Zone/Storm Surge Depth Clarity** was discussed and is part of our blue sky/after storm outreach messaging. Confusion still exists among these different classifications, but it appears that our messaging is slowly starting to work based on social media review. Storm surge will be the next topic to integrate. Several recommendations were brought forward and will be reviewed with the County for feasibility. "The Water is All Connected."
    - Hurricane Category water and Storm Surge bands in prominent and visible areas around the County.
    - Reinstating the 3D demo on the website (being updated) or putting a flat map up (may not be as accurate).

- **Flood Insurance Coverage Assessment** will be updated every 5 years. Ashley Tharp, Wright Flood, provided an update on Risk Rating 2.0. Lots of confusion on showing CRS discounts on policy holders declaration page. Unincorporated Pinellas gets a 35% discount on flood insurance premiums due to their CRS Rating of 3. PPI participating communities can get additional points on their CRS program to help with their rating and discounts for their residents on flood insurance. Area density appears to be a factor in the rising rates of flood insurance in addition to proximity to flooding sources. Maxine reminded everyone that this group has Flood Insurance Advocates as part of our stakeholders and are listed on the website Flood Information - Pinellas County, please use their services.

TARGET AUDIENCES

- Maxine reviewed the audiences currently listed in the table. She asked for additions or changes. A question came up asking if the municipalities were required to do all the projects, they are not, they can just pick what projects they want to do and will be scored for that. A question about the duplication of Home Builders on the list was raised. Any changes should be sent to Maxine or Cece so we can investigate them.

MESSAGES AND OUTCOMES

- Maxine showed the key message spreadsheet, she explained the 10 topics that were initially chosen and how the messages can be used. Cece asked Maxine to help clarify how these can be used by anyone new to the group. These were the original messages developed in the original PPI and messages were used on flyers and handout materials. Six topics are required, and this group created four additional messages.
- There was a stakeholder question raised about water quality and environmental data and we discussed all the efforts of Pinellas County to promote the "Only rain down the drain" messaging. Also, not to play in the floodwaters. Additional message after storm based on what we are seeing from Southwest Florida and all the vibrio and deaths of rescuers. A comment to change "break" to "brake" in the "brake don't wake" message.
- Updates to the Flood Response Program messaging toolkit are ongoing and will be made more user-friendly and less technical. It will then be moved into SharePoint so other municipalities can use it. We will have something before the next storm season.

PROJECTS

- Maxine showed the spreadsheet that provides the project list along with columns for municipalities to tell us which projects they are working on. All yellow highlighted projects are county wide and municipalities can automatically claim credit for these projects. Send any additional participation information to us for inclusion in the Annual Report table. If you are a stakeholder and want to do a new project, please contact your municipality lead first to assess feasibility.

EMERGENCY RESPONSE UPDATE

- Mary Burrell updated everyone on how lessons were learned during Hurricane Ian. Representatives will be at the Emergency Response Center to work with residential and businesses that may have been impacted.

REVIEW OF LOCAL MITIGATION STRATEGY

- This group uses this process to update the floodplain management plan.
  - Updated documents including project lists and scoring sheets are due 11/30
  - Confirmation of updates due 12/17
- The LMS Working Group is currently updating the list of projects - St. Petersburg is proposing to add a project, their Fleet Management Building

- We will send everyone a link to the current LMS for review
- Pinellas County revised their Flood Warning and Response Plan and added it to the Comprehensive CMP. Maxine will contact Smita, lead for the LMS to see if it can then be removed form Appendix C.
- Remember the PPI Annual Update and the Repetitive Loss Annual Analysis must be done by the individual municipalities.

ADDITIONAL NEEDS OF THE MUNICIPALITIES

- The SharePoint was shown to everyone to remind them of the resource.
- We will do an acronym cheat sheet.

PUBLIC COMMENTS

- No public comments were made.
- Lisa Foster thanked everyone, especially our stakeholders! Maxine chimed in with agreement.

REMINDERS

- We continue to follow Sunshine Meeting Standards.
- All documents on the web must be ADA compliant per law. If a municipality or stakeholder is linking to the Pinellas County website for communication of your flood risk information, thenthe ADA requirement is met.

ACTION ITEMS

- Homework coming your way.
- Next Meeting in January

Flood Risk and Mitigation Public Information Working Group (FRMPIWG)

Friday, February 17, 2023

Virtual

Join GoToMeeting
https://meet.goto.com/CeceMcKiernan
Dial: +1 (646) 749-3131
Access code: 812-108-797 #

AGENDA

12:00 PM Call meeting to order – Identify communities are meeting 50/50 Staff/Stakeholder Split (Cece)

12:05 PM Review LMS Annual Report and PPI Progress for 2022 (Maxine)

- LMS Annual Report was approved by the LMS Working Group
- Review of PPI project matrix, report sent to all members
- Timeline of the PPI Annual Report
- Process for Local Governments

12:35 PM Review of FRMPIWG tasks accomplished Countywide (Everyone)

- Flood Guide available at County Libraries
- Hurricane Guide 2022 Available at County Libraries
    - ESOL (Spanish)
    - ESOL (Vietnamese)
- Flood Map Service Training
- Real Estate Agents Flood Disclosure and Information Brochure (English & Spanish)
- Pinellas/Pasco Realtor Organization Newsletter
- Landscape Training
- Bus Wraps
- LMS and PPI Annual Report Press Release
- CRS Users Group Meetings
- Pinellas County Speakers Bureau
- Hurricane Season Press Release

12:50 PM Review of FRMPIWG tasks accomplished by municipalities (Everyone)

- RLA Letter
- Flood Guide available at County/City Buildings
- Hurricane Guide 2022 Available
    - ESOL (Spanish)
    - ESOL (Vietnamese)
- Utility Bill Insert
- Commissioner/Mayor Article in Utility Bills or Mailed letters
- Flood Map Service Promo Email Blast (via Everbridge)

- Storm Drain Markers
- Storm Drain Murals
- Vehicle Wraps
- Scheduled Social Media Posts (Facebook, Instagram & Twitter)
- E-News/E-Lert
- Newsletter(s)
- New Homeowner Brochure and Flyer
- Parks & Recreation Educational Materials
- Informational Videos
- Homeowners Association Meetings
- Community Workshops/Meetings
    - Flood insurance Community Meeting (Redington Shores)
- Only Rain Down the Drain Posted Signage

1:10 PM Updated or New Project Status (Maxine & Cece)

- Repetitive Loss Area Mail-outs
- Tampa Bay Newspapers Full-Page Spread
- Utility Bill Onsert
- Letters to Real Estate Professionals, Insurance Companies, and Mortgage Professionals
- Landscapers Certification (Anamarie)
- Blue-Sky Social Media Messaging
- Updated messaging for Hurricane Season (Emergency Management)

1:30 PM Not Implemented Projects – Need Volunteers (Maxine & Cece)

- Social Media – Podcasts
- Storm Surge Inundation Level Signage
- Home Inspector Training (Mike Fultz)
- Insurance and Mortgage Association Training
- Veterinarian Email Blasts (Mike Fultz)

1:40 PM Discuss any additional needs from municipalities (Cece)

- **FORMING A MESSAGING TASK FORCE**

    - We still plan to form this task force, please send an email to Cece if you are interested in participating on the Messaging Task Force and we will schedule a working session for later this year.

1:45 PM Public Comment

1:50 PM New Action Items/Tasks/Next Meeting May 19, 2023 - Virtual (Cece)

2:00 PM Adjourn

MEETING MINUTES

PROJECT NAME: Flood Risk and Mitigation Public Information Working Group (FRMPIWG)
MEETING DATE: Friday, February 17, 2023
LOCATION: **Virtual GoToMeeting**
https://meet.goto.com/CeceMcKiernan
Dial: +1 (646) 749-3131
Access code: 812-108-797 #

IDENTIFY COMMUNITIES

- Cece McKiernan, consultant for Pinellas County welcomed everyone to the Hybrid meeting and stated she will review attendance making sure all the participating communities maintain a 50/50 staff/stakeholder split to qualify for the PPI. Cece also showed the new website for this group showing all the meetings, the link for the meetings and past agendas and minutes. Cece then turned the meeting over to Maxine Moore, Floodplain Technician with Pinellas County.

PURPOSE

- Maxine reminded everyone that this group's purpose is to review items in the LMS, identify outreach projects pertaining to flood topics as well as identifying flood insurance projects as well.

LMS AND PPI

- **NOTE:** This meeting is used as the official review of the Local Mitigation Strategy (LMS) and Program for Public Information (PPI) Annual Reports. The PPI Annual Report is included as part of the LMS. Communities must submit these reports to their individual governing Boards for approval. These reports can be found on the SharePoint Toolkit.
- Maxine also showed the list of all the projects on the SharePoint in addition to the key messages. Refer to the color coding for additions and deletions.
- The Pinellas County Flood Warning and Response Plan has also been updated. Local governments can update their own plan and can add their own for their review with their own elected board. Be sure to use your documentation as well for CRS purposes.

REVIEW OF TASKS COUNTYWIDE

- Maxine discussed the projects below that were accomplished Countywide reminding everyone that the Flood Guide and Real Estate Disclosure brochures have been updated and will probably be updated again this year.
  - Flood Guide available at County Libraries
  - Hurricane Guide 2022 Available at County Libraries
    - ESOL (Spanish)
    - ESOL (Vietnamese)
  - Flood Map Service Training
  - Real Estate Agents Flood Disclosure and Information Brochure (English & Spanish)
  - Pinellas/Pasco Realtor Organization Newsletter
  - Landscape Training
  - Bus Wraps
  - LMS and PPI Annual Update Press Release
  - CRS Users Group Meetings
  - Pinellas County Speakers Bureau

- Hurricane Season Press Release

TASKS ACCOMPLISHED BY MUNICIPALITIES

- Maxine reviewed these tasks and described how items provided by the County to Municipalities still need to be documented by local entities and shown during their own ISO reviews.
- Maxine highlighted the Flood Insurance Community Meeting. Redington Shores holds this meeting and we wanted to hear about their meeting as a possible example of what other communities might do. Kim Harr, stakeholder for Redington Shores, talked about this meeting, the Small Business Association spoke about services available after a storm, low interest loans and grants. The meeting was in person and there was a good turnout. They provided pizza! Contact Redington Shores if you are thinking of holding a meeting like this.
  - Flood Guide available at County/City Buildings
  - Hurricane Guide 2022 Available
    - ESOL (Spanish)
    - ESOL (Vietnamese)
  - Utility Bill Insert
  - Commissioner/Mayor Article in Utility Bills or Mailed letters
  - Flood Map Service Promo Email Blast (via Everbridge)
  - Storm Drain Markers
  - Storm Drain Murals
  - Vehicle Wraps
  - Scheduled Social Media Posts (Facebook, Instagram & Twitter)
  - E-News/E-Lert
  - Newsletter(s)
  - New Homeowner Brochure and Flyer
  - Parks & Recreation Educational Materials
  - Informational Videos
  - Homeowners Association Meetings
  - Community Workshops/Meetings
  - Only Rain Down the Drain Posted Signage
- Maxine asked if there were any other updates to the projects the municipalities accomplished for last year. None were heard.

NEW PROJECT STATUS

- Maxine moved on to new projects for discussion. Municipalities need to make sure that all messages that are required for CRS are being shared in your communities. Between the Utility Bill and the Tampa Bay Newspaper, all publicity prerequisites are covered. Maps that show where these are distributed are located on the SharePoint. If a community is not covered, they must find their own means of information distribution.

  - Flood Awareness Week was mentioned by Deb Vitrali and is spearheaded by the Florida Floodplain Managers Association. The second week of March each year is designated, Florida Flood Awareness Week – Florida Floodplain Managers Association (ffmaconference.org) The character "Floody the Frog" has been approved for use from Sarasota County to promote Flood Awareness Week. Any changes to the image or messaging will need to be approved by Sarasota County
  - Tampa Bay Newspapers Full-Page Spread, these are going out. Not all areas are covered so check SharePoint. We want to make sure we are touching the seasonal residents.
  - Letter to Real Estate Professionals
  - Letter to Insurance Companies

- Letter to Landscapers
    - Anamaria Rivera talked about the in-person class they hold for landscapers but the program to require this training is being cancelled due to legislative directive. Lisa expanded on the negative impact this will have on our water quality. Anamaria mentioned how this has been reduced from all landscapers that handle debris and is just being focused on fertilizer application. The Florida Stormwater Association is working on getting this legislation modified so get in touch with them to voice your concern. The class will continue to be held so please promote it.
- Maxine also highlighted the messaging and schedule calendar on the SharePoint that are available to all municipalities.

UPDATED MESSAGING FOR HURRICANE SEASON FROM EMERGENCY MANAGEMENT

- Mary Burrell shared some statistics from Hurricane Ian and how few people evacuated. Messaging is being revised and recommendations are welcome.
- Mary showed a video of how the storm and associated surge moved into Ft. Myers Beach and swept a building away.
- Taking a harder stance on messaging this year. A study is being conducted by USF to assess evacuation numbers. There is concern about evacuation complacency. Timing will be concentrated on to emphasize urgency of preparing and then evacuating, using sand in an hourglass. Pinellas County wants to give people information that is actionable. Ready will be implemented when they are in the cone of uncertainty. Set will focus on the evacuation orders and then Protect will be shelter in place, not safe to move around anymore. Try not to concentrate on the cone of uncertainty, it's the evacuation zone that requires more focus on preparation. We are currently in the Ready phase. Emergency Management wants to participate in all the area events to inform residents.
- Mary talked about a planned Expo June 3 in the High Point area and will be doing the webinar series at MHPs 2/23, General 3/23 translated to Spanish, Business 4/13 and Faith Based Organizations 5/25

PROJECTS NOT IMPLEMENTED

- Social Media – Podcasts – Oldsmar is doing podcasts and will do them on an annual basis.
- Storm Surge Inundation Level Signage – Pinellas Park, Redington Shores, Gulfport, Tarpon Springs (need update), this will be added as a topic for next meeting. Communities can use NOAH data and Pinellas County Emergency Management.
- Home Inspector Training – Could get help from SmartVent
- Insurance and Mortgage Association Training
- Veterinarian Email Blasts – Could get help from SmartVent

PUBLIC COMMENTS

- Bill Johnson, Clearwater Citizen, reiterated that the public does not understand the difference between the flood zones and evacuation zones.
- Chris Hollands shared about the community confusion when the law enforcement announces bridges are closing which causes concern about leaving and getting back on Pass a Grille for instance. This group will try to get a representative from law enforcement or the Sheriff's PIO to help us understand what the best way is to handle it.
- Lisa Foster thanked everyone, especially our stakeholders! Maxine chimed in with agreement.

ACTION ITEMS

- Forming the Messaging Subcommittee
- Next Meetings May 19 and October 20

Flood Risk and Mitigation Public Information Working Group (FRMPIWG)

Friday, May 19, 2023 Virtual

Join GoToMeeting
https://meet.goto.com/CeceMcKiernan
Dial: +1 (646) 749-3131
Access code: 812-108-797 #

AGENDA

12:00 PM Call meeting to order – Identify communities are meeting 50/50 Staff/Stakeholder Split (Cece)

12:05 PM Updates on status of LMS Annual Report and PPI Progress for 2022 (Maxine)

- Process for Local Governments

12:35 PM Review of FRMPIWG tasks accomplished Countywide (Everyone)

1:10 PM Review of FRMPIWG tasks accomplished by municipalities (Everyone)

1:20 PM New Project Status (Maxine & Cece)

- Tampa Bay Newspapers Full-Page Spread
- Letter to Real Estate Professionals
- Letter to Insurance Companies
- Letter to Landscapers
- Social Media Messaging – Resiliency Topic with Hank Hodde

1:30 PM Projects Not Implemented Status– Need Volunteers (Maxine & Cece)

- Social Media – Podcasts
- Storm Surge Inundation Level Signage
- Home Inspector Training
- Insurance and Mortgage Association Training
- Veterinarian Email Blasts

1:40 PM Discuss any additional needs from municipalities (Cece)

- **FORMING A MESSAGING TASK FORCE**

1:45 PM Public Comment

1:50 PM New Action Items/Tasks/Next Meeting October 20, 2023 - Virtual (Cece)

2:00 PM Adjourn

MEETING MINUTES

PROJECT NAME:	Flood Risk and Mitigation Public Information Working Group (FRMPIWG)
MEETING DATE:	Friday, May 19, 2023
LOCATION:	**Virtual GoToMeeting** https://meet.goto.com/CeceMcKiernan Dial: +1 (646) 749-3131 Access code: 812-108-797 #

IDENTIFY COMMUNITIES

- Cece McKiernan, consultant for Pinellas County, welcomed everyone to the meeting.

PURPOSE

- Maxine reminded everyone that this group's purpose is to review items in the LMS, identify outreach projects pertaining to flood topics as well as identifying flood insurance projects as well.

LMS AND PPI

- **NOTE:** This meeting is used as the official review of the Local Mitigation Strategy (LMS) and Program for Public Information (PPI) Annual Reports. The PPI Annual Report is included as part of the LMS. Communities must submit these reports to their individual governing Boards for approval. These reports can be found on the SharePoint Toolkit.
- Maxine provided an update on the status of the LMS Annual Report and the PPI Progress Report. Both documents have been sent to the Pinellas County Board of County Commissioners as Consent Agenda Items. They also sent out a press release on May 12. Local governments are reminded to make any community specific updates to their own plan and send forward for Consent Agenda Item review with their own elected board. The documents that Pinellas used along with the Press Release are on the PPI SharePoint so reach out to Maxine if you need access or if you have any questions. Maxine reviewed the documents Pinellas County used and the process they followed for submitting the information to the BOCC. No questions were raised.

ATTENDANCE

- Cece went through the multi-jurisdictional community attendance list asking for any updates. During the roll call, Cece asked any communities that have run into attendance questions with ISO during their review to please contact her with those details.
- Maxine talked about Dunedin and Safety Harbor wanting to join the group.

REVIEW OF TASKS COUNTYWIDE

- Maxine discussed the projects below that were accomplished Countywide so far this year.
    - Unincorporated Repetitive Loss Area letters going out on June 2nd. Municipalities were reminded to send theirs as well.
    - Tampa Bay Newspaper Full Page Spread has gone through for this year.
    - Utility Bill Onserts have gone through for this year. Municipalities that do not utilize Pinellas County Utilities were reminded to complete their own onsert.
    - The "big three" emails will be sent out around June 23rd. The "big three" refers to insurance, real estate and mortgage professionals licensed in Pinellas County.
    - The realtor flood disclosure brochure and the Flood Information brochure will be updated in June, which will address the confusion between flood zone, evacuation zone, floodway, and storm surge.

REVIEW OF TASKS BY MUNICIPALITIES

- Maxine asked if any municipalities wanted to share about their projects. None were shared.

NEW PROJECT STATUS

- Maxine reviewed the following new projects:
    - Communities sending letters to professional entities within their jurisdiction include City of Oldsmar, City of Tarpon Springs, Redington Shores. Maxine asked them to put those examples on the SharePoint.
    - Pinellas County reaches out to Landscapers and provides training on best practices. HB1383 will extend the requirement for licensing to 2024. At this date, Pinellas County will still offer the training, but it will not be mandated.
    - Social media "Blue-sky" messaging is currently being sent out weekly. The messages are on the SharePoint for June – November with alternative topics. The rest of the year will be added soon.
    - Key Messaging Updates –
        - After having the resilience topic in place for a year, we are recognizing that many municipalities are wanting more with the resilience topic and messaging, so we have asked Hank, the County's Sustainability and Resiliency Coordinator, to attend these meeting from now on and provide about 5 - 10 minutes on ResilientPinellas and resiliency outreach projects as they pertain to this group. With the changing political climate, the county upper management and communications department expressed a need to revise the resiliency key messages to avoid possible controversies that the municipality is facing. Due to this, the county is looking into creating alternate resiliency key messages. The existing key messages will still be there for other municipalities to use but we will also have alternate ones that get the same message across but are less controversial. Those changes will be discussed at the first messaging task force meeting that Cece discussed later in the meeting.
        - CJ Reynolds, Director of Resilience and Disaster Recovery for the Florida Housing Coalition, shared data that for Hurricane Ian, 30% of homeowners that applied to FEMA for assistance did not have ANY type of insurance, both homeowners and/or flood insurance. She was thinking about adding this message to our messages. Maxine shared that we could look at that during the messaging workshop.
    - The Pinellas County website moved many hosted documents to web page format including the New Homeowner Flood Information brochure and flyer. Maxine explained that this project was done back when the committee first started but hasn't been updated since and that unincorporated county does not print these or push this as much as they should. She said that if the group chooses to keep the project, then the information in the flyer and brochure need to be updated; however, we should only keep on of them and discontinue the other. She showed the group both the brochure and flyer, then asked the group which they would use most and if they even wanted to keep the project. Anamarie felt it was important to keep and that Pinellas County may be able to print and stock through her program funding. The group feelings leaned more to keeping the brochure and webpage. Maxine will get with those on the group who showed interest and those who assisted in the original creation of the project to update the brochure and website. Municipalities would need to print their own. Maxine showed everyone where to find the existing flyer and brochure in the SharePoint and discussed some additional information that can be added to the update.

- Maxine talked about the need for outreach on Disaster Assistance. Is another project needed? Suzanne from Pinellas Park thinks this is a good idea and reminded about the Homeowner Expo coming up in June. CJ is happy to participate on this effort as well. Michael Welch as well. Cece will coordinate the effort with everyone to come up with some project ideas.

PROJECTS NOT IMPLEMENTED

- Social Media – Podcasts – Oldsmar identified they are doing podcasts and will do them on an annual basis.
- Home Inspector Training – Maxine will reach out to SmartVent to see if they have any existing outreach on this.
- Insurance and Mortgage Association Training – No movement.
- Veterinarian Email Blasts – Michael Taylor with Gulfport is preparing a letter they are working on and will put that on the SharePoint. Reach out to Mike with questions.
- Storm Surge Inundation Level Signage and Emergency Management Outreach Update –
    - Spencer Shaw with Emergency Management gave us an update on the language for Storm Surge messaging. Spenser shared how messaging will be updated to include storm surge risks. After talking with people in Lee County, they thought the surge was coming inland 15 ft as opposed to being 15 ft high. A new graphic has been created and Spenser was able to show the group the flyer incorporating the Ready Set Protect theme. He showed the new graphic which is being translated into appropriate languages and signage for inside PSTA buses are being installed. There is also a QR code in the signage so effectiveness can be measured.
    - Alert Pinellas currently has over 67,000 registrants and these people get warnings and messages for flood and storm preparedness.
    - Please contact Spencer if you need information on becoming a StormReady community. Each community must have their own to qualify for CRS credit.
    - Spectrum Bay News 9 Diane Kacmarik is willing to present on Hurricane Season and flooding and other weather topics, these are paid for by FEMA.
    - Pinellas will be conducting Hurricane Asher June 2 – 8 exercise that fulfills the requirements for CRS.
    - Maxine also mentioned that the Hurricane Expo for Pinellas County will be held June 3rd at High Point Elementary from 10 am to 1 pm. Please put a request in through the Speakers Request if you want Lisa or Maxine to attend your community specific expo.
    - Spenser discussed how storm surge signs can be challenging as they are located high and are typically small. Several communities have signs, but most are very old and need updating. Mary.Burrell@pinellas.gov would be the contact to get access to the new messaging on signage. Maxine will reach out to Mary to figure out a process to update the language.

Messaging Task Force

- The Messaging Subcommittee will be meeting May 31st at 10 am virtually. Any messages that come out of the messaging task force will be brought back to this group to be voted upon for adoption.

PUBLIC COMMENTS

- None heard.

ACTION ITEMS

- Maxine showed the webpage where the agenda and minutes are located for this group and reiterated where all the resources are on the SharePoint.
- Next Meetings October 20, virtual, 12 – 2pm.
- Cece and Maxine thanked all the communities and stakeholders for all their support.

Flood Risk and Mitigation Public Information Working Group (FRMPIWG)

Friday, October 20, 2023

Virtual

Join GoToMeeting
https://meet.goto.com/CeceMcKiernan
Dial: +1 (646) 749-3131
Access code: 812-108-797 #

AGENDA

12:00 PM Call meeting to order – Identify communities are meeting 50/50 Staff/Stakeholder Split (Cece)

12:05 PM Review PPI for Annual Report (Maxine)

1. Planning Committee
    a. Membership changes (PPI 1-2)
2. Public Information Needs (PPI 3-1)
    a. Flood Insurance Coverage Assessment (every 5 years - 2024)
3. Target Audiences
    a. Review Table 4-1
4. Messages and Outcomes (PPI 5-2)
    a. Messaging Task Force Update
    b. Updates to the FRP messaging toolkit
5. Projects (PPI 6-1)
    a. Review the OP Matrix
    b. New Projects discussion
    c. Storm Surge Signage – Need list of current locations

1:00 PM Review LMS for Annual Report (Maxine & Lisa)

- Quick Overview: Defines hazards to the community, last update was 2020, serves as the floodplain management plan
- Timeline:
    - All Updated documents including project lists and scoring sheets are due Nov. 30
    - Anything remaining and confirmation of updates are due Dec. 17
- LMS Working Group is currently updating the list of projects (Table D-1)
    - Added New Projects: Harold's Lake Dredging Project (Town of Belleair); Tarpon Springs Sponge Docks Flooding Abatement (City of Tarpon Springs); and City of St. Petersburg Infrastructure Resilience - Wet Weather Storage Tank (City of St. Petersburg).
- Appendix C: CRS 610 Flood Warning and Response Plan
- Appendix H: PPI Annual Update
- Appendix I: Community RLAA needs updated – Review action items, what was implemented, and recommended changes

1:40 PM Discuss any additional needs from municipalities (Cece)

1:45 PM Public Comment

1:50 PM New Action Items/Tasks/Next Meeting January 2024 (Cece)

2:00 PM Adjourn

MEETING MINUTES

PROJECT NAME:	CRS Support/Flood Risk and Mitigation Public Information Working Group (FRMPIWG)
MEETING DATE:	Friday, October 20, 2023
LOCATION:	Virtual GoToMeeting https://meet.goto.com/CeceMcKiernan Dial: +1 (646) 749-3131 Access code: 812-108-797 #

NOTE: This meeting is used as the official review of the LMS and PPI Annual Reports. The LMS Annual Report went to the Board of County Commissioners (BOCC) on May 24th, 2022, along with the PPI Annual Report which is included as part of the LMS. Communities, remember, these reports need to go to each of your individual governing Boards for approval for you to receive Community Rating System (CRS) credits. These reports can be found on the SharePoint Toolkit.

IDENTIFY COMMUNITIES

- Cece McKiernan, consultant for Pinellas County welcomed everyone to the meeting and stated she will review attendance making sure all the participating communities maintain a 50/50 staff/stakeholder split to qualify for the PPI. Cece then turned the meeting over to Maxine Moore, Floodplain Technician with Pinellas County.
- Maxine welcomed all the communities, especially the new people joining us for the first time. She reiterated the purpose of this working group is to gather outreach and messaging related to flooding, we've identified topics and messages and freely share that information to provide common similar messaging throughout the County and all municipalities. The stakeholders provide the connection to the community and are not part of local government. We appreciate your participation. This meeting will cover everything for our Annual Report covering everything we have done in 2023. Next year we will have to do a complete review of everything and write the new PPI document.

PLANNING COMMITTEE

- Maxine reviewed the municipal members, are there any updates? The City of Safety Harbor will join starting with this meeting. Specific staff names are being updated by Cece and will be shared with Maxine.

PUBLIC INFORMATION NEEDS

- The Flood Insurance Coverage Assessment will begin in 2024. We will look at all the flood insurance policies in the County and do an assessment of rise or fall in count. We will then look at what type of outreach might be needed.

TARGET AUDIENCES

- Maxine reviewed the audiences currently listed in the table. In going through the Audiences, Maxine also provided updates on the projects associated with those projects. She took input and asked communities about any items. Maxine is highlighting the Audience table, and this document will be sent out to all the communities for input as part of the draft annual report. Maxine and Sarah discussed high water mark collection and how to make that a project. Still in development. There was a discussion on utility bill distribution. Sending messages to doctors and dialysis facilities was discussed and Mary talked about what they do through Emergency Management to educate residents. Discussion on boat owners. Damon Lister thought marina owners would be a good addition to this group. Sarah Kessler felt this could be grouped into the boat owners. Mandi suggested a possible link to dock permits. Discussions on Pet Owners and veterinarians were mentioned, Mandi asked about putting messaging up in the dog parks. John thought we might provide information at pet stores. Maxine suggested we create a flyer for stores/kennels. Cece mentioned that we need a champion to take this project and run it. Condo association meetings, MHP and neighborhood meetings that are held annually should be counted as a project. Maxine asked Mandi to provide details to list in the Annual Report. Maxine reminded everyone that a project must be done annually to count toward outreach in the CRS program. Maxine asked about projects at local vocational programs, colleges and universities and recommended we take up a project. Discussion on an outreach project for bankers and mortgage brokers. Oldsmar sends a letter and Cece asked if they would share so we can put that on SharePoint. CJ spoke about Fannie Mae who does outreach annually because storm damage may delay mortgage payments, forbearance. We've listed the local Bar Association and the County works with them but not annually on flood. Any outreach to large companies? A question came in to see if we could see if the County can put a coupon in Valpak. We need to investigate this. We can reach out to the Chamber of Commerce. Mary from Emergency Management works with them, Sarah from Clearwater does. Cece suggested we bring a Chamber member into the Working Group. Maxine asked Mary to suggest a name. A name from St. Pete Chamber was shared. Michael will connect us with that person. Damon with Safety Harbor is on the Chamber there. Maxine suggested we have a side meeting with Safety Harbor to answer all their questions about the Working Group activities since they are new. Schools are on our list; we do some work with schools. PSTA/Trolly put signs up with QR codes on the vehicles, it was asked if signage in the shelter areas an option would be. We can investigate that. Mary said they are looking into sandwich boards but need help with funding. Communities are encouraged to help. Sarah in Clearwater is open to provide funding within the City of Clearwater. We added Churches and Houses of Worship. We also added private schools and daycare facilities and another audience. Suggested to potentially use Peach Jar for messaging with schools and Mary said they have started work with them since it goes right to the parents. Possible to do an annual message. Hurricane Guides are distributed to schools from Pinellas County by Emergency Management. New homeowner flyer will be updated to include renters. Added Boy Scout/Girl Scout badge possibility, anyone know of a connection?

MESSAGES AND OUTCOMES

- Pinellas County is continuing to review high water mark signage and ask communities to send us pictures of the signs and locations so we can make an inventory and decide if messaging needs to be updated.
- We have started working with a Messaging Task Force that is reviewing messaging for clarity. We will send these to communities for final review.
- Maxine showed the spreadsheet on messages and when to use them. We are updating it and want to add hyperlinks to make finding things easier. We will add this to the SharePoint once we have updated it.

PROJECTS

- We reviewed the Outreach Projects Matrix and Maxine pointed out what the shading means. We ask communities to review this table and respond with what you have done and make any other changes necessary.

REVIEW OF LOCAL MITIGATION STRATEGY

- Maxine familiarized the group with the Local Mitigation Strategy (LMS) which defines the hazards to the community and was last updated in 2020 so next year we will increase meetings as this work also serves as the Floodplain Management Plan, CRS 510. All updated documents including the project list and scoring sheets will be due November 30th, 2024, anything remaining, and confirmation of the updates are due December 17th.
- This group serves as the outreach review for flood hazards for the LMS.
- The PPI Annual Report is an appendix in the LMS.
- The LMS Working Group is currently updating the list of projects.
  Harold's Lake Dredging Project (Town of Belleair); Tarpon Springs Sponge Docks Flooding Abatement (City of Tarpon Springs); and City of St. Petersburg Infrastructure Resilience - Wet Weather Storage Tank (City of St. Petersburg). Contact Maxine for details.
- We will send everyone a link to the current LMS for review.
- Also reviewed in this process is CRS 610 Flood Warning and Response Plan and added it to their Comprehensive CMP. If you do this for your municipality for your CRS program it must be approved by your governing body, they can go through as a Consent Agenda Item but must have your specifics inserted.
- Remember the PPI Annual Update and the Repetitive Loss Annual Analysis (RLAA) must be done by the individual municipalities as well. You must add your individual RLAA information.

ADDITIONAL NEEDS OF THE MUNICIPALITIES

- The SharePoint is available to everyone.
- Real Estate Brochures continue to be uploaded for all municipalities.
- A new training with Property Appraisers class has been added. Maxine added in the Property Appraisers as an audience.

PUBLIC COMMENTS

- No public comments were made.
- Maxine thanked everyone, especially our stakeholders!
- Frank asked about the multi state lawsuit with flood insurance, Gerry mentioned a contacts and provided that in the chat.

REMINDERS

- We continue to follow Sunshine Meeting Standards.
- All documents on the web must be ADA compliant per law. If a municipality or stakeholder is linking to the Pinellas County website for communication of your flood risk information, thenthe ADA requirement is met.

ACTION ITEMS

- Homework coming your way.
- Next Meeting January 26th. A question came up about being in person for the meeting. Due to efficiency, we may do a social gathering and keep the meeting online. Maxine asked Cece to do a poll.

Flood Risk and Mitigation Public Information Working Group (FRMPIWG)

Friday, January 26, 2024

Virtual

Join GoToMeeting
https://meet.goto.com/CeceMcKiernan
Dial: +1 (646) 749-3131
Access code: 812-108-797 #

AGENDA

12:00 PM Call meeting to order – Identify communities are meeting 50/50 Staff/Stakeholder Split (Cece)

12:05 PM Review LMS and PPI Annual Reports for 2023 (Maxine)

- LMS Annual Report was approved by the LMS Working Group
- Review and Timeline if the PPI Annual Report
- Review of PPI project matrix
- Process for Local Governments (Consent Agenda)
- Press Release

12:25 PM LMS and PPI 5-Year Update for 2025 (Maxine)

- More frequent meetings this year
- LMS New State Requirements:
  - Must look at Severe Repetitive Loss (SRL), as well as Repetitive Loss (RL) properties
  - NFIP communities must have substantial improvement/substantial damage plan
- PPI Requirements:
  - Formal adoption by each municipality's governing body
  - Needs Assessment Update
  - Evaluation of Topics
  - Evaluation of Key Messages and Outcomes (Messaging Task Force)
  - Evaluation of Projects (Including wish list items)
  - Evaluation of Stakeholders (Message comes directly from or is sponsored by the stakeholder)
  - Flood Insurance Improvement Plan
    - Must include 2 or more insurance agents
    - One agent must be ANFI
    - Must discuss providing technical assistance

12:35 PM Review of FRMPIWG tasks Countywide (Everyone)

- Updated Real Estate Agents Flood Disclosure and Information Brochure (English & Spanish)
- Updates to Flood Guide
- Pinellas/Pasco Realtor Organization Newsletter (November 2023)
- Blue-Sky Social Media Messages (February Only)
- Flood Map Service Training
- Tampa Bay News Ad (March)

- Flood Map Service Promo (Email Blast via Everbridge)
- New Homeowner Brochure Update (Starting this year)
- Pinellas County Speakers Bureau
- Natural Functions Projects (Anamarie):
  - Landscape Training and Certification
  - Bus Wraps
- Hurricane and Pet Preparedness Projects (Emergency Management):
  - Hurricane Guide 2024
  - Hurricane Season Press Release

12:50 PM Review of FRMPIWG tasks by municipalities (Everyone)

- Utility Bill Onsert (Feb/March)
- Commissioner/Mayor Insurance Article (Utility Bills or Mailed Letters)
- Repetitive Loss Area Letters (March/April)
- NEA Our Town Grant (Due 8/3/2024): www.arts.gov/grants/our-town/program-description
  - Municipal Vehicle Wraps
  - Storm Drain Markers or Murals
  - Parks & Recreation Education Material
- StormReady Community Signage

1:00 PM Review of Updated or New Project Status (Maxine)

- Storm Surge Inundation Level Signage (Started)

1:10 PM Vulnerability Assessment Update – Stakeholder Input

1:40 PM Discuss any additional needs from municipalities (Cece)

1:45 PM Public Comment

1:50 PM New Action Items/Tasks/Next Meeting May 31st, 2024 Virtual – Site for a Social? (Cece)

2:00 PM Adjourn

MEETING MINUTES

PROJECT NAME:	CRS Support/Flood Risk and Mitigation Public Information Working Group (FRMPIWG)
MEETING DATE:	Friday, January 26, 2024
LOCATION:	Virtual GoToMeeting https://meet.goto.com/CeceMcKiernan Dial: +1 (646) 749-3131 Access code: 812-108-797 #

NOTE: This meeting is used as the official review of the LMS and PPI Annual Reports.

IDENTIFY COMMUNITIES

- Cece McKiernan, consultant for Pinellas County welcomed everyone to the meeting and stated she will review attendance making sure all the participating communities maintain a 50/50 staff/stakeholder split to qualify for the PPI. Cece then turned the meeting over to Maxine Moore, Floodplain Technician with Pinellas County.

REVIEW LMS AND PPI ANNUAL REPORTS

- Maxine welcomed all the communities, especially the new people joining us for the first time. In addition to the CRS PPI work this group serves as the floodplain outreach arm of the Local Mitigation Strategy (LMS) effort. She reiterated the purpose of this working group is to gather outreach and messaging related to flooding, we've identified topics and messages and freely share that information to provide common similar messaging throughout the County and all municipalities. The stakeholders provide the connection to the community and are not part of local government.
- Our first topic covers review of the LMS Annual Report went to along with the PPI Annual Report for 2023 which is included as part of the LMS. Every 5 years we must revise the plan but each year we do a report of the progress. The LMS report has been approved by the LMS working group.
- The PPI is an appendix to the LMS. The PPI report was reviewed by this group. All new information was updated. Highlighted information in the yellow and green are updated areas. Status of the PPI projects was also updated. Yellow is revised, green is new, and orange is on hold.
- We have also reviewed our Flood Insurance Coverage Assessment and included it in the report. Data up to September 2023 has been included and will be shared with each community via the SharePoint Toolkit.
- We appreciate your participation. This meeting will cover everything for our Annual Report covering everything we have done in 2023. Next year we will have to do a complete review of everything and write the new PPI document.
- Maxine explained that next year we will have to produce a new PPI document which once finalized will get approved by their Board of County Commissioners with a Consent Agenda item. We will share this document with everyone, and each community will have to put their customized document through their own approval process. All documents used by Pinellas County will be made available for local governments who can modify them to meet whatever needs from your own governing bodies.
- Pinellas County also does a press release which will also be shared.
- The County is waiting for State approval for the LMS and then will bring it before their Board (usually in April) and will let the communities know when that is complete.

LMS AND PPI 5-YEAR UPDATE FOR 2025

- These 5-year updates typically coincide. We will start the update this year. We will have more meetings, probably one more, totaling 4 as many topics need to be completely reviewed.
- Maxine specifically highlighted the ongoing messaging task force and invited anyone to join us. Reach out to Cece or Maxine if you want to be added.

LMS NEW STATE REQUIREMENTS

- The LMS has a new state requirement. Communities must look at Severe Repetitive Loss areas as well as repetitive loss properties and have a substantial improvement/substantial damage plan in place. Pinellas County has one so this will be reviewed and shared with this group for production of their own plans. Chris Zambito mentioned this does not have to be as specific as the plan that can get you 140 points in CRS. If you already have this for CRS, you can use it. LMS is a truncated process if a community doesn't have them. Smita, who is working on the LMS, will be reaching out to communities for any additional requirements. Vulnerability Assessments and impacts to Climate Change are new to this process but Pinellas County either already has done these assessments or are in a good position to finish these. All this information will be shared with the communities.

PPI REQUIREMENTS

- We must have formal adoption by each municipalities governing body for the PPI to "count" in that jurisdiction.
- We will be doing a needs assessment update.
- We will do a complete review of Topics, Key Messages and Outcomes (using the current Messaging Task Force), we will evaluate projects including wish list items, we will review the stakeholders and their contributions.
- We will do a thorough review of the Flood Insurance Improvement Plan which now included the requirement of having 2 or more insurance agents, one of those being ANFI certified (which we already have). Communities with a chance to add a stakeholder should consider having a local insurance agent on their team.

PROJECTS

- We reviewed the Countywide projects.
  - Real Estate Agents Flood Disclosure and Information Brochure
  - Updated the Flood Guide
  - Pinellas/Pasco Realtor Organization Newsletter
  - Blue-Sky Social Media Messages (#floodplainfriday) February Only is complete, we will do March – June and July – December. These will be on the SharePoint spreadsheet. Maxine explained the process and spreadsheet color key. You will get these two times/year.
  - Flood Map Service Training
  - Tampa Bay News Ad
  - Flood Map Service Promo (email blast on Everbridge)
  - New Homeowner Brochure Update
  - Pinellas County Speakers Bureau
  - Natural Functions Projects
    - Landscape Training and Certification (ending July 1, 2024) after July the course will be offered Nov and Dec and will be free and voluntary. The practice of proper landscaping is not going away, just the licensing process.

- Bus Wraps will be done in 2024 – we will share the information to do the shelter wraps. A discussion regarding how Pinellas County can provide content for all your outreach needs for flyers and can help. PSTA bus shelter last contact was Dec 2022 - Jack Llewellyn Senior Sales associate Mobile: (727) 423-1669 jllewellyn@insitesm.com Insite Street Media. PSTA bus wrap vendor: Lamar Transit of Pinellas County, Wendy Lang - Market Manager Pinellas County wlang@lamar.com (Cell: 561-512-2282)
- Hurricane and Pet Preparedness Projects (Emergency Management)
  - Hurricane Guide 2024 - major project each year. Currently editing and getting input. Focus on not being "Cone Focused", special needs registry is being updated (need volunteers, reach out to Maryburrell@pinellas.gov). The County is working on a page for pet services. Also working boater safety brochures as well as a campaign.
  - Hurricane Event June 1 in Tarpon Springs. The County is willing to participate in any other community events.
  - Hurricane Season Press Release

REVIEW OF FRMPIWG TASKS MY MUNICIPALITIES

- Pinellas will be putting information into their Utility Bills and happy to provide content to any municipalities. They will be including the Commissioner Insurance Article in this mailing in February/March to catch the seasonal residents.
- Repetitive Loss Area Letters going out in March/April.
- NEA Our Town Grant Due 8/3/2024 (www.arts.gov/grants/our-town/program-description) is an art related grants for Resiliency.
  - Municipal Vehicle Wraps
  - Storm Drain Markers or Murals
  - Parks & Recreation Education Materials
- StormReady Community Signage – you can get signage from the weather service to use if you are certified.

REVIEW OF UPDATED OR NEW PROJECT STATUS

- Storm Surge signage is being updated and will be shared.

VULNERABILITY ASSESSMENT UPDATE

- Ali Reiman, Pinellas County Public Works gave us an update on the current Vulnerability Assessment being done my Pinellas County.
- We may become a commenting working group to this effort, but it will only be a portion of this group.

PUBLIC COMMENTS

- No public comments were made.
- Maxine thanked everyone, especially our stakeholders.

REMINDERS

- We continue to follow Sunshine Meeting Standards.
- All documents on the web must be ADA compliant per law. If a municipality or stakeholder islinking to the Pinellas County website for communication of your flood risk information, thenthe ADA requirement is met.

ACTION ITEMS

- Next Meeting May 10, noon, online.

Flood Risk and Mitigation Public Information Working Group (FRMPIWG)

Friday, May 10, 2024

Virtual

Microsoft Teams
Join the meeting now
Meeting ID: 262 638 584 374
Passcode: 5Awqo4

Dial by Phone: +1 (813) 644-3115
Phone Conference ID: 784 666 681#
Need help?

AGENDA

12:00 PM Call meeting to order – Identify communities are meeting 50/50 Staff/Stakeholder Split (Cece)

12:05 PM Review LMS Activities (Maxine)

- 2023 LMS Annual Report approved by BOCC this week (Media Release followed)
- HMGP-Idalia Projects
- Added projects to Table D-1
- 5-Year Update survey

12:15 PM Review of FRMPIWG tasks Countywide (Everyone)

- Updated Real Estate Agents Flood Disclosure and Information Brochure
- Updates to Flood Guide
- Blue-Sky Social Media Messages (June – December)
- Tampa Bay News Ad
- Flood Map Service Promo (Email Blast via Everbridge)

12:30 PM Review of FRMPIWG tasks by municipalities (Everyone)

- Utility Bill Onsert
- Commissioner/Mayor Insurance Promotion
- Repetitive Loss Area Letters
- StormReady Community Signage
- NEA Our Town Grant (Due 8/3/2024): www.arts.gov/grants/our-town/program-description
  - Municipal Vehicle Wraps
  - Storm Drain Markers or Murals
  - Parks & Recreation Education Material

12:45 PM Review of Updated or New Project Status (Maxine)

- Storm Surge Inundation Level Signage (Under design)

1:00 PM PPI 5-year Update for 2025 (Maxine)

- Evaluation of Topics
- Evaluation and Discussion of Topic Outcomes
- Evaluation and Discussion of Stakeholders and Stakeholder Projects

1:40 PM Discuss any additional needs from municipalities (Cece)

1:45 PM Public Comment

1:50 PM New Action Items/Tasks/Next Meeting October 25th, 2024, Virtual – Fall Social (Cece)

2:00 PM Adjourn

APPENDIX B

Flood Insurance Improvement Plan

PINELLAS COUNTY
PROGRAM FOR PUBLIC INFORMATION
ANNUAL REPORT
FOR
FLOOD INSURANCE COVERAGE IMPROVEMENT PLAN

Pinellas County | January, 2024

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1 INTRODUCTION

This annual report presents the ongoing status of the Pinellas County Flood Insurance Coverage Improvement Plan which is developed and coordinated by the multi-jurisdictional Pinellas County Flood Risk and Mitigation Public Information Working Group (FRMPIWG) who serves as the Flood Insurance Assessment and Improvement Plan Committee. The FRMPIWG is also responsible for developing and coordinating the efforts of the multi-jurisdictional Program for Public Information Program (PPI), Floodplain Management, Flood Warning and Response, and providing input to the multi-jurisdictional Local Mitigation Strategy (LMS). The FRMPIWG includes representatives from the community's floodplain management division and the public information office as well as representatives from local insurance agencies.

The Flood Insurance Coverage Improvement Plan includes all unincorporated areas of Pinellas County and the following municipalities who are represented in the committee members:

- Town of Belleair
- City of Belleair Beach
- City of Clearwater
- City of Gulfport
- City of Indian Rocks Beach
- Town of Indian Shores
- City of Madeira Beach
- City of Oldsmar
- City of Pinellas Park
- Town of Redington Beach
- Town of Redington Shores
- City of Safety Harbor
- City of South Pasadena
- City of St. Petersburg
- City of St. Pete Beach
- City of Tarpon Springs
- City of Treasure Island

Note: In 2023, the City of Safety Harbor joined the program.

2 FLOOD INSURANCE COVERAGE ASSESSMENT

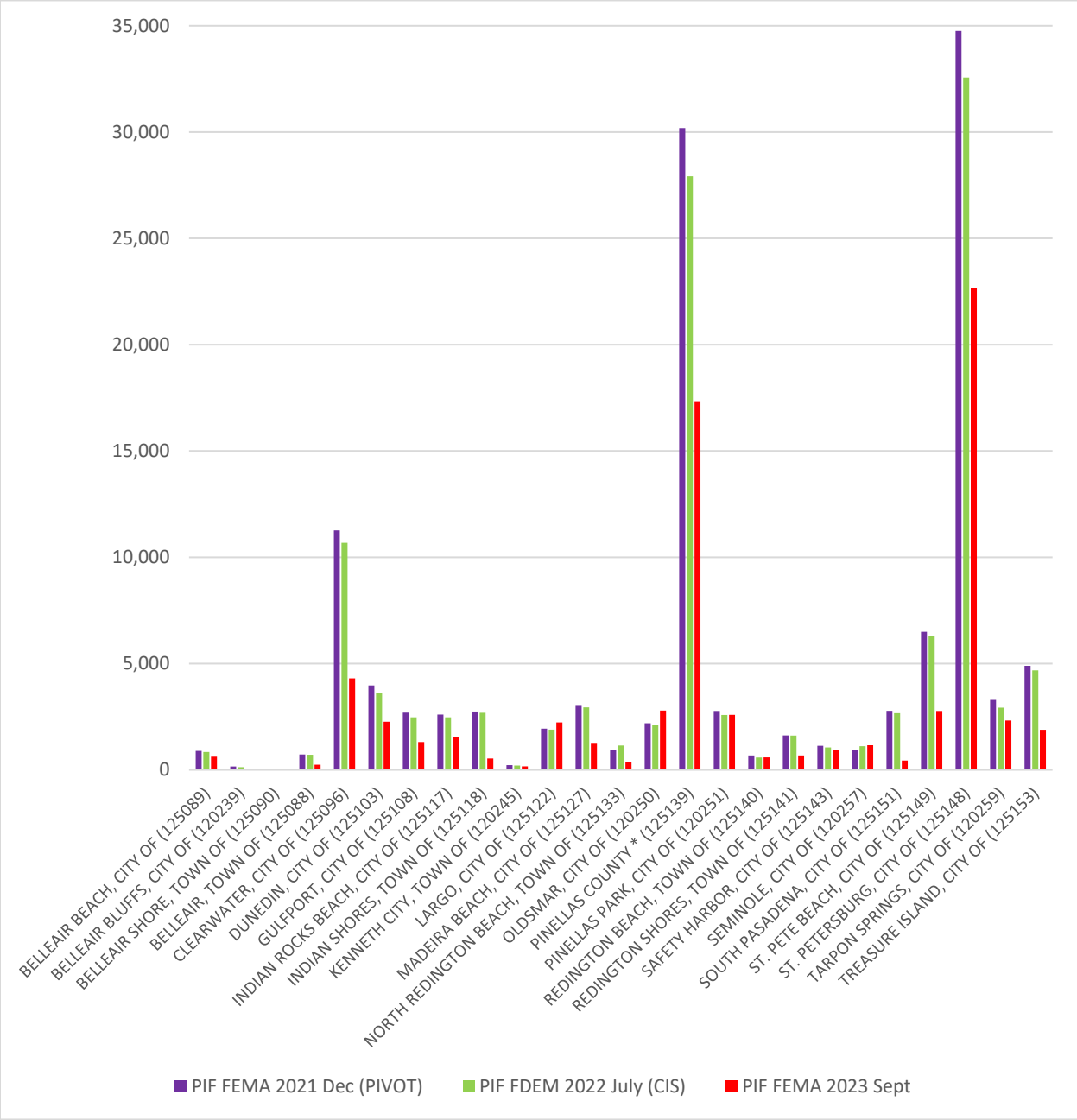
REVIEW OF FLOOD INSURANCE POLICY DATA

Flood insurance policy data was provided by FEMA to the County in October 2023. The provided data included the community's name, address, and policy effective date for active contracts. The 2023 data lacked additional information that was provided in past years, such as premium amounts. Additionally, there were 19,008 Policies in Force (PIF) with the community's name listed as 'UNKNOWN'. As such, these addresses were geocoded and spatially joined to parcel data to estimate the community. There were 1,721 provided addresses that were not located. A comparison of the active contracts for the past three years can be found in Table 1 and Figure 1. Note that the 2023 data is based on the assumed community from the address geolocation and does not include premium data.

Table 1: Community NFIP PIF and Premium Summary 2021-2023

Community Name (Number)	PIF FEMA Dec 2021	Premiums FEMA Dec 2021	PIF FDEM July 2022	Premiums FDEM July 2022	PIF FEMA Sept 2023 (geocoded community)	Premiums FEMA Sept 2023
Belleair Beach, City Of (125089)	893	$1,560,881	841	$1,345,584	621	No Data Provided By FEMA
Belleair Bluffs, City Of (120239)	158	$56,996	126	$39,031	40	No Data Provided By FEMA
Belleair Shore, Town Of (125090)	32	$109,047	29	$80,676	30	No Data Provided By FEMA
Belleair, Town Of (125088)	726	$432,809	710	$387,549	242	No Data Provided By FEMA
Clearwater, City Of (125096)	11,267	$8,426,272	10,680	$7,252,485	4,305	No Data Provided By FEMA
Dunedin, City Of (125103)	3,973	$3,683,880	3,635	$3,083,703	2,262	No Data Provided By FEMA
Gulfport, City Of (125108)	2,693	$1,847,712	2,471	$1,564,287	1,311	No Data Provided By FEMA
Indian Rocks Beach, City Of (125117)	2,599	$2,472,764	2,475	$2,216,738	1,554	No Data Provided By FEMA
Indian Shores, Town Of (125118)	2,742	$1,610,169	2,687	$1,374,573	538	No Data Provided By FEMA
Kenneth City, Town Of (120245)	225	$147,271	206	$130,062	162	No Data Provided By FEMA
Largo, City Of (125122)	1,939	$1,362,598	1,896	$1,338,335	2,234	No Data Provided By FEMA
Madeira Beach, City Of (125127)	3,049	$3,483,043	2,937	$3,142,950	1,268	No Data Provided By FEMA
North Redington Beach, Town Of (125133)	942	$884,361	1,144	$889,380	379	No Data Provided By FEMA
Oldsmar, City Of (120250)	2,192	$1,977,153	2,116	$1,924,680	2,793	No Data Provided By FEMA
Pinellas County * (125139)	30,187	$20,997,595	27,917	$17,524,450	17,341	No Data Provided By FEMA
Pinellas Park, City Of (120251)	2,771	$1,999,020	2,582	$1,749,831	2,586	No Data Provided By FEMA
Redington Beach, Town Of (125140)	677	$1,371,739	583	$1,223,179	585	No Data Provided By FEMA
Redington Shores, Town Of (125141)	1,622	$1,196,693	1,611	$1,126,617	679	No Data Provided By FEMA
Safety Harbor, City Of (125143)	1,132	$630,994	1,057	$585,077	917	No Data Provided By FEMA
Seminole, City Of (120257)	918	$452,696	1,111	$591,036	1,161	No Data Provided By FEMA
South Pasadena, City Of (125151)	2,777	$2,123,167	2,665	$1,839,217	438	No Data Provided By FEMA
St. Pete Beach, City Of (125149)	6,493	$8,326,899	6,286	$7,487,171	2,774	No Data Provided By FEMA
St. Petersburg, City Of (125148)	34,754	$35,746,131	32,564	$31,572,823	22,674	No Data Provided By FEMA
Tarpon Springs, City Of (120259)	3,291	$2,978,912	2,928	$2,583,057	2,322	No Data Provided By FEMA
Treasure Island, City Of (125153)	4,898	$5,165,872	4,683	$4,748,136	1,887	No Data Provided By FEMA

Figure 1: Community NFIP PIF Summary 2021-2023



Since Risk Rating 2.0 began in 2021, there has been a decrease in NFIP policy counts year to year for most of the Pinellas County communities (Table 2). It is unclear how many people dropped NFIP policies to purchase flood insurance through a private insurer or how many people chose to not renew their NFIP policies because of increased rates. The consistent decreasing number of NFIP policies is concerning and the working group will continue to identify, improve, and implement outreach to educate the public about the benefits of insurance coverage following a flood. Countywide, the majority of the PIF in 2023 were for single family homes in the FEMA Special Flood Hazard Area (SFHA) (Table 3). As such, a focus on outreach to residential properties will take precedence.

Table 2: Change in NFIP PIF 2021 to 2023

Community Name (Number)	PIF FEMA Dec 2021	PIF FDEM July 2022	PIF FEMA Sept 2023 (geocoded community)	PIF Change 2021 to 2023 (geocode not raw data)
Belleair Beach, City Of (125089)	893	841	621	-272
Belleair Bluffs, City Of (120239)	158	126	40	-118
Belleair Shore, Town Of (125090)	32	29	30	-2
Belleair, Town Of (125088)	726	710	242	-484
Clearwater, City Of (125096)	11,267	10,680	4,305	-6,962
Dunedin, City Of (125103)	3,973	3,635	2,262	-1,711
Gulfport, City Of (125108)	2,693	2,471	1,311	-1,382
Indian Rocks Beach, City Of (125117)	2,599	2,475	1,554	-1,045
Indian Shores, Town Of (125118)	2,742	2,687	538	-2,204
Kenneth City, Town Of (120245)	225	206	162	-63
Largo, City Of (125122)	1,939	1,896	2,234	295
Madeira Beach, City Of (125127)	3,049	2,937	1,268	-1,781
North Redington Beach, Town Of (125133)	942	1,144	379	-563
Oldsmar, City Of (120250)	2,192	2,116	2,793	601
Pinellas County * (125139)	30,187	27,917	17,341	-12,846
Pinellas Park, City Of (120251)	2,771	2,582	2,586	-185
Redington Beach, Town Of (125140)	677	583	585	-92
Redington Shores, Town Of (125141)	1,622	1,611	679	-943
Safety Harbor, City Of (125143)	1,132	1,057	917	-215
Seminole, City Of (120257)	918	1,111	1,161	243
South Pasadena, City Of (125151)	2,777	2,665	438	-2,339
St. Pete Beach, City Of (125149)	6,493	6,286	2,774	-3,719
St. Petersburg, City Of (125148)	34,754	32,564	22,674	-12,080
Tarpon Springs, City Of (120259)	3,291	2,928	2,322	-969
Treasure Island, City Of (125153)	4,898	4,683	1,887	-3,011

Figure 2: Countywide NFIP PIF by FEMA Flood Zone and Structure Type

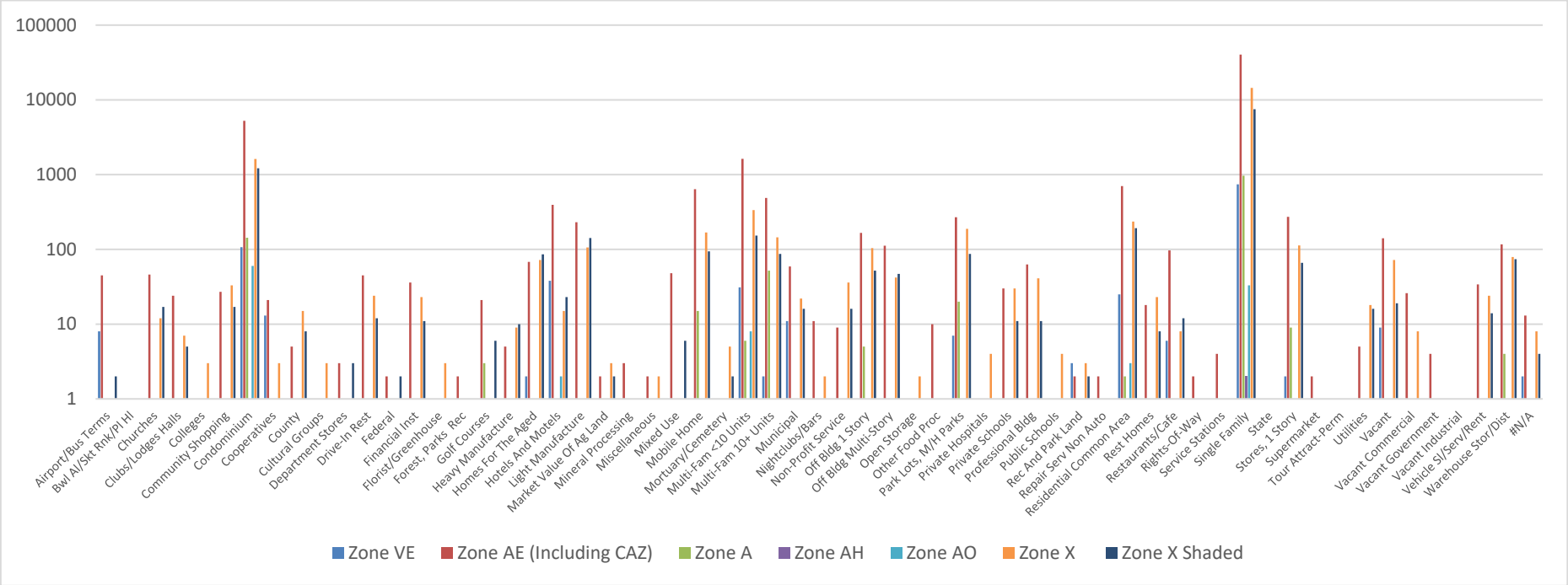


Table 3: Countywide NFIP PIF by FEMA Flood Zone and Structure Type

Use	Zone VE	Zone AE (Including CAZ)	Zone A	Zone AH	Zone AO	Zone X	Zone X Shaded
Airport/Bus Terms	8	45	0	0	0	0	2
Bwl Al/Skt Rnk/Pl Hl	0	1	0	0	0	0	1
Churches	0	46	0	0	0	12	17
Clubs/Lodges Halls	1	24	0	0	0	7	5
Colleges	0	0	0	0	0	3	0
Community Shopping	0	27	1	0	0	33	17
Condominium	107	5,250	143	0	60	1,620	1,218
Cooperatives	13	21	0	0	0	3	0
County	0	5	0	0	0	15	8
Cultural Groups	0	1	0	0	0	3	1
Department Stores	0	3	0	0	0	0	3
Drive-In Rest	0	45	0	0	0	24	12
Federal	0	2	0	0	0	0	2
Financial Inst	0	36	0	0	0	23	11
Florist/Greenhouse	0	1	0	0	0	3	0
Forest, Parks Rec	1	2	0	0	0	0	0
Golf Courses	0	21	3	0	0	1	6
Heavy Manufacture	0	5	0	0	0	9	10
Homes For the Aged	2	68	0	0	0	72	86
Hotels And Motels	38	395	0	0	2	15	23
Light Manufacture	0	231	1	0	0	106	142
Market Value of Ag Land	0	2	0	0	0	3	2
Mineral Processing	0	3	0	0	0	0	0
Miscellaneous	0	2	1	0	0	2	0
Mixed Use	0	48	0	0	0	1	6
Mobile Home	1	639	15	0	0	168	94
Mortuary/Cemetery	0	1	0	0	0	5	2
Multi-Fam <10 Units	31	1,628	6	0	8	335	153
Multi-Fam 10+ Units	2	488	52	0	0	145	87
Municipal	11	59	0	0	0	22	16
Nightclubs/Bars	0	11	0	0	0	2	1
Non-Profit Service	0	9	0	0	0	36	16
Off Bldg 1 Story	0	166	5	0	0	104	52

Use	Zone VE	Zone AE (Including CAZ)	Zone A	Zone AH	Zone AO	Zone X	Zone X Shaded
Off Bldg Multi-Story	0	112	0	0	0	42	47
Open Storage	0	0	0	0	0	2	0
Other Food Proc	0	10	0	0	0	0	0
Park Lots, M/H Parks	7	269	20	0	1	188	87
Private Hospitals	0	0	0	0	0	4	0
Private Schools	0	30	1	0	0	30	11
Professional Bldg	0	63	1	0	0	41	11
Public Schools	0	0	0	0	0	4	0
Rec And Park Land	3	2	0	0	0	3	2
Repair Serv Non-Auto	0	2	0	0	0	1	0
Residential Common Area	25	703	2	0	3	236	192
Rest Homes	1	18	0	0	0	23	8
Restaurants/Cafe	6	97	1	0	0	8	12
Rights-Of-Way	0	2	0	0	0	1	1
Service Stations	0	4	0	0	0	0	0
Single Family	742	40,292	966	2	33	14,470	7z,505
State	0	1	0	0	0	0	0
Stores, 1 Story	2	273	9	0	1	113	66
Supermarket	0	2	0	0	0	1	0
Tour Attract-Perm	0	0	0	0	0	1	0
Utilities	0	5	0	0	0	18	16
Vacant	9	141	0	0	1	72	19
Vacant Commercial	0	26	0	0	0	8	1
Vacant Government	0	4	0	0	0	0	0
Vacant Industrial	0	0	0	0	0	1	0
Vehicle Sl/Serv/Rent	0	34	1	0	0	24	14
Warehouse Stor/Dist	0	117	4	0	0	79	74
#N/A	2	13	0	0	0	8	4
Grand Total	**1,012**	**51,505**	**1,232**	**2**	**109**	**18,150**	**10,063**

Table 4 Policies in Force by Jurisdiction and Building Type

Use	Count per Community
BELLEAIR BEACH, CITY OF	**621**
Condominium	61
Hotels And Motels	5
Multi-Fam <10 Units	2
Municipal	3
Residential Common Area	20
Single Family	530
BELLEAIR BLUFFS, CITY OF	**40**
Condominium	13
Multi-Fam <10 Units	1
Off Bldg 1 Story	1
Single Family	23
Stores, 1 Story	2
BELLEAIR SHORE, TOWN OF	**30**
Single Family	30
BELLEAIR, TOWN OF	**242**
Condominium	28
Multi-Fam <10 Units	3
Professional Bldg	1
Residential Common Area	2
Single Family	207
Vacant	1
CLEARWATER, CITY OF	**4,305**
Airport/Bus Terms	2
Churches	4
Clubs/Lodges Halls	4
Community Shopping	10
Condominium	654
Cooperatives	2
Drive-In Rest	2
Financial Inst	5
Golf Courses	2
Homes For The Aged	1
Hotels And Motels	67
Light Manufacture	20
Miscellaneous	1
Mixed Use	18
Mobile Home	44
Multi-Fam <10 Units	147
Multi-Fam 10+ Units	127
Municipal	15
Nightclubs/Bars	1
Non-Profit Service	5
Off Bldg 1 Story	53
Off Bldg Multi-Story	13
Park Lots, M/H Parks	29
Private Schools	4
Professional Bldg	5
Residential Common Area	125

Use	Count per Community
Rest Homes	8
Restaurants/Cafe	17
Service Stations	2
Single Family	2,836
Stores, 1 Story	28
Utilities	2
Vacant	9
Vacant Commercial	9
Vehicle Sl/Serv/Rent	6
Warehouse Stor/Dist	25
#N/A	3
DUNEDIN, CITY OF	**2,262**
Churches	2
Clubs/Lodges Halls	1
Community Shopping	5
Condominium	293
Drive-In Rest	1
Homes For The Aged	4
Hotels And Motels	7
Mobile Home	17
Multi-Fam <10 Units	59
Multi-Fam 10+ Units	6
Municipal	2
Off Bldg 1 Story	21
Park Lots, M/H Parks	44
Private Schools	1
Professional Bldg	3
Residential Common Area	42
Rest Homes	2
Restaurants/Cafe	1
Single Family	1,734
Stores, 1 Story	9
Vacant	3
Vacant Commercial	1
Vehicle Sl/Serv/Rent	2
Warehouse Stor/Dist	2
GULFPORT, CITY OF	**1,311**
Airport/Bus Terms	2
Clubs/Lodges Halls	2
Colleges	1
Condominium	117
Hotels And Motels	1
Mixed Use	1
Multi-Fam <10 Units	91
Multi-Fam 10+ Units	10
Municipal	2
Off Bldg 1 Story	5
Private Schools	14
Residential Common Area	6
Restaurants/Cafe	3
Single Family	1,050

Use	Count per Community
Stores, 1 Story	3
Vacant	1
Warehouse Stor/Dist	1
#N/A	1
INDIAN ROCKS BEACH, CITY OF	**1,554**
Churches	1
Clubs/Lodges Halls	1
Condominium	281
Hotels And Motels	15
Mixed Use	3
Multi-Fam <10 Units	167
Multi-Fam 10+ Units	3
Municipal	2
Nightclubs/Bars	4
Off Bldg 1 Story	5
Residential Common Area	25
Restaurants/Cafe	9
Single Family	1,028
Stores, 1 Story	5
Vacant	4
Vacant Commercial	1
INDIAN SHORES, TOWN OF	**538**
Condominium	195
Golf Courses	1
Hotels And Motels	34
Mixed Use	1
Multi-Fam <10 Units	29
Municipal	1
Off Bldg 1 Story	4
Residential Common Area	50
Restaurants/Cafe	2
Single Family	213
Stores, 1 Story	2
Vacant	5
Vacant Commercial	1
KENNETH CITY, TOWN OF	**162**
Condominium	15
Drive-In Rest	1
Rest Homes	2
Restaurants/Cafe	1
Single Family	141
Stores, 1 Story	2
LARGO, CITY OF	**2,234**
Churches	4
Condominium	176
Drive-In Rest	8
Homes For The Aged	5
Hotels And Motels	1
Light Manufacture	18
Market Value Of Ag Land	1
Miscellaneous	1

Use	Count per Community
Mobile Home	110
Multi-Fam <10 Units	28
Multi-Fam 10+ Units	52
Non-Profit Service	6
Off Bldg 1 Story	10
Off Bldg Multi-Story	14
Park Lots, M/H Parks	72
Private Hospitals	1
Private Schools	2
Professional Bldg	7
Rec And Park Land	1
Residential Common Area	26
Rest Homes	3
Single Family	1,609
Stores, 1 Story	22
Vacant	40
Vacant Commercial	1
Vehicle Sl/Serv/Rent	7
Warehouse Stor/Dist	9
MADEIRA BEACH, CITY OF	**1,268**
Airport/Bus Terms	2
Clubs/Lodges Halls	2
Community Shopping	2
Condominium	143
Forest, Parks Rec	2
Golf Courses	1
Hotels And Motels	44
Mixed Use	3
Multi-Fam <10 Units	194
Multi-Fam 10+ Units	1
Municipal	6
Off Bldg 1 Story	6
Off Bldg Multi-Story	1
Other Food Proc	3
Professional Bldg	1
Residential Common Area	13
Restaurants/Cafe	7
Single Family	796
Stores, 1 Story	27
Vacant	12
Vacant Commercial	1
#N/A	1
NORTH REDINGTON BEACH, TOWN OF	**379**
Condominium	55
Hotels And Motels	11
Mixed Use	1
Multi-Fam <10 Units	3
Residential Common Area	12
Restaurants/Cafe	1
Single Family	291
Stores, 1 Story	3

Use	Count per Community
Vacant	2
OLDSMAR, CITY OF	**2,793**
Airport/Bus Terms	1
Clubs/Lodges Halls	1
Community Shopping	1
Condominium	1
Drive-In Rest	5
Financial Inst	5
Hotels And Motels	5
Light Manufacture	79
Mobile Home	252
Mortuary/Cemetery	1
Multi-Fam <10 Units	69
Multi-Fam 10+ Units	36
Municipal	12
Off Bldg 1 Story	25
Off Bldg Multi-Story	4
Park Lots, M/H Parks	1
Private Schools	2
Professional Bldg	5
Residential Common Area	6
Rest Homes	1
Single Family	2,221
Stores, 1 Story	26
Supermarket	1
Vacant	1
Vehicle Sl/Serv/Rent	3
Warehouse Stor/Dist	29
PINELLAS COUNTY *	**17,341**
Airport/Bus Terms	22
Churches	6
Clubs/Lodges Halls	8
Community Shopping	5
Condominium	1,637
County	20
Cultural Groups	2
Drive-In Rest	3
Federal	2
Financial Inst	15
Florist/Greenhouse	3
Golf Courses	10
Heavy Manufacture	3
Homes For The Aged	7
Hotels And Motels	22
Light Manufacture	73
Market Value Of Ag Land	3
Mineral Processing	3
Miscellaneous	1
Mixed Use	6
Mobile Home	179
Multi-Fam <10 Units	221

Use	Count per Community
Multi-Fam 10+ Units	53
Municipal	1
Nightclubs/Bars	1
Non-Profit Service	6
Off Bldg 1 Story	39
Off Bldg Multi-Story	17
Open Storage	2
Other Food Proc	1
Park Lots, M/H Parks	139
Private Schools	3
Professional Bldg	18
Public Schools	3
Rec And Park Land	7
Residential Common Area	174
Rest Homes	6
Restaurants/Cafe	11
Single Family	14,461
Stores, 1 Story	43
Supermarket	1
Utilities	1
Vacant	30
Vehicle Sl/Serv/Rent	23
Warehouse Stor/Dist	45
#N/A	5
PINELLAS PARK, CITY OF	**2,586**
Churches	7
Clubs/Lodges Halls	1
Community Shopping	12
Condominium	470
Drive-In Rest	3
Financial Inst	6
Heavy Manufacture	1
Homes For The Aged	2
Hotels And Motels	4
Light Manufacture	97
Market Value Of Ag Land	1
Mobile Home	28
Mortuary/Cemetery	2
Multi-Fam <10 Units	23
Multi-Fam 10+ Units	20
Municipal	5
Non-Profit Service	15
Off Bldg 1 Story	15
Off Bldg Multi-Story	1
Other Food Proc	1
Park Lots, M/H Parks	9
Private Schools	4
Professional Bldg	6
Residential Common Area	24
Rest Homes	1
Restaurants/Cafe	4

Use	Count per Community
Single Family	1,721
Stores, 1 Story	28
Vacant	19
Vacant Commercial	4
Vacant Industrial	1
Vehicle Sl/Serv/Rent	4
Warehouse Stor/Dist	47
REDINGTON BEACH, TOWN OF	**585**
Condominium	19
Cooperatives	3
Hotels And Motels	7
Multi-Fam <10 Units	3
Municipal	1
Off Bldg 1 Story	1
Single Family	542
Vacant	6
Vacant Government	3
REDINGTON SHORES, TOWN OF	**679**
Condominium	44
Hotels And Motels	11
Multi-Fam <10 Units	59
Municipal	1
Nightclubs/Bars	1
Off Bldg 1 Story	1
Residential Common Area	32
Restaurants/Cafe	2
Single Family	520
Stores, 1 Story	3
Vacant	5
SAFETY HARBOR, CITY OF	**917**
Condominium	28
Cultural Groups	1
Hotels And Motels	2
Light Manufacture	1
Miscellaneous	1
Mobile Home	34
Multi-Fam <10 Units	5
Off Bldg 1 Story	3
Off Bldg Multi-Story	2
Park Lots, M/H Parks	4
Residential Common Area	2
Single Family	827
Stores, 1 Story	6
Warehouse Stor/Dist	1
SEMINOLE, CITY OF	**1,161**
Bwl Al/Skt Rnk/Pl Hl	1
Churches	1
Community Shopping	1
Condominium	233
Cooperatives	3
Department Stores	3

Use	Count per Community
Drive-In Rest	3
Golf Courses	3
Heavy Manufacture	1
Homes For The Aged	2
Hotels And Motels	1
Mobile Home	14
Multi-Fam <10 Units	3
Multi-Fam 10+ Units	2
Off Bldg 1 Story	2
Park Lots, M/H Parks	40
Private Schools	1
Professional Bldg	5
Residential Common Area	55
Rest Homes	1
Restaurants/Cafe	1
Single Family	766
Stores, 1 Story	11
Utilities	1
Vehicle Sl/Serv/Rent	2
Warehouse Stor/Dist	4
#N/A	1
SOUTH PASADENA, CITY OF	**438**
Community Shopping	1
Condominium	184
Cooperatives	3
Drive-In Rest	2
Financial Inst	2
Homes For The Aged	3
Multi-Fam <10 Units	4
Multi-Fam 10+ Units	12
Municipal	3
Off Bldg 1 Story	1
Off Bldg Multi-Story	3
Park Lots, M/H Parks	42
Repair Serv Non Auto	1
Residential Common Area	9
Rest Homes	2
Restaurants/Cafe	5
Single Family	151
Stores, 1 Story	8
Warehouse Stor/Dist	2
ST. PETE BEACH, CITY OF	**2,774**
Airport/Bus Terms	1
Churches	1
Community Shopping	2
Condominium	320
Cooperatives	6
Drive-In Rest	5
Financial Inst	9
Hotels And Motels	99
Mixed Use	7

Use	Count per Community
Multi-Fam <10 Units	205
Multi-Fam 10+ Units	18
Municipal	9
Nightclubs/Bars	1
Off Bldg 1 Story	7
Professional Bldg	5
Residential Common Area	32
Restaurants/Cafe	18
Single Family	1,973
Stores, 1 Story	38
Supermarket	1
Utilities	1
Vacant	10
Vacant Commercial	2
Vacant Government	1
Vehicle Sl/Serv/Rent	2
Warehouse Stor/Dist	1
ST. PETERSBURG, CITY OF	**22,674**
Airport/Bus Terms	14
Churches	31
Clubs/Lodges Halls	7
Colleges	2
Community Shopping	18
Condominium	1,554
Cultural Groups	1
Drive-In Rest	32
Financial Inst	15
Florist/Greenhouse	1
Golf Courses	8
Heavy Manufacture	8
Homes For The Aged	115
Hotels And Motels	19
Light Manufacture	45
Miscellaneous	1
Mixed Use	6
Mobile Home	120
Mortuary/Cemetery	2
Multi-Fam <10 Units	455
Multi-Fam 10+ Units	323
Municipal	14
Nightclubs/Bars	1
Non-Profit Service	12
Off Bldg 1 Story	70
Off Bldg Multi-Story	97
Other Food Proc	2
Park Lots, M/H Parks	80
Private Schools	29
Professional Bldg	44
Public Schools	1
Repair Serv Non Auto	2
Residential Common Area	190

Use	Count per Community
Rest Homes	14
Restaurants/Cafe	12
Rights-Of-Way	2
Service Stations	2
Single Family	19,094
State	1
Stores, 1 Story	101
Tour Attract-Perm	1
Utilities	17
Vacant	56
Vacant Commercial	10
Vehicle Sl/Serv/Rent	9
Warehouse Stor/Dist	28
#N/A	8
TARPON SPRINGS, CITY OF	**2,322**
Airport/Bus Terms	2
Clubs/Lodges Halls	3
Community Shopping	4
Condominium	141
Drive-In Rest	2
Financial Inst	2
Forest, Parks Rec	1
Heavy Manufacture	1
Homes For The Aged	1
Light Manufacture	4
Mobile Home	24
Mortuary/Cemetery	1
Multi-Fam <10 Units	37
Multi-Fam 10+ Units	14
Municipal	5
Non-Profit Service	1
Off Bldg 1 Story	3
Off Bldg Multi-Story	2
Other Food Proc	3
Park Lots, M/H Parks	20
Private Hospitals	3
Private Schools	1
Professional Bldg	2
Residential Common Area	24
Rest Homes	1
Restaurants/Cafe	8
Rights-Of-Way	1
Single Family	1,988
Stores, 1 Story	15
Utilities	1
Vacant	1
Warehouse Stor/Dist	6
TREASURE ISLAND, CITY OF	**1,887**
Airport/Bus Terms	1
Churches	1
Clubs/Lodges Halls	1

Use	Count per Community
Condominium	389
Cooperatives	7
Drive-In Rest	2
Hotels And Motels	55
Light Manufacture	1
Mixed Use	3
Multi-Fam <10 Units	173
Multi-Fam 10+ Units	8
Municipal	4
Nightclubs/Bars	4
Off Bldg 1 Story	2
Professional Bldg	3
Residential Common Area	74
Restaurants/Cafe	4
Single Family	1,126
Stores, 1 Story	13
Vacant	9
Vacant Commercial	4
Vehicle Sl/Serv/Rent	1
#N/A	2
UNKNOWN COMMUNITY	**1,721**
Grand Total	**72,824**

APPENDIX C

Flood Warning and Response Package

Message	Chars	Flood Event	Risk Level	Medium Type	Topic	Time Period
FLOOD RISK AREAS: You are receiving this message because you are in a coastal area, which may be subject to flooding associated with [Tropical Storm ___] late this evening and overnight. If you are planning to travel or go out, please anticipate there may be flooded roads. Use caution and never drive through flooded areas. Park on higher ground. To look up possible storm surge flooding from National Hurricane Center projections: bit.ly/SurgeRisk	449	Tidal, Tropical Storm/Hurricane (Surge)	Moderate, High	Alert Pinellas	Localized Flooding, General Flooding, Preparation	Before (Hours), During
Review disaster plans for your family, business and property. Get your emergency kit and important papers ready. Purchase any items you will need to complete your emergency kit now to avoid long lines and limited supplies.	222	Tidal, Rainfall, Tropical Storm/Hurricane (Surge)	Minor, Moderate, High	Alert Pinellas	Preparation	Before (Days)
EMERGENCY! Catastrophic and life-threatening flooding is expected across Pinellas County. Over __ inches of rain has fallen, and extreme flooding is expected. If ordered to evacuate, do so. Stay tuned for weather updates through weather alert radios, local media outlets, the county website and county social media accounts.	324	Rainfall, Tropical Storm/Hurricane (Surge)	High	Alert Pinellas	Storm Surge, Evacuation	Before (Days), Before (Hours)
EMERGENCY! Life-threatening flooding conditions are occurring across Pinellas County. Tune in to local media for flood watches and warnings. Prepare your property for potential flooding. For information about how to prepare visit pinellas.gov/flooding	251	Rainfall, Tropical Storm/Hurricane (Surge)	High	Alert Pinellas	Storm Surge, Preparation	Before (Days), Before (Hours)
EMERGENCY! Life threatening storm surge is expected across Pinellas County. A mandatory level ____ evacuation has been ordered. Evacuation levels are directly related to predicted storm surge height. See disaster.pinellas.gov for more info.	240	Tropical Storm/Hurricane (Surge)	High	Alert Pinellas	Evacuation, Storm Surge	Before (Days), Before (Hours)
The current forecast from the National Hurricane Center projects __ feet of storm surge. Coastal and barrier island residents are advised to prepare for localized flooding and potential storm surge with possible [road/yard/structure] flooding.	243	Tropical Storm/Hurricane (Surge)	Moderate	Alert Pinellas	Localized Flooding, Storm Surge	Before (Hours), During
ALERT PINELLAS: EMERGENCY! A Storm Surge Warning is in effect for Pinellas County. Life-threatening storm surge is expected across Pinellas County. A Mandatory Level ____ Evacuation has been ordered. See disaster.pinellas.gov for more info.	240	Tropical Storm/Hurricane (Surge)	High	Alert Pinellas	Evacuation, Storm Surge	Before (Days), Before (Hours)
If an area is barricaded, there is a reason. Find an alternate route.	69	Tidal, Rainfall, Tropical Storm/Hurricane (Surge)	Minor, Moderate, High	Alert Pinellas	General Flooding	During, After (Hours), After (Days)
If rising floodwaters present a threat to your safety or have displaced you from your home and you have no safe place to stay, an emergency shelter is open at [Shelter Location and Address].	190	Tropical Storm/Hurricane (Surge)	High	Alert Pinellas	Shelters	During, After (Hours), After (Days)
Dangerous flooding conditions are expected in coastal areas. Coastal flooding of [flooding height specifics] is expected along coastal areas of Pinellas County [timeframe]. Tune in to local media for flood watches and warnings. Prepare your property for potential flooding. For information about how to prepare visit pinellas.gov/flooding	338	Tropical Storm/Hurricane (Surge)	High	Alert Pinellas	Preparation, General Flooding	Before (Hours)
Flood Recovery information is available at disaster.pinellas.gov. Be aware of animals, insects, and mold. Avoid coming into contact with flood waters. Hire only licensed contractors and report price gouging.	208	Tidal, Rainfall, Tropical Storm/Hurricane (Surge)	Minor, Moderate, High	Social Media	General Flooding	After (Hours), After (Days)
Pinellas County is working diligently to document flood damages, but need individuals and businesses to report damages to ensure all of the damage is accounted for. This information is needed to apply for potential state and federal emergency assistance. - Residents are asked to report their flood damage at ____ - Businesses are asked to report damages at www.floridadisaster.biz/BusinessDamageAssessments.	409	Tidal, Rainfall, Tropical Storm/Hurricane (Surge)	Minor, Moderate, High	Alert Pinellas, Press Release, Social Media	General Flooding	After (Hours)
Heavy rain will impact the area [TIME] and could cause flooding or damage in coastal and low-lying areas. Residents and visitors are advised to anticipate the following conditions this [TIME]: - [LIST CONDITIONS]	212	Rainfall	Minor, Moderate	Alert Pinellas, Press Release	General Flooding	Before (Days), Before (Hours)
Minor flooding conditions are expected in coastal areas. Coastal flooding of [flooding height specifics] are expected along coastal areas of Pinellas County [timeframe]. Prepare and stay tuned to local news for updates.	219	Tidal	Minor	Alert Pinellas, Social Media	General Flooding	Before (Hours)
STORM SURGE WARNING FOR PINELLAS COUNTY	39	Tropical Storm/Hurricane (Surge)	Moderate, High	ITS/BEAS	Storm Surge	Before (Hours), During
EVAC LEVEL EQUALS PREDICTED STORM SURGE HEIGHT	46	Tropical Storm/Hurricane (Surge)	High	ITS/BEAS	Storm Surge	Before (Days), Before (Hours)
STORM SURGE IS DEADLIEST HURRICANE HAZARD	43	Tropical Storm/Hurricane (Surge)	Moderate, High	ITS/BEAS	Storm Surge	Before (Days), Before (Hours), During
MANDATORY LEVEL --------- EVACUATION ORDER	42	Tropical Storm/Hurricane (Surge)	High	ITS/BEAS	Evacuation	Before (Days), Before (Hours)
EVACUATIONS ORDERED FOR FLOODED AREAS	38	Tropical Storm/Hurricane (Surge)	High	ITS/BEAS	Evacuation	Before (Days), Before (Hours)
EVACUATE COAST GO TO HIGH GROUND STAY OUT OF WATER	50	Tropical Storm/Hurricane (Surge)	High	ITS/BEAS	Evacuation	Before (Days), Before (Hours)
DO NOT DRIVE THROUGH FLOODED ROADWAYS	37	Tidal, Rainfall, Tropical Storm/Hurricane (Surge)	Minor, Moderate, High	ITS/BEAS	Wake, Turn Around Don't Drown, Localized Flooding, General Flooding	Before (Hours), During
6 INCHES OF FLOOD WATER CAN FLOAT YOUR CAR	42	Tidal, Rainfall, Tropical Storm/Hurricane (Surge)	Minor, Moderate	ITS/BEAS	General Flooding	Before (Hours), After (Hours)
FLOODING POSSIBLE TODAY	23	Tidal, Rainfall	Minor, Moderate	ITS/BEAS	General Flooding	Before (Hours), During
FLOOD WARNING ISSUED FOR PINELLAS COUNTY	41	Rainfall, Tropical Storm/Hurricane (Surge)	Minor, Moderate, High	ITS/BEAS	General Flooding	Before (Hours), During
FLOODING CAN BE DEADLY	22	Tropical Storm/Hurricane (Surge)	High	ITS/BEAS	General Flooding	Before (Days), Before (Hours)
DO NOT ENTER FLOODED AREAS	26	Rainfall, Tropical Storm/Hurricane (Surge)	Minor, Moderate, High	ITS/BEAS	Localized Flooding, General Flooding	Before (Hours), During After (Hours)
FLASH FLOOD WARNING FOR PINELLAS COUNTY	40	Tropical Storm/Hurricane (Surge)	High	ITS/BEAS	General Flooding	Before (Hours), During
FLOOD RECOVERY INFORMATION STORM.PINELLAS.GOV	45	Tidal, Rainfall, Tropical Storm/Hurricane (Surge)	Minor, Moderate, High	ITS/BEAS	General Flooding	After (Hours), After (Days)
Due to the possibility of heavy rain, drivers are advised to use caution when encountering flooded roadways and intersections. Never drive or walk through flooded areas. Only 6 inches of fast-flowing water can sweep you off your feet and one foot can carry away cars. Remember - Turn around, don't drown!	304	Rainfall	Minor, Moderate, High	Press Release	Localized Flooding, General Flooding, Turn Around Don't Drown	During, After (Hours)
The National Weather Service is forecasting _____ to make landfall in Florida by ____. While the storm's exact path and potential impact on Pinellas County is not yet certain, evacuations are planned to ensure citizens have adequate time to leave those areas that could be threatened.	285	Tropical Storm/Hurricane (Surge)	High	Press Release	Evacuation	Before (Days)
Pinellas County has declared a state of emergency and authorized mandatory evacuations at _____ for Level _____ and residents with special needs, including coastal residents and those in low-lying areas, as well as all mobile homes.	233	Tropical Storm/Hurricane (Surge)	High	Press Release	Evacuation	Before (Days), Before (Hours)
EMERGENCY! Mandatory evacuations have been ordered for [Areas]. Citizens should evacuate flooded areas as soon as possible. The following shelters are open [shelters and locations].	181	Tropical Storm/Hurricane (Surge)	High	Press Release	Evacuation	Before (Days), Before (Hours)
When returning to be the beach, use caution on beach walkovers and be wary of sudden changes in beach elevation caused by erosion.	130	Tropical Storm/Hurricane (Surge)	High	Press Release	Evacuation	After (Hours)

•Possible road and yard flooding with high tides this evening and overnight tonight, [day, date] •If you're in a low-lying area that has flooded in the past, move vehicles to higher ground. •Don't drive in flooded areas. Wake from vehicles traveling on flooded roads causes more property damage than the rising water alone. •Continue to follow local media outlets, tune in to NOAA weather radio stations and continue to follow us on Facebook, Twitter and Nextdoor. •Sign up for Alert Pinellas to receive text, phone and/or email notifications. Visit pinellas.gov/alertpinellas	589	Tidal	Minor, Moderate	Press Release	Wake, Localized Flooding, General Flooding, Preparation	Before (Hours)
Stay connected and prepare ahead. Follow local media outlets or tune in to NOAA weather radio stations 162.450 or 162.550 and follow us on social media to stay informed. Sign up for Alert Pinellas to receive text, phone and/or email notifications if flooding is expected in your area. Visit pinellas.gov/alertpinellas for more information.	339	Tidal, Rainfall, Tropical Storm/Hurricane (Surge)	Minor, Moderate, High	Press Release	Preparation	Before (Days)
Prepare your property for potential flooding. Bring in all yard items like furniture, grills, and toys. For information about how to prepare visit disaster.pinellas.gov.	170	Tidal, Rainfall, Tropical Storm/Hurricane (Surge)	Moderate, High	Press Release	Preparation	Before (Days)
Be sure to have electronic and hard copies of your insurance documents, including your agents phone number and your policy number. Take photos and videos your property now and inventory your contents by room.	208	Tidal, Rainfall, Tropical Storm/Hurricane (Surge)	Minor, Moderate, High	Press Release	Preparation	Before (Days)
If flood water begins entering your home, shut off water, gas service and electricity if possible. Stay inside and don't walk through flooded areas. For more information, visit disaster.pinellas.gov.	199	Tidal, Rainfall, Tropical Storm/Hurricane (Surge)	Moderate, High	Press Release	Preparation, General Flooding	Before (Hours), During
Pinellas Update: Sandbags available [Insert Days] for unincorporated residents Sandbag distribution locations will open [Insert Days] for unincorporated Pinellas residents to prepare for potential flooding from increased rainfall, which could occur from [Insert Storm] as it approaches Florida next week. Sandbag distribution locations open [Insert Days], __ a.m. – __ p.m. or as supplies last: •John Chesnut Sr. Park: 2200 East Lake Road in Palm Harbor •Walsingham Park: 12615 102nd Ave, Seminole •Lealman Exchange, 5175 45th St N, St. Petersburg Sandbags limited to 10 per person – materials will be supplied, shovels available John Chesnut and Walsingham Park will be closed Sunday and Monday except for sandbag operations. City residents can check with their cities about other sandbag availability. Sandbags are only recommended for residents who may experience minor flooding from rainfall. Sandbags are not recommended for storm surge from the bay or tidal waters.	983	Tidal, Rainfall	Minor, Moderate, High	Press Release	Sandbags	Before (Days)
Older mobile homes may be more vulnerable to tropical storm force winds. Consider seeking shelter with friends or family in a stronger structure.	147	Tropical Storm/Hurricane (Surge)	High	Press Release	Evacuation, Shelters	Before (Days), Before (Hours)
Sign up for the Special Needs Program at pinellas.gov/special-needs if you are dependent on electricity or require medical assistance such as oxygen or assistance with routine care.	181	Tropical Storm/Hurricane (Surge)	High	Press Release	Preparation	Before (Days)
The Citizen Information Center is open, and residents can call (727) 464-4333 to report issues or for more information.	119	Tropical Storm/Hurricane (Surge)	High	Press Release	Citizen Information Center (CIC)	Before (Days), Before (Hours)
Residents can report issues with the Pinellas County Doing Things For You app or by visiting pinellas.gov/reportanissue.	121	Tropical Storm/Hurricane (Surge)	High, Minor, Moderate	Press Release	General Flooding	After (Hours), After (Days)
Emergency shelters will open at [TIME] Open shelter locations will be as follows: - [LIST SHELTERS OPENING]	107	Tropical Storm/Hurricane (Surge)	High	Press Release	Shelters	Before (Days), Before (Hours)
Do not play in flood waters. They are gross and dangerous! Flood waters are contaminated with hazardous materials, aggressive wildlife, and other obstructions that can cause serious illness or injury.	200	Tidal, Rainfall, Tropical Storm/Hurricane (Surge)	Minor, Moderate, High	Press Release, Social Media, Alert Pinellas	Preparation, Localized Flooding, General Flooding	During, After (Hours)
Document flood damage with photos and list all damaged or lost items by room, including the description, replacement cost, and age. Take photos of how high the water was inside and outside the house. Record your damage on the Resident Damage Reporting tool at disaster.pinellas.gov to help the county assess communitywide damage.	329	Tidal, Rainfall, Tropical Storm/Hurricane (Surge)	Minor, Moderate, High	Press Release	General Flooding	After (Hours)
If you have flood insurance, you can ask your insurance adjuster for an advance payment to help with repairs. Contact your agent today for more information.	156	Tidal, Rainfall, Tropical Storm/Hurricane (Surge)	Minor, Moderate, High	Press Release	General Flooding	After (Hours), After (Days)
Keep debris and trash out of the streets, streams, and ditches. Bring in all large yard items, like furniture, grills, and bird baths.	134	Tidal, Tropical Storm/Hurricane (Surge)	Minor, Moderate, High	Press Release, Alert Pinellas	Preparation	Before (Days)
Tides are expected to be higher than normal this weekend which could cause localized flooding. Onshore winds and rain are possible and may exacerbate the flooding. Coastal and barrier island residents are advised to prepare their property for potential flooding. Slow down, don't speed through flooded areas. Waves from vehicles traveling on flooded roads cause more damage than the rising water alone. If an area is barricaded, there is a reason. Find an alternate route.	472	Tidal	Minor	Press Release, Alert Pinellas	General Flooding, Wake, Preparation	Before (Days), Before (Hours)
Pinellas Update: Shelters and County Information Center now closed following the storm. Residents in coastal areas advised to continue to monitor for possible flooding tonight into early Friday morning hours. Access preparedness information at: storm.pinellas.gov	263	Tropical Storm/Hurricane (Surge)	High	Press Release, Alert Pinellas	Citizen Information Center (CIC), Shelters	After (Hours), After (Days)
Try to stay off of the roads as much as possible. Many routes may be flooded. Never drive through standing water. Remember - Turn around, don't drown!	150	Tidal, Rainfall, Tropical Storm/Hurricane (Surge)	Minor, Moderate, High	Press Release, Social Media	Turn Around Don't Drown, Localized Flooding, General Flooding	After (Hours)
The eventual track and intensity of [Hurricane/Tropical __] remains uncertain. However, the National Hurricane Center has placed Pinellas County in the five-day cone for the storm. Prepare early. Stay informed by signing up for Alert Pinellas at pinellas.gov/alertpinellas and download the Ready Pinellas app in the App Store or Google Play store for real-time storm updates. #GetReadyPinellas	393	Tropical Storm/Hurricane (Surge)	High	Press Release, Social Media	Preparation	Before (Days)
Life threatening storm surge possible in Pinellas County. See disaster.pinellas.gov for more info.	99	Tropical Storm/Hurricane (Surge)	High	Social Media	Storm Surge	Before (Hours), During
To look up possible storm surge flooding from the National Hurricane Center projections, go to: [bit.ly/SurgeRisk]	114	Tropical Storm/Hurricane (Surge)	Moderate, High	Social Media	Storm Surge	Before (Hours)
While evacuations are not currently anticipated for this storm, double-check your evacuation zone in one of the following ways: •Visit disaster.pinellas.gov •Download the Ready Pinellas app •Call (727) 453-3150 from a landline; enter 10-digit home phone number	263	Tropical Storm/Hurricane (Surge)	Moderate, Minor	Social Media	Evacuation, Preparation	Before (Days), Before (Hours)
Coastal and barrier island residents are advised to prepare for potential localized flooding. Storm tides are expected to be ____ feet above normal forecast levels, with _____ foot breaking waves on the coast.	210	Tidal	Minor	Social Media	Preparation, Localized Flooding	Before (Hours)
Flooding from heavy rain is possible. Prepare and stay tuned to local news stations and social media.	101	Rainfall	Moderate, High	Social Media	General Flooding	Before (Hours), During
Help prevent flooding in your neighborhood by keeping storm drains and waterways clear. When storm drains get clogged with debris and trash they can lead to flooded streets, yards, and even homes. To report illegal dumping, visit the Pinellas County app at pinellas.gov/report-request-contact-us/ or call (727) 464-4425.	320	Tidal, Rainfall, Tropical Storm/Hurricane (Surge)	Minor, Moderate, High	Social Media	Preparation	Before (Days)
Do not drain your pool. Super-chlorinate the water and turn off all electricity to the pool for the duration of the storm.	122	Tidal, Rainfall, Tropical Storm/Hurricane (Surge)	Minor, Moderate	Social Media	Preparation	Before (Days)
Sandbags or other flood barriers may help keep some water out of your home, but not large amounts of rain and storm surge. If flooding is expected, sandbags may be offered. Check with your city. Unincorporated Pinellas County can check the website pinellas.gov/sandbags.	270	Tidal, Rainfall	Minor, Moderate, High	Social Media	Sandbags	Before (Days)

Questions about Hurricane/Tropical Storm ____? The County Information Center is open today from [Time] to [Time] for storm questions at 727-464-4333.	149	Tropical Storm/Hurricane (Surge)	High	Social Media	Citizen Information Center (CIC)	Before (Days), Before (Hours), During, After (Hours), After (Days)
Dangerous flooding conditions are expected in coastal areas. Coastal flooding of [flooding height specifics] is expected along coastal areas of Pinellas County [timeframe].	172	Tidal	Moderate	Social Media	General Flooding	Before (Hours)
Life threatening flooding possible in Pinellas County. See disaster.pinellas.gov for info.	90	Tropical Storm/Hurricane (Surge)	High	Social Media	Storm Surge, General Flooding	Before (Days), Before (Hours), During
Watch for critters such as snakes, raccoons and opossums that may have "moved" into your evacuated home, since they too look for shelter and relief from flood waters.	166	Tidal, Rainfall, Tropical Storm/Hurricane (Surge)	Minor, Moderate, High	Social Media	General Flooding	After (Hours), After (Days)
If you have a lifted vehicle that will not be impacted by flooding, slow down and don't speed. Waves from vehicles traveling on flooded roads causes more property damage than the rising water alone.	198	Tidal, Rainfall, Tropical Storm/Hurricane (Surge)	Minor, Moderate, High	Social Media, Alert Pinellas	Wake	During, After (Hours)
MANDATORY EVACUATION: Mandatory Evacuation Order for Levels _____. Check your evacuation zone at kyz.pinellas.gov	114	Tropical Storm/Hurricane (Surge)	High	Social Media, Alert Pinellas	Evacuation	Before (Days), Before (Hours)
Turn Around, Don't Drown! Avoid areas already flooded, especially if the water is flowing fast. Do not attempt to cross flowing streams or flooded roadways. Only 6 inches of fast-flowing water can sweep you off your feet and one foot can carry away cars.	254	Tidal, Rainfall, Tropical Storm/Hurricane (Surge)	Minor, Moderate, High	Social Media, Alert Pinellas, Press Release	Turn Around Don't Drown, Localized Flooding, General Flooding	During, After (Hours)
If your plans are to evacuate the area, secure your home so you can leave as soon as an evacuation order is issued.	115	Tropical Storm/Hurricane (Surge)	High	Social Media, Alert Pinellas, Press Release	Evacuation	Before (Days)
Barrier island residents who have registered for Pinellas County Sheriff's Office Emergency Access Permit are reminded to bring the permit with them when evacuating.	165	Tropical Storm/Hurricane (Surge)	High	Social Media, Alert Pinellas, Press Release	Evacuation	Before (Days)
Be especially cautious at night when it is harder to see possible flood dangers. Waves from vehicles traveling on flooded roads causes more property damage than the rising water alone.	185	Tidal, Rainfall, Tropical Storm/Hurricane (Surge)	Minor, Moderate, High	Social Media, Alert Pinellas, Press Release	Turn Around Don't Drown, Localized Flooding, General Flooding	During
Prepare your property for potential flooding. For information about how to prepare visit disaster.pinellas.gov.	111	Tidal, Rainfall, Tropical Storm/Hurricane (Surge)	Minor, Moderate, High	Social Media	Preparation	Before (Days)
To prevent mold, remove wet contents immediately after the flood. Be sure to document the damage with photos of what is being removed from each room. Wet carpeting, furniture, bedding, and other items holding moisture can develop mold within 24 to 48 hours. bit.ly/PinellasAfterFlood	283	Tidal, Rainfall, Tropical Storm/Hurricane (Surge)	Minor, Moderate, High	Social Media, Alert Pinellas, Press Release	General Flooding	After (Hours)
If your property flooded, clean and disinfect everything that got wet. Mud left from flood water can be contaminated with hazardous materials like sewage and chemicals. bit.ly/PinellasAfterFlood	194	Tidal, Rainfall, Tropical Storm/Hurricane (Surge)	Minor, Moderate, High	Social Media, Alert Pinellas, Press Release	General Flooding	After (Hours)
If your home or business flooded, keep your power off until a licensed electrician can take a look. Water-damaged power outlets can cause fires. Be sure to hire a licensed electrician.	184	Rainfall, Tropical Storm/Hurricane (Surge)	Moderate, High	Social Media, Alert Pinellas, Press Release	General Flooding	After (Hours), After (Days)
Look out for price gouging! It is illegal for anyone to sell necessary goods or services at higher than normal prices during a state of emergency. If you believe a business or individual is price gouging during a declared state of emergency, call (727) 464-6200 to report and to speak with an investigator. pinellas.gov/consumer	328	Tidal, Rainfall, Tropical Storm/Hurricane (Surge)	Minor, Moderate, High	Social Media, Alert Pinellas, Press Release	General Flooding	After (Hours), After (Days)
Take extra care to protect yourself from bug bites. Remember the 3 Ds: - Dump standing water to prevent mosquitoes from breeding. - Dress in light colored, loose fitting clothes and cover exposed skin. - Defend with CDC-approved repellents like DEET, Picaridin, IR3535 or Oil of Lemon Eucalyptus.	296	Tidal, Rainfall, Tropical Storm/Hurricane (Surge)	Minor, Moderate, High	Social Media, Alert Pinellas, Press Release	General Flooding	After (Hours)
Contact your flood insurance agent as soon as possible. There are time limitations to file your claim. Visit floodsmart.gov/start for more information.	151	Tidal, Rainfall, Tropical Storm/Hurricane (Surge)	Minor, Moderate, High	Social Media, Alert Pinellas, Press Release	General Flooding	After (Hours)
Report blocked ditches, swales, and canals at pinellas.gov/reportanissue	72	Tidal, Rainfall, Tropical Storm/Hurricane (Surge)	Minor, Moderate, High	Social Media, Alert Pinellas, Press Release	General Flooding	After (Hours)
Be aware of flooding and be prepared to take action. Remember - never drive or walk-through flooded areas.	106	Tidal, Rainfall, Tropical Storm/Hurricane (Surge)	Minor, Moderate, High	Social Media, Press Release	Localized Flooding, General Flooding	Before (Hours), After (Hours)
If you live in low-lying areas, then move your vehicle to higher ground. Avoid driving through deep standing water.	116	Tidal, Rainfall	Minor, Moderate	Social Media, Press Release	Localized Flooding, General Flooding, Turn Around Don't Drown	Before (Hours)
Build back safer and stronger. Get required permits before starting any home repair, improvement, or construction. Visit pinellas.gov/construction-in-a-floodplain to learn more or call (727) 464-3888 with questions.	215	Tidal, Rainfall, Tropical Storm/Hurricane (Surge)	Minor, Moderate, High	Social Media, Press Release	General Flooding	After (Hours), After (Days)
Do not sign an Assignment of Benefits contract (AOB) as a condition to having your home repaired. An AOB gives a third party authority to file a claim, make repair decisions and collect insurance payments without your involvement. Visit myfloridacfo.com/division/consumers/assignmentofbenefits.htm to learn more.	312	Tidal, Rainfall, Tropical Storm/Hurricane (Surge)	Minor, Moderate, High	Social Media, Press Release	General Flooding	After (Hours), After (Days)
Get up to $1,000 in reimbursements. Provide receipts to your flood insurance agent for all flood protection measures taken to prepare for the storm. You can receive up to $1,000 in reimbursements under the NFIP Loss Avoidance clause. Visit bit.ly/FEMA-FloodLossAvoid for more information.	288	Tidal, Rainfall, Tropical Storm/Hurricane (Surge)	Minor, Moderate, High	Social Media, Press Release	General Flooding	After (Hours), After (Days)
If your home or business is substantially damaged, up to an additional $30,000 may be available under the NFIP Increased Cost of Compliance provision. Visit fema.gov/floodplain-management/financial-help/increased-cost-compliance or ask your flood insurance agent to find out more.	280	Tidal, Rainfall, Tropical Storm/Hurricane (Surge)	Minor, Moderate, High	Social Media, Press Release	General Flooding	After (Hours), After (Days)
HUD offers a low-interest mitigation loan (203(k)) that you can use to rebuild your structure. Visit hud.gov/program_offices/housing/sfh/203k/203k--df to learn more.	165	Tidal, Rainfall, Tropical Storm/Hurricane (Surge)	Minor, Moderate, High	Social Media, Press Release	General Flooding	After (Hours), After (Days)
Salt water causes an extreme fire hazard to electric vehicle and golf cart lithium-ion batteries! Coastal and barrier island residents and visitors should prepare for storm surge. If you are in these areas, move your vehicles to higher ground. All residents are advised to avoid driving through flooded roads.	309	Tropical Storm/Hurricane (Surge)	Minor, Moderate, High	Alert Pinellas, Social Media	Localized Flooding, Storm Surge, Preparation	Before (Days), Before (Hours), During
Salt water causes an extreme fire hazard to electric vehicle and golf cart lithium-ion batteries! Coastal and barrier island residents and visitors should prepare for localized tidal flooding. If you are in these areas, move your vehicles to higher ground. All residents are advised to avoid driving through flooded roads.	322	Tidal	Minor, Moderate, High	Alert Pinellas, Social Media	Localized Flooding, General Flooding, Preparation	Before (Days), Before (Hours), During
If flood water begins entering your home, stay inside. Wait until the storm has passed to tend to any damage. For more information, visit disaster.pinellas.gov.	160	Tidal, Rainfall, Tropical Storm/Hurricane (Surge)	Minor, Moderate, High	Social Media, Alert Pinellas, Press Release	Storm Surge, Localized Flooding, General Flooding	During
Due to the possibility of heavy rain, drivers are advised to use caution when encountering flooded roadways and intersections. Remember - Turn around, don't drown!	164	Rainfall	Minor, Moderate, High	Social Media, Social Media, Alert Pinellas, Press Release	Localized Flooding, General Flooding, Turn Around Don't Drown	During, After (Hours)
The storm is here. It is no longer safe to leave; its time to shelter in place. If flood water begins entering your home, stand on top of counters or other substantial piece of furniture to stay above the rising water. If possible, shut off water, gas service and electricity. Stay inside and don't walk through flooded areas. For more information, visit disaster.pinellas.gov.	377	Rainfall, Tropical Storm/Hurricane (Surge)	Minor, Moderate, High	Social Media, Alert Pinellas	Evacuation, Shelters	During

	Topics Covered		Hurricane Season (May 1 - November 30)		Winter Season (December 1 - April 30)
1	Know Your Flood Hazard		x		—
2	Insure Your Property For Your Flood Hazard		—		x
3	Protect People From Flood Hazard		x		—
4	Protect Your Property From Flood Hazard		x		—
5	Build Responsibly		—		x
6	Protect Natural Floodplain Functions		—		x
7	Hurricane Preparedness		x		—
8	Pet Preparedness		x		—
9	Flood Economics		x		x
10	Resiliency and Sustainability		x		x

Date	Facebook (Character Limit: 2200)	Chars	Twitter (Character Limit: 280)	Chars2	Topic 1
2/2/2024	Whether you rent or own, flood insurance is a good way to protect the things you care about. Get a flood insurance policy today! Talk to one of our Flood Insurance Advocates to learn about the best options for you: bit.ly/PinellasFloodAdvocates #FloodplainFriday	262	Whether you rent or own, flood insurance is a good way to protect the things you care about. Get a flood insurance policy today! Talk to one of our Flood Insurance Advocates to learn about the best options for you: bit.ly/PinellasFloodAdvocates #FloodplainFriday	262	Insure Your Property For Your Flood Hazard
2/9/2024	FEMA flood maps don't show the entire picture. Pinellas County maps also integrate tidal, rainfall and storm surge data from state and local sources to give you a better idea of a property's future flood risk. Find out what your flood risk will be in the future at bit.ly/PinellasSLRvulnerability #FloodplainFriday #PCPWK	321	FEMA flood maps don't show the entire picture. Pinellas County maps also integrate tidal, rainfall & storm surge data from state & local sources to give you a better idea of future flood risk. Find out your future flood risk at bit.ly/PinellasSLRvulnerability #FloodplainFriday	277	Resiliency and Sustainability
2/16/2024	Planning a home renovation? Here are three things you can do to protect your investment: 1. Know your flood hazard 2. Hire licensed professionals 3. Get permits through your local municipality or county For more information, visit bit.ly/PinellasBuildSmart #FloodplainFriday	274	Planning a home renovation? Here are three things you can do to protect your investment: 1. Hire licensed professionals 2. Get permits through your local municipality or county 3. Know your flood hazard For more information, visit bit.ly/PinellasBuildSmart #FloodplainFriday	274	Build Responsibly
2/23/2024	Calling all Seasonal Residents! Before you leave us for the summer, prepare your property for the upcoming hurricane season. Secure all loose items outside your home and trim any dead branches from trees or palms. Remember, no gnome left behind! bit.ly/PreparePinellas #FloodplainFriday #GetReadyPinellas #HurricanePrep #PinellasEM	331	Calling all Seasonal Residents! Before you leave, prepare your property for the upcoming hurricane season. Secure all loose items outside your home & trim any dead branches from trees or palms. Remember, no gnome left behind! bit.ly/PreparePinellas #FloodplainFriday #PinellasEM	278	Protect Your Property From Flood Hazard

	Topics Covered	Hurricane Season (May 1 - November 30)	Winter Season (December 1 - April 30)
1	Know Your Flood Hazard	x	—
2	Insure Your Property For Your Flood Hazard	—	x
3	Protect People From Flood Hazard	x	—
4	Protect Your Property From Flood Hazard	x	—
5	Build Responsibly	—	x
6	Protect Natural Floodplain Functions	—	x
7	Hurricane Preparedness	x	—
8	Pet Preparedness	x	—
9	Flood Economics	x	x
10	Resiliency and Sustainability	x	x

Date	Facebook (Character Limit: 2200)	Chars	Twitter (Character Limit: 280)	Chars2	Topic 1
3/1/2024	Now's the time to get #FloodSmart. Find out how much flood damage could cost you with this interactive tool, then make sure you've got enough flood insurance to protect your wallet. Most insurance policies don't take effect for 30 days from when they start, so act now! bit.ly/CostOfFlooding #FloodplainFriday	310	Now's the time to get #FloodSmart. Find out how much flood damage could cost you & make sure you've got enough flood insurance to protect your wallet. Most insurance policies don't take effect for 30 days from when they start, so act now! bit.ly/CostOfFlooding #FloodplainFriday	279	Flood Economics
3/8/2024	Florida Flood Awareness Week				
3/15/2024	Help protect the landscape that protects us! #DYK that lakes, retention ponds, and freshwater swamps help store excessive rain fall and provide homes for wildlife? You can help protect them by keeping trash out and ensuring only rain goes down your storm drains. bit.ly/PinellasWetlands #FloodplainFriday	304	Help protect the landscape that protects us! Lakes, retention ponds, & freshwater swamps help store excessive rain fall & provide homes for wildlife. Help protect them by keeping trash out & ensuring only rain goes down your storm drains. bit.ly/PinellasWetlands #FloodplainFriday	280	Protect Natural Floodplain Functions
3/22/2024	Your home is likely your biggest investment, and rebuilding a flooded home can be difficult and costly. Give yourself peace of mind and protect your home and investments by purchasing flood insurance. bit.ly/PinellasFloodInsurance #FloodplainFriday	248	Your home is likely your biggest investment, and rebuilding a flooded home can be difficult and costly. Give yourself peace of mind and protect your home and investments by purchasing flood insurance. bit.ly/PinellasFloodInsurance #FloodplainFriday	248	Insure Your Property For Your Flood Hazard
3/29/2024	This Spring Break, help keep our beaches healthy by not disturbing dunes or dune vegetation. Beaches and dunes provide a natural buffer from storm events by reducing flooding during coastal storms. Dunes also store sand that helps nourish eroding beaches. bit.ly/PinellasFloodplain #FloodplainFriday	299	This Spring Break, help keep our beaches healthy by not disturbing dunes or dune vegetation. Beaches and dunes provide a natural buffer from storm events by reducing flooding during coastal storms. bit.ly/PinellasFloodplain #FloodplainFriday	241	Protect Natural Floodplain Functions
4/5/2024	Looking to remodel or add on to your home? Be aware of substantial improvement rules. Remodeling projects that cost half the value or greater of the original structure will required you to elevate the building above the regulatory flood level. Build responsibly, higher keeps you dryer! bit.ly/PinellasBuildSmart #FloodplainFriday #BuildSmart	342	Remodeling or adding on to your home? Understand substantial improvement rules. Projects that cost half the value or more of the original structure must be elevated above the regulatory flood level. Build smart, higher keeps you dryer! bit.ly/PinellasBuildSmart #FloodplainFriday	279	Build Responsibly
4/12/2024	Yesterday was national pet day! Be a friend to man's best friend and include them in your preparations. Pack items like food, water and medications in their survival kit. Need to evacuate? Be sure to identify pet friendly accommodations early in the season. pinellas.gov/emergency-information/public-shelters #FloodplainFriday #GetReadyPinellas #PetSupplyKit	358	Did you know pets have disaster needs as well? Be a friend to man's best friend & include them in your preparations. Pack items like food, water & medications in their survival kit. pinellas.gov/emergency-information/public-shelters #FloodplainFriday #GetReadyPinellas	268	Pet Preparedness

Date	Facebook (Character Limit: 2200)	Chars	Twitter (Character Limit: 280)	Chars2	Topic 1
4/19/2024	#DYK? One way to keep your landscape green and avoid algae-filled water in ponds and lakes is to plant native plants. Excess water, nutrients, grass clippings and leaves that flow into waterways and storm drains can cause algae blooms and fish kills. Skip the fertilizer, plant native and let nature do the rest! bit.ly/UF-IFAS_DevBetterWay #OnlyRainDownTheDrain #FloodplainFriday	380	Native plants keep your lawn green & prevents algae-filled water in ponds & lakes. Waterways & storm drains clogged with excess nutrients, grass clippings & leaves cause algae blooms & fish kills. Skip the fertilizer & plant native! bit.ly/UF-IFAS_DevBetterWay #FloodplainFriday	278	Protect Natural Floodplain Functions
4/26/2024	Do you know the difference between disaster assistance and flood insurance? Disaster assistance requires a declaration from the President and often come in the form of loans that must be repaid. However, flood insurance coverage is available whether a disaster is declared or not. Talk to a flood insurance agent about your options. Pinellas.gov/flood-advocates/ #FloodplainFriday	380	What's the difference between disaster assistance & flood insurance? Disaster assistance requires a declaration from the President & often comes in the form of loans that must be repaid. Flood insurance coverage is available whether a disaster is declared or not. Talk to a flood insurance agent about your options. Pinellas.gov/flood-advocates/ #FloodplainFriday	363	Insure Your Property For Your Flood Hazard
5/3/2024	Hurricane season starts next month. Create an emergency preparedness kit. Be sure to include your important documents, water, favorite non-perishable foods, flashlight, batteries, radio and hygiene products. Remember to pack supplies for your furry friends. bit.ly/PreparePinellas #FloodplainFriday #PinellasEM	310	Hurricane season starts next month. Create an emergency preparedness kit. Be sure to include your important documents, water, non-perishable foods, flashlight, batteries, radio & hygiene products. Pack supplies for your furry friends, too. bit.ly/PreparePinellas #FloodplainFriday	280	Hurricane Preparedness
5/10/2024	In celebration of #PublicServiceRecognitionWeek we salute all of the dedicated personnel of Pinellas County Emergency Management and Public Works. These folks provide year-round support and expertise to keep you safe. So, here's to them! #FloodplainFriday	255	In celebration of #PublicServiceRecognitionWeek we salute all of the dedicated personnel of Pinellas County Emergency Management and Public Works. These folks provide year-round support and expertise to keep you safe. So, here's to them! #FloodplainFriday	255	
5/17/2024	Public Works staff is gearing up for hurricane season – are you? Now is a great time to check your evacuation zone. Create an evacution and share it with your family. bit.ly/PinellasKnowYourEvacZone #FloodplainFriday #HurricanePreparednessMonth #NPWW	250	Public Works staff is gearing up for hurricane season – are you? Now is a great time to check your evacuation zone. Create an evacution and share it with your family. bit.ly/PinellasKnowYourEvacZone #FloodplainFriday #HurricanePreparednessMonth #NPWW	250	Know Your Flood Hazard
5/24/2024	Its critical to know the difference between flood zones and evacuation zones! Flood zones are used for determining flood insurance requirements. Hurricane evacuation zones are based on storm surge flood risk – the greatest threat to life from hurricanes. Find out more at pinellas.gov/emergency #FloodplainFriday #GetReadyPinellas #HurricanePreparednessMonth	358	Know the difference between flood zones & evacuation zones! Flood zones determine flood insurance requirements. Hurricane evacuation zones are based on storm surge – the greatest threat to life from hurricanes. pinellas.gov/emergency #FloodplainFriday	251	Know Your Flood Hazard
5/31/2024	Are you ready? Hurricane Season starts tomorrow! What's your plan for your family and pets? Visit bit.ly/PreparePinellas for tips on how to prepare. #FloodplainFriday #GetReadyPinellas #HurricanePrep	199	Are you ready? Hurricane Season starts tomorrow! What's your plan for your family and pets? Visit bit.ly/PreparePinellas for tips on how to prepare. #FloodplainFriday #GetReadyPinellas #HurricanePrep	199	Hurricane Preparedness
6/7/2024	Flooding conditions are expected to worsen in the future! FEMA flood maps don't show the future flooding conditions for your area, including tidal, rainfall, and storm surge. Learn how rising seas and king tides might affect your property and take steps to adapt your property floridadep-slip.org/Adaptations.aspx #FloodplainFriday #PCPWK	338	Flooding conditions will worsen in the future! FEMA flood maps don't show the future flooding conditionsfor your area. Learn how rising seas & king tides might affect your property & take steps to adapt your property floridadep-slip.org/Adaptations.aspx #FloodplainFriday	271	Resiliency and Sustainability

Date	Facebook (Character Limit: 2200)	Chars	Twitter (Character Limit: 280)	Chars2	Topic 1
6/14/2024	Now that hurricane season is here, sign up for ALERTPinellas, a FREE service that sends out emergency alerts. You can also download the Ready Pinellas App on your phone to create your own emergency plan, check your evacuation zone and more. bit.ly/ALERTPinellasRegister & bit.ly/ReadyPinellasApp #FloodplainFriday	313	Sign up for ALERTPinellas, a FREE service that sends out emergency alerts. You can also download the Ready Pinellas App on your phone to create your own emergency plan, check your evacuation zone and more. bit.ly/ALERTPinellasRegister & bit.ly/ReadyPinellasApp #FloodplainFriday	278	Protect People From Flood Hazard
6/21/2024	About half of Pinellas is in a flood hazard area. Protect your property by utilizing low impact development, such as rain gardens and barrels, or elevating equipment or your building. https://pinellas.gov/flood-mitigation #FloodplainFriday #PCPWK	246	About half of Pinellas is in a flood hazard area. Protect your property by utilizing low impact development, such as rain gardens and barrels, or elevating equipment or your building. https://pinellas.gov/flood-mitigation #FloodplainFriday #PCPWK	246	Protect Your Property From Flood Hazard
6/28/2024	Today is National Insurance Awareness Day! Now is a good time to review your flood insurance policy. Be sure to find out what is covered and what your deductible is. Talk to a flood insurance agent about your options. Pinellas.gov/flood-advocates/ #FloodplainFriday	265	Today is National Insurance Awareness Day! Now is a good time to review your flood insurance policy. Be sure to find out what is covered and what your deductible is. Talk to a flood insurance agent about your options. Pinellas.gov/flood-advocates/ #FloodplainFriday	265	Flood Economics

	Topics Covered		Hurricane Season (May 1 - November 30)		Winter Season (December 1 - April 30)
1	Know Your Flood Hazard		x		—
2	Insure Your Property For Your Flood Hazard		—		x
3	Protect People From Flood Hazard		x		—
4	Protect Your Property From Flood Hazard		x		—
5	Build Responsibly		—		x
6	Protect Natural Floodplain Functions		—		x
7	Hurricane Preparedness		x		—
8	Pet Preparedness		x		—
9	Flood Economics		x		x
10	Resiliency and Sustainability		x		x

Date	Facebook (Character Limit: 2200)	Chars	Twitter (Character Limit: 280)	Chars2	Topic 1
2/9/2024	FEMA flood maps don't show the entire picture. Pinellas County maps also integrate tidal, rainfall and storm surge data from state and local sources to give you a better idea of a property's future flood risk. Find out what your flood risk will be in the future at bit.ly/PinellasSLRvulnerability #FloodplainFriday #PCPWK	321	FEMA flood maps don't show the entire picture. Pinellas County maps also integrate tidal, rainfall & storm surge data from state & local sources to give you a better idea of future flood risk. Find out your future flood risk at bit.ly/PinellasSLRvulnerability #FloodplainFriday	277	Resiliency and Sustainability
6/7/2024	Flooding conditions are expected to worsen in the future! FEMA flood maps don't show the future flooding conditions for your area, including tidal, rainfall, and storm surge. Learn how rising seas and king tides might affect your property and take steps to adapt your property floridadep-slip.org/Adaptations.aspx #FloodplainFriday #PCPWK	338	Flooding conditions will worsen in the future! FEMA flood maps don't show the future flooding conditionsfor your area. Learn how rising seas & king tides might affect your property & take steps to adapt your property floridadep-slip.org/Adaptations.aspx #FloodplainFriday	271	Resiliency and Sustainability
9/13/2024	There is a potential for king tide flooding this week. King tides are extreme high tides that occur when the moon is closest to Earth, typically during a full or new moon. They occur frequently in Pinellas County and have caused roadway flooding in the past. If you encounter flooded roads along the coast do not drive through it, salt water can damage or disable your car and wake from cars and trucks damages homes and business. #FloodplainFriday	448	Possible king tide flooding expected this week. King tides are extreme high tides that occur when the moon is closest to Earth usually during a full or new moon. Don't drive through flooded roads, salt water can damage your car & wake from cars damages property. #FloodplainFriday	280	Resiliency and Sustainability
11/1/2024	DYK you could save money in the long run by exceeding the minimum building standards? According to the National Institute of Building Sciences, every dollar you invest in building stronger can save you $6 in future flood damages. Consider building stronger to protect you from larger or future storms. Learn more here: bit.ly/FEMA-MitSaves #FloodplainFriday	357	According to the National Institute of Building Sciences, every dollar you invest in building stronger can save you $6 in future flood damages. Consider building stronger to protect you from larger or future storms. Learn more here: bit.ly/FEMA-MitSaves #FloodplainFriday	271	Resiliency and Sustainability
12/27/2024	DYK FEMA flood maps only show past conditions? NOAA predicts future weather will include stronger hurricanes, greater storm surge and higher rainfall rates. Take steps to adapt your property now and consider building higher and stronger to withstand future storms. Learn more: bit.ly/NOAA-factsheet #FloodplainFriday	316	DYK FEMA flood maps only show past conditions? NOAA predicts future weather will include stronger hurricanes, greater storm surge & higher rainfall rates. Consider building higher & stronger to withstand future storms. Learn more: bit.ly/NOAA-factsheet #FloodplainFriday	270	Resiliency and Sustainability

APPENDIX D

PPI Project Tracking

330 OUTREACH PROJECTS WORKSHEET

Projects Implemented Countywide | Newly Implemented Projects | Identified but Not Implemented Projects

Project ID	Outreach Projects	Description	CPI?	Target Audience	STK?	Countywide Reach	Unincorp	Belleair	Belleair Beach	Belleair Bluffs	Belleair Shore	Clearwater	Dunedin	Gulfport	Indian Rocks Beach	Indian Shores	Kenneth City	Largo	Madeira Beach	North Redington Beach	Oldsmar	Pinellas Park	Redington Beach	Redington Shores	Safety Harbor	Seminole	South Pasadena	St. Pete Beach	St. Petersburg	Tarpon Springs	Treasure Island
OP#1	RLA Letter	Letter, Flood Info Brochure, and Insurance Info Sheet distributed via direct mail to residents and businesses in the Repetitive Loss Areas	Y	RLAA	N	N	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	N	Y	Y	Y	Y	Y	Y
*OP#2	*Flood Guide available at County/City Buildings	PC Departments: Building, Planning, Development Review Services, Communications, Utilities	Y	Customers of Pinellas County Services	N	N	Y	Y	Y	N	N	N	N	N	Y	N	N	N	Y	N	Y	N	Y	N	N	N	N	N	Y	Y	N
*OP#4a	*Hurricane Guide	Distributed countywide. Made available at County and municipal buildings. Made available at numerous buisinesses.	Y	No target audience	N	N	Y	Y	Y	N	N	N	N	N	N	N	N	N	N	Y	N	Y	N	Y	N	N	N	N	N	Y	Y	Y
*OP#4b	*Hurricane Guide - ESOL (Spanish)	Distributed countywide. Made available at County and municipal buildings. Made available at numerous buisinesses.	Y	Spanish-Speaking Residents	N	N	Y	Y	Y	N	N	N	N	N	N	N	N	N	N	N	Y	N	Y	N	N	N	N	N	Y	Y	N
*OP#4c	*Hurricane Guide - ESOL (Vietnamese)	Distributed countywide. Made available at County and municipal buildings. Made available at numerous buisinesses.	Y	Vietnamese-Speaking Residents	N	N	Y	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	Y	Y	N
OP#6	Utility Bill Insert	Flood Information distributed in the utility bill for customers	Y	No target audience	N	N	Y	Y	Y	N	N	N	N	N	Y	N	N	N	Y	N	Y	N	Y	N	N	N	N	N	Y	Y	Y
OP#11	Commissioner / Mayor Article in Utility Bills or Mailed letters	Each year the County Commission Chair or Mayor will provide flood reminders, including for residents to review their insurance coverage and consider adding flood insurance, and promote flood insurance technical assistance in an article disseminated in Utility bills or mailed letters, and released to the press. This is frequently published in newspapers and neighborhood newsletters.	Y	No target audience	N	N	Y	Y	N	N	N	N	N	N	Y	N	N	N	N	N	Y	N	Y	N	N	N	N	N	N	Y	N
OP#13	Storm Drain Markers	Only Rain Down Drain Storm Drain Marker program	N	No target audience	N	N	Y	N	Y	N	N	Y	N	N	N	N	N	N	N	N	Y	N	Y	N	N	N	N	N	Y	Y	N
OP#14	Storm Drain Murals	Only Rain Down Drain Storm Drain Mural program	N	No target audience	N	N	N	N	Y	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	Y	N	N
OP#15	Vehicle Wraps	Natural functions messages, such as Only Rain Down Drain are wrapped on vehicles. All vehicles can be see across the county and out of the county when vehicles are used for business travel.	N	No target audience	N	N	Y	Y	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	Y	N
OP#18	Scheduled Social Media Posts (Facebook)	Defined Social Media posts that cover all topics	Y	No target audience	N	N	Y	Y	N	N	N	N	N	N	Y	N	N	N	Y	N	Y	N	N	N	N	N	N	N	Y	Y	Y
OP#19	Scheduled Social Media Posts (Instagram)	Defined Social Media posts that cover all topics	Y	No target audience	N	N	Y	Y	N	N	N	N	N	N	N	N	N	N	N	N	Y	N	N	N	N	N	N	N	Y	Y	Y
OP#20	Scheduled Social Media Posts (Twitter)	Defined Social Media posts that cover all topics	Y	No target audience	N	N	Y	Y	N	N	N	N	N	N	Y	N	N	N	Y	N	Y	N	N	N	N	N	N	N	N	Y	Y
OP#21	E-News/E-Lert	Email blasts from the community sent to citizens who opt-in. Topics may include floodplain management, environmental news, and public safety.	N	No target audience	N	N	Y	Y	Y	N	N	N	N	N	Y	N	N	N	N	N	Y	N	N	N	N	N	N	N	N	Y	Y	Y
OP#22	Newsletter(s)	Newsletter from the community distrubuted by multiple dissemination methods, such as email blasts, mailers, and articles in neighborhood newsletters/magazines	Y	Varies	N	N	N	Y	Y	N	N	N	N	N	Y	N	N	N	N	N	Y	Y	N	Y	N	N	N	N	Y	Y	Y
OP#25	New Homeowner Brochure	Brochure for new homeowners to introduce them to Pinellas County watersheds and flood risks.	Y	New Homeowners	N	N	Y	Y	N	N	N	N	N	N	N	N	N	N	N	N	N	N	Y	N	N	N	N	N	N	N	N
OP#27	Parks & Recreation Educational Materials	Educational material placed in parks and recreational facilities about the watersheds and environmental aspects of the area.	N	No target audience	N	N	Y	N	Y	N	N	N	N	N	Y	Y	N	N	N	N	Y	N	Y	N	N	N	N	N	Y	Y	N
OP#28	Informational Videos	Flood related informational videos for residents and businesses disseminated by various methods	Y	No target audience	N	N	N	N	N	N	N	N	N	N	Y	N	N	N	N	N	Y	N	Y	N	N	N	N	N	N	Y	Y
OP#29	Homeowners Association Meetings	Meetings from Homeowners Associations	Y	Homeowner's Associations	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	Y	N	Y	N	N	N	N	N	Y	N	N
OP#30	Tampa Bay Newspapers Full-Page Spread	Flood related reminders, including for residents to review their insurance coverage and consider adding flood insurance, and promote flood insurance technical assistance. Other flood related messages are included.	Y	No target audience	N	N	Y	Y	Y	Y	Y	Y	N	Y	Y	Y	N	Y	Y	N	N	N	Y	Y	N	N	Y	Y	N	Y	Y

330 OUTREACH PROJECTS WORKSHEET

Projects Implemented Countywide | Newly Implemented Projects | Identified but Not Implemented Projects

Project ID	Outreach Projects	Description	CPI?	Target Audience	STK?	Countywide Reach	Unincorp	Belleair	Belleair Beach	Belleair Bluffs	Belleair Shore	Clearwater	Dunedin	Gulfport	Indian Rocks Beach	Indian Shores	Kenneth City	Largo	Madeira Beach	North Redington Beach	Oldsmar	Pinellas Park	Redington Beach	Redington Shores	Safety Harbor	Seminole	South Pasadena	St. Pete Beach	St. Petersburg	Tarpon Springs	Treasure Island
OP#31	Community Workshops / Meetings	Flood related informational workshops or meetings (virtual or in-person) for residents and businesses held separately from Commission or Board meetings. Some examples are Citizen's Academy, City Council Flood Education Workshops, City Boards Flood Education Workshops, etc.	Y	Varies	N	N	Y	N	N	N	N	N	N	N	N	Y	N	N	Y	N	Y	N	Y	Y	N	N	N	N	Y	Y	Y
OP#32	Only Rain Down the Drain Posted Signage	Posted Signage reminding residents and visitors Only Rain Down the Drain	N	No target audience	N	N	N	Y	N	N	N	N	N	N	N	Y	N	N	N	N	Y		N	N	N	N	N	N	Y	Y	N
OP#33	Letter to Real Estate Professionals	A targeted letter to real estate professionals within the municipality accompanied with the flood brochure	N	Real Estate Professionals	N	N	N	N	N	N	N	N	N	N	Y	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N
OP#34	Letter to Insurance Companies	A targeted letter to insurance companies within the municipality accompanied with the flood brochure	N	Insurance and Mortgage professionals	N	N	N	N	N	N	N	N	N	N	Y	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N
OP#35	Letter to Landscapers	A targeted letter to landscapers within the municipality accompanied with the flood brochure	N	Landscapers	N	N	N	N	N	N	N	N	N	N	Y	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N
OP#36	Social Media - Podcast	A podcast that discusses floodplain related messaging. Not Implemented Yet.	N	No target audience	N	N																									
OP#37	Storm Surge Inundation Level Signage	Signage placed at specific locations to identify storm surge innundation	N	No target audience	N	N	Y																							N	
OP#41	DIY High Water Marks Flyer	A flyer to educate residents on doing high water marks by themselves post flood.	N	No target audience	N	N																									
OP#42	Boat and Dock Handouts	A handout for boat, dock, and marina owners for protecting natural floodplain functions.	N	Boat Owners/Marinas	N	N																									
OP#43	Letter to Homeowner Associations (HOA)	A targeted letter to home owner associations within the municipality accompanied with the flood brochure	N	Home Owners Associations	N	N																									
OP#44	Bus/Trolley Stop Posters	A targeted poster to bus/trolley passengers posted at the stops.	N	PSTA/Trolley	N	N																									
OP#45	Flood Knowledge Scout Badge	A targeted badge that girl scouts and boy scouts could earn	N	Girl Scouts/Boy Scouts	N	N																									

APPENDIX E

PPI Key Messages

PPI Key Messages

Topic 1: Know your flood hazard	Topic 2: Insure your property for your flood hazard	Topic 3: Protect people from flood hazard	Topic 4: Protect your property from flood hazard	Topic 5: Build responsibly	Topic 6: Protect natural floodplain functions	Topic 7: Hurricane preparedness	Topic 8: Pet Preparedness	Topic 9: Flood Economics	Topic 10: Resiliency and Sustainability
"Find out your flood risk." Pinellas County and its municipalities offer a free flood map information service so you can find out if your property is in a high, moderate or low risk flood area or a floodway. You can also find out if your property is susceptible to flooding from storm surge and how deep it could get. They also provide all of the information needed to complete an elevation certificate to get your flood insurance rate. You can also see if the property is near protected areas that have natural floodplain functions, like swamps or mangrove stands. These areas store flood waters or buffer wave action while providing habitat for wildlife and filtering pollutants.	**"Purchase flood insurance for your home, business, or rental."** Protect your home or business and your belongings with a flood insurance policy. Flood insurance is required for federally backed mortgages on buildings in high-risk flood zones. Most homeowners' and renters' insurance policies do not cover losses due to flooding. Anywhere it rains it can flood, so flood insurance is recommended, even if it is not required by your lender. A new policy takes 30 days to take effect, so don't delay. Flood insurance technical assistance from flood insurance "advocates" is also available. These are professionals in the insurance field who can provide you with reliable information about your flood risk and flood insurance options.	***"Stay informed."*** If flooding is expected in your area, tune in to local news stations or NOAA weather radio stations 162.450 or 162.550 for updates. Follow us on Facebook, Instagram, Twitter, and Nextdoor [or insert social media platform here] to stay informed and sign up for Alert Pinellas to receive text, phone and/or email notifications. Visit www.pinellascounty.org/alertpinellas for more information and to sign up.	***"Protect Your Property."*** Consider raising your AC unit, water heater, generators, and other utilities to protect investments from flood damage. Test and mark fuse/or breaker boxes to identify floodable areas. Consider installing sewer line check valves to prevent sewer backup flooding.	***"Build Responsibly."*** Find out what building permits you may need and hire a licensed contractor. Permits protect you and others by ensuring all proposed work complies with current construction codes, standards, and methods. For more information, visit: https://pinellas.gov/construction-in-a-floodplain/.	***"Help prevent flooding and pollution by keeping storm drains clear."*** Keep leaves, grass clippings and other debris out of storm drains and waterways to prevent flooding in your neighborhood. Pollutants from trash, yard waste, pet waste, or pesticides that spill into waterways may cause algae blooms that result in fish kills. When storm drains get clogged with debris they can lead to flooded streets, yards, and even homes. Do your part. Remember, only rain down the drain —it's the law (Ordinance #06-13). To report illegal dumping, visit the Pinellas County app at pinellas.gov/report-request-contact-us/ or call (727) 464-4425.	***"Prepare ahead and make a plan"*** with the Ready Pinellas app, which has readiness checklists and allows you to create a plan for yourself, your family and your pets. Download the latest version for free on your mobile device through the Apple app store or Google Play or visit www.pinellascounty.org/flooding/warning.htm for more information.	***"Make a plan for your pets."*** In the event of a flood, don't forget your furry friends. Make sure your evacuation plan includes vet records, food, and medicine. Pet friendly shelters should be your last resort. To learn more visit pinellas.gov/preparing-pets-for-emergencies/	"Understand what is covered by your flood insurance policy." Homeowners insurance almost never covers flood damage. There are separate flood insurance coverages for your building and its contents. Check your policy or contact your agent to learn more about your coverage and deductible.	***"If you're building new, don't just meet the minimum requirements - exceed them."*** Every dollar you invest in building stronger can save you $6 in future flood damages. https://www.fema.gov/fact-sheet/building-back-stronger.
"Know your hurricane evacuation zone." Remember, flood zones and evacuation zones are different! Knowing the difference is critical during times of disaster to reduce confusion and better maintain the public's safety. Evacuation zones are based on a property's vulnerability to storm surge. You must KNOW YOUR EVACUATION ZONE to know when to evacuate! Find your evacuation zone, routes, and shelters. https://pinellas.gov/evacuation-zone/	***"You do not need to sign an Assignment of Benefits"*** Remember to review all contracts carefully to avoid fraud that can lead to dire financial consequences. Do not sign an Assignment of Benefits contract as a condition of having your home or business repaired.	***"Do not play in flood waters."*** Floodwaters are gross and dangerous! They are contaminated with hazardous materials, aggressive wildlife, and other obstructions that can cause serious illness or injury.	To protect your property from future flooding, you can schedule a one-on-one consultation with County staff to evaluate drainage by calling Pinellas County's Flood Information Services at (727) 464-7700. If you live in a municipality, you should contact your city directly.	***"Be aware of subst+E4:E5antial improvements rule."*** Remodeling projects that cost half the value, or greater, of the original structure will require you to elevate the building above the regulatory flood level. Many communities have adopted a lower threshold and/or a cumulative time period for Substantial Improvement. Check with your municipality for the specific requirement in your jurisdiction.	***"Build Responsibly+E4:E5.*** Higher keeps you dryer." According to research supported by NOAA, homeowners would reduce the most damage by considering raising their homes a few feet above FEMA's minimum recommendation. Check with your municipality to learn more about building regulations in your area. https://repository.library.noaa.gov/view/noaa/59141/noaa_59141_DS1.pdf	***"Know your hurricane evacuation zone."*** Remember, flood zones and evacuation zones are different! Knowing the difference is critical during times of disaster to reduce confusion and better maintain the public's safety. Evacuation zones are based on a property's vulnerability to storm surge. You must KNOW YOUR EVACUATION ZONE to know when to evacuate! Find your evacuation zone, routes, and shelters at https://pinellas.gov/storm-surge/.	***"Make sure your pet is licensed with Pinellas County Animal Services in case you get separated."*** Update your pet's vaccinations and make sure their county license is valid with current contact information. Visit pinellas.gov/preparing-pets-for-emergencies/	**"Check with a flood insurance advocate to make sure your policy covers your risk."** Flood insurance advocates are experts who provide reliable information about flood risk and flood insurance options. Visit pinellas.gov/flood-insurance-technical-assistance/.	***""The sea is already rising!"*** Local tide gages show that sea levels in Pinellas County have been rising since 1950. FEMA flood maps do not show the future flooding conditions for your area, including tidal, precipitation, and storm surge. Take preventative action for your home by planting native plants and using gravel in place of concrete. Resilient.pinellas.gov **DRAFT Alternate Message:** Pinellas County follows guidance from Resilient Florida about elevated flooding risks. FEMA flood maps do not show the future flooding conditions for your area, including tidal, precipitation, and storm surge. Take steps to adapt your property now floridadep-slip.org/Adaptations.aspx
"Know your flood zone." Remember, flood zones and evacuation zones are different! Knowing the difference is critical during times of disaster to reduce confusion and better maintain the public's safety. Flood zones are used for assessing a property's flood risk and flood insurance rates. Flooding can be caused by heavy rains as well as by tropical storms and hurricanes. Everyone lives in a flood zone, which may be high, moderate, or low risk.	***"Learn more about the difference between disaster assistance and insurance ."*** Most forms of disaster assistance require a declaration from the President and often come in the form of loans that must be repaid. However, insurance coverage is available whether a disaster is declared or not. More than 20% of insurance claims are paid for properties outside of a high-risk flood zone. There is also insurance available for the contents of your home or office which is a separate coverage within your policy.	***"Turn around, don't drown."*** Avoid areas already flooded, especially if the water is flowing fast. Do not attempt to cross flowing streams or flooded roadways. It only takes 6" of fast-moving water to sweep you off your feet.	***"Keep debris and trash out of the streets, streams, and ditches."*** They obstruct the stormwater system which can cause water to back up into streets, yards, and homes.	***"Build Responsibly.*** Higher keeps you dryer." According to research supported by NOAA, homeowners would reduce the most damage by considering raising their homes a few feet above FEMA's minimum recommendation. Check with your municipality to learn more about building regulations in your area. https://repository.library.noaa.gov/view/noaa/59141/noaa_59141_DS1.pdf	***"Protect Natural Floodplain Functions."*** Only Rain Down the Drain. It is illegal to dump anything into storm drains, waterways or waterbodies. When storm drains get clogged with debris they can lead to flooded streets, yards, and even homes. Do not open manholes and allow water into the systems. This will overload the system and cause backups or overflows.	***"Prepare ahead and get a plan."*** Make a plan for emergencies such as floods, hurricanes and other natural disasters. Know your evacuation routes that lead you to higher ground. Make sure your destination has easy access to food, water, shelter, and emergency supplies.	Pets get anxious during stressful times. Ask your veterinarian for advice on how to take care of them before, during, and after a flood event. If evacuating, make sure you have a two-week supply of medication on hand for your pets, including proof of vaccination records.	***"Check with your flood insurance agent to make sure you have the right coverage at the right price."*** NFIP policyholders within a CRS community should see premium discounts from their community's CRS class.	If you witness flooding in your area without rain, then you are probably experiencing king tide or sunny day flooding. King tides are extreme high tides that occur around the time of a full or new moon when the moon is closest to Earth. King tides occur in Pinellas County and have caused roadway flooding in the past. Slow down, don't speed through flooded areas. Waves from vehicles traveling on flooded roads cause more damage than the rising water alone.
	"Your National Flood Insurance Program (NFIP) policy is transferrable." If you are buying or selling a home or commercial property, the existing NFIP flood insurance policy can be transferred to the new owner(s). This provides the same discounts previously applied to the rate and allows for no lapse in coverage until the new owner(s) can find their own flood insurance agent.	***"Sign up for Special Needs Sheltering and Transportation."*** During mandatory evacuation, Pinellas County activates the Special Needs Evacuation Program, which can provide transportation to a shelter. You must register for the program in advance. Sign up now at https://pinellas.gov/special-needs/.	***"Slow down, don't speed through flooded areas."*** Waves from vehicles traveling on flooded roads cause more damage than the rising water alone.	***"Renovate Responsibly."*** It is illegal to add plumbing or electrical or to convert the space below an elevated home into living space.	***"Do not remove sand from the beach or disturb dunes to fill sandbags."*** Doing so will cause more harm to property owners. This message is very relevant to Pinellas County, which is home to some of the most popular beaches in the nation. Beaches and dunes provide a natural buffer from storm events to lessen flooding during coastal storms. In addition, removing sand from beaches or dunes may violate federal, state or local law.	**"Insurance needs proof too!"** Document your belongings and property to help recover insurance losses by taking photos and videos of the exterior and interior of your home or business.	***"As a last resort, the County has pet-friendly shelters available for dogs and cats."*** The shelters for each storm will be posted as the evacuation orders are announced, including pet-friendly shelters. You will be able to see which shelters are open from our Public Shelter website. Bring a photo of your pet and other important documents with you.	***"Know what is covered by your flood insurance policy."*** Most flood insurance policies, including National Flood Insurance Program policies, do not cover Loss of Use. This coverage can help reimburse you for lodging and other living expenses if you cannot safely live in your home. Check with your insurance agent for coverage options.	***"Learn how king tides and rising water might affect your way of life. (Resilient.pinellas.gov)"***
	"Protect yourself with a flood insurance policy." Homeowners and renters who have flood insurance often recover quicker from a flooding event than those without it. Most homeowner's insurance does not cover flooding. Flood insurance may be required if the property is located in a FEMA Special Flood Hazard Area (SFHA) and they have a federally-backed loan. Even though a property may not be in a FEMA SFHA, it may still be subject to flooding. Technical assistance from flood insurance advocates is also available at pinellas.gov/flood-advocates/.	***"Learn when to stay or evacuate."*** Follow state and local directives to evacuate. If evacuation is voluntary and if you are on high ground, the safest measure may be to shelter in place.	***"Frequently inspect and clean your own*** Removing leaves and debris promotes a clear path for water to flow away from your structure which prevents damages from flooding.	***"Plan for proper drainage and use low impact development (LID)."*** Drainage features such as rain gardens, pervious pavers and vegetative buffers can help promote natural water flow. For more information and guidance visit: https://pinellas.gov/stormwater-manual/.	***"Save the Swales!"*** Swales prevent flooding by giving rain a place to go. During rain events, stormwater can quickly flood roads and homes. So, don't fill in swales located on your property.		***"Don't let your pets drink floodwaters."*** Floodwaters are gross and dangerous! They are contaminated with bacteria, sewage and other hazardous materials that can cause serious illness or injury.	***"Find out how much flood damage could cost you."*** Just 1 inch of water damage can cost you tens of thousands of dollars. Make sure you are financially prepared to recover from a flood event. FEMA has more information at floodsmart.gov.	***"Take steps to adapt your property now and consider building higher and stronger to withstand future storms."*** FEMA flood maps do not show the future flooding conditions for your area, including tidal, rainfall, and storm surge. Learn more: sealevel.nasa.gov

PPI Key Messages

			"Before you leave your seasonal property, secure your belongings, any chemicals and outdoor items to protect against flood and wind."	"Design projects with flood hazards and required development standards in mind." Both FEMA and the County develop flood maps. These are used to determine flood risks which directs development and construction. There is data which shows the flood risk from larger storms that can help plan for future conditions. For more information visit https://floodmaps.pinellas.gov/.	***"If you see debris in a waterway, like shopping carts, furniture, tires and trash report it to the local municipality or go to See, Click, Fix <Link>"***			***"Review your condo flood insurance policy."*** Condominium association flood insurance policies typically only cover common areas and certain building elements within the unit. Ask for a copy of the policy and understand what's covered.	***<Possible king tide flooding expected this week.>*** King tides are extreme high tides that occur when the moon is closest to Earth (typically during a full or new moon). Per EPA, king tides are lasting longer and extending further inland than in the past. If you live near water, consider building higher and stronger. Learn how rising water might affect your way of life at Resilient.pinellas.gov
			"Take action to move or raise your possessions to protect from flooding." Some expenses associated with protecting or moving your possessions may be covered by your flood insurance contents coverage.						
			"Before you evacuate, secure your property, belongings, and outdoor items to protect against flood and wind."						

APPENDIX I – REPETITIVE LOSS AREA ANALYSIS

This appendix includes the Repetitive Loss Area Analysis for unincorporated Pinellas County (compliant with CRS 512.b).

PINELLAS COUNTY UNINCORPORATED REPETITIVE LOSS AREA ANALYSIS (RLAA) ANNUAL REPORT

Pinellas County | January, 2025~~January, 2024~~



The Pinellas County Repetitive Loss Area Analysis (RLAA) was completed in 2019 and is reviewed annually. It includes all unincorporated properties on the repetitive loss list and all nearby properties that may experience similar flooding conditions. Data used to develop the RLAA included, but is not limited to:

- FEMA repetitive loss data
- Conveyance system components (e.g., location and size of stormwater pipes, ditches, storage basins, and work requests)
- Known hots spots (e.g., conveyance system problem areas)
- High water mark (HWM) information
- Flood complaint information
- Floodplains (e.g., Pinellas County Watershed Management Plans (WMP), municipal Stormwater Master Plans (SWMP), Pinellas County Vulnerability Assessment, FEMA Flood Insurance Study (FIS) and FEMA Flood Insurance Rate Maps (FIRMs))
- Storm surge areas
- LiDAR (elevation data)
- Street view
- Field observations

Each year the County requests various data from FEMA to review and update their plans as needed, including repetitive loss data. The most recent repetitive loss data from FEMA was provided to Pinellas County in August 2023. Pinellas County Floodplain Management, at 14 S. Ft. Harrison Ave, reviewed the list for accuracy to determine whether the properties are within the community's corporate limits, and whether the buildings have been removed, retrofitted, or otherwise protected from the cause of repetitive flooding. Any corrections to the list have been sent to FEMA.

There are a total of 177 repetitive loss properties (RL) geographically located within unincorporated Pinellas County on the list received in August 2023. The data shows loss dates ranging from 1979 to 2020. Of these RL, 153 are listed as "NFIP Repetitive Loss", and 2 are listed as "Flood Mitigation Assistance (FMA) Repetitive Loss". Additionally, 16 of the 177 properties are considered "NFIP Severe Repetitive Loss" and 20 are considered "FMA Severe Repetitive Loss". After comparing the recently provided RL list to the previously provided RL list, it was determined that FEMA added 22 properties that are geographically located within unincorporated Pinellas County to the list. These recently added RL show loss dates ranging from1996 to 2020 which align with the weather events identified in the RLAA. Two of the 22 newly added RL resulted from Tropical Storm Eta in 2020; however, the remainder were from prior weather events. Table 1~~Table 1~~ and Table 2~~Table 2~~ provide summaries of the findings.

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A review of previously recommended mitigation strategies for identified Repetitive Loss Areas (RLA) was completed as well. No new mitigation strategies have been identified or implemented; however, the County continues to implement ongoing efforts, such as known hot spot inspections and maintenance. There are no recommended changes to the action items at this time. New RL that do not fall within identified RLA will be evaluated as part of the 5-year update which is occurring this year. This annual report is included in the Local Mitigation Strategy (LMS) annual report, which is available to the media and the public on request.

Table 1: Repetitive Loss Properties Review

FEMA RL Number	QC Comment 2023	RLA ID	Mitigated	NFIP Repetitive Loss	NFIP Severe Repetitive Loss	FMA Repetitive Loss	FMA Severe Repetitive Loss	Not Repetitive Loss
44916	Mitigated - Demo 2019 (AQA19-H-20430)	1007	N	Y	N	N	N	N
298804	NEW on 2023 list - Within existing RLA 1007	1007	N	N	N	N	N	Y
2621	On prior RL list	1023	Y	Y	Y	N	Y	N
9452	On prior RL list	1023	Y	Y	N	N	N	N
10890	On prior RL list	1023	Y	Y	N	N	N	N
10891	On prior RL list	1023	Y	Y	Y	N	Y	N
3159	On prior RL list	1023	Y	Y	N	N	N	N
231745	NEW on 2023 list - Within existing RLA 1032	1032	N	N	N	N	N	Y
164262	NEW on 2023 list - Within existing RLA 1037; Review RLA 1037 - was denoted as all RLs mitigated, may need to be activated.	1037	N	N	N	N	N	Y
164263	NEW on 2023 list - Within existing RLA 1037; Review RLA 1037 - was denoted as all RLs mitigated, may need to be activated.	1037	N	N	N	N	N	Y
1985	Mitigated - Demo/Rebuild 2022 (CBP-21-06878)	1046	N	Y	N	N	N	N
48979	On prior RL list	1047	Y	Y	N	N	N	N
48980	On prior RL list	1047	Y	Y	N	N	N	N
50294	On prior RL list	1047	Y	Y	N	N	N	N
129078	NEW on 2023 list - Within existing RLA 1051	1051	N	N	N	N	N	Y
213146	NEW on 2023 list - Revise existing RLA 1062 boundary to include this property	1062	N	N	N	N	N	Y
86906	NEW on 2023 list - Within existing RLA 21001	21001	N	N	N	N	N	Y

FEMA RL Number	QC Comment 2023	RLA ID	Mitigated	NFIP Repetitive Loss	NFIP Severe Repetitive Loss	FMA Repetitive Loss	FMA Severe Repetitive Loss	Not Repetitive Loss
304104	NEW on 2023 list - Within existing RLA 21001 (Not on 2022 list, on 2021 list, though)	21001	N	N	N	Y	N	N
302851	Mitigated - Demo (PER-H-CB16-00615)	22004	N	Y	N	N	N	N
118164	On prior RL list	1001	N	Y	N	N	N	N
136132	Wrong Juris – Uninc. 125139	1002	N	Y	Y	N	Y	N
124449	On prior RL list	1003	N	Y	N	N	N	N
104417	On prior RL list	1004	N	Y	N	N	N	N
84312	MH Park - exact structure unknown	1005	N	Y	N	N	N	N
105457	MH Park - exact structure unknown	1005	N	Y	N	N	N	N
40595	On prior RL list	1006	N	Y	N	N	N	N
58898	On prior RL list	1006	N	Y	Y	N	Y	N
58899	On prior RL list	1006	N	Y	N	N	N	N
21810	On prior RL list	1007	Y	Y	N	N	N	N
58465	On prior RL list	1007	Y	N	N	N	Y	N
58897	On prior RL list	1007	N	Y	N	N	N	N
58901	On prior RL list	1007	N	Y	N	N	N	N
80756	On prior RL list	1007	Y	N	N	N	Y	N
81758	On prior RL list	1007	Y	Y	N	N	N	N
83016	On prior RL list	1007	N	Y	N	N	N	N
85585	On prior RL list	1007	Y	Y	N	N	N	N
86365	On prior RL list	1007	Y	Y	N	N	N	N
86942	On prior RL list	1007	N	Y	N	N	N	N
98248	On prior RL list	1007	N	Y	N	N	N	N
99706	On prior RL list	1007	N	Y	N	N	N	N
101729	On prior RL list	1007	N	Y	N	N	N	N
101742	On prior RL list	1007	N	Y	N	N	N	N
101982	On prior RL list	1007	N	Y	N	N	N	N
103431	On prior RL list	1007	N	Y	N	N	N	N
101395	On prior RL list	1008	N	Y	N	N	N	N

FEMA RL Number	QC Comment 2023	RLA ID	Mitigated	NFIP Repetitive Loss	NFIP Severe Repetitive Loss	FMA Repetitive Loss	FMA Severe Repetitive Loss	Not Repetitive Loss
13698	On prior RL list	1009	N	Y	N	N	N	N
58461	On prior RL list	1009	N	Y	Y	N	Y	N
58462	On prior RL list	1009	N	Y	N	N	N	N
58463	On prior RL list	1009	N	Y	N	N	N	N
58471	On prior RL list	1009	N	Y	N	N	N	N
58477	On prior RL list	1009	Y	Y	N	N	Y	N
86364	On prior RL list	1009	Y	Y	N	N	N	N
99703	On prior RL list	1009	Y	Y	N	N	N	N
101391	On prior RL list	1009	Y	Y	N	N	N	N
102282	On prior RL list	1009	N	Y	N	N	N	N
105465	On prior RL list	1009	N	Y	N	N	N	N
111791	On prior RL list	1009	N	Y	N	N	N	N
98476	Wrong Juris – Should be Uninc. (125139)	1010	N	Y	N	N	N	N
243400	On prior RL list	1011	N	Y	N	N	N	N
303456	MH Park - exact structure unknown - Most are SD from Idalia	1012	N	Y	N	N	N	N
18201	Not Mitigated (no structures in park are to BFE); MH Park - exact structure unknown; Most are SD from Idalia 8/30/2023	1012	Y	Y	N	N	N	N
3338	On prior RL list	1012	N	Y	N	N	N	N
18206	On prior RL list	1012	N	Y	N	N	N	N
296863	On prior RL list	1012	N	Y	N	N	N	N
302025	Wrong Juris – Should be Uninc (125139); MH Park - exact structure unknown	1012	N	Y	N	N	N	N
303485	Wrong Juris – Should be Uninc. (125139); MH Park - exact structure unknown - Most are SD from Idalia	1012	N	Y	Y	N	Y	N
94606	On prior RL list	1013	N	Y	N	N	N	N
58869	On prior RL list	1014	N	Y	Y	N	Y	N

FEMA RL Number	QC Comment 2023	RLA ID	Mitigated	NFIP Repetitive Loss	NFIP Severe Repetitive Loss	FMA Repetitive Loss	FMA Severe Repetitive Loss	Not Repetitive Loss
81307	Wrong Juris – Should be Uninc. (125139); MH Park - exact structure unknown	1014	Y	Y	N	N	N	N
199425	On prior RL list	1015	N	Y	N	N	N	N
213417	Wrong Juris – Should be Uninc. (125139); Revise address: 6059 115TH AVE	1016	N	Y	Y	N	Y	N
242990	On prior RL list	1017	N	Y	N	N	N	N
243439	On prior RL list	1017	N	Y	N	N	N	N
243440	On prior RL list	1017	N	Y	N	N	N	N
84308	MH Park - exact structure unknown	1018	N	Y	N	N	N	N
86360	MH Park - exact structure unknown	1018	N	Y	N	N	N	N
86361	MH Park - exact structure unknown	1018	N	Y	N	N	N	N
101646	MH Park - exact structure unknown	1018	N	Y	N	N	N	N
101663	MH Park - exact structure unknown	1018	N	Y	N	N	N	N
102280	MH Park - exact structure unknown	1018	N	Y	N	N	N	N
103425	MH Park - exact structure unknown	1018	N	Y	N	N	N	N
104879	MH Park - exact structure unknown	1018	N	Y	N	N	N	N
131978	NEW on 2023 list - Within existing RLA 1019	1019	N	N	N	N	N	Y
134156	NEW on 2023 list - Within existing RLA 1019	1019	N	N	N	N	N	Y
135416	NEW on 2023 list - Within existing RLA 1019	1019	N	N	N	N	N	Y
10893	On prior RL list	1019	Y	Y	N	N	N	N
10933	On prior RL list	1019	Y	Y	Y	N	Y	N
13762	On prior RL list	1019	Y	Y	N	N	N	N
28169	On prior RL list	1019	N	Y	Y	N	Y	N

FEMA RL Number	QC Comment 2023	RLA ID	Mitigated	NFIP Repetitive Loss	NFIP Severe Repetitive Loss	FMA Repetitive Loss	FMA Severe Repetitive Loss	Not Repetitive Loss
52516	On prior RL list	1019	N	Y	N	N	N	N
58478	On prior RL list	1019	N	Y	Y	N	Y	N
58881	On prior RL list	1019	Y	Y	N	N	N	N
86938	On prior RL list	1019	N	Y	N	N	N	N
97759	On prior RL list	1019	N	Y	N	N	N	N
10936	On prior RL list	1023	Y	Y	N	N	N	N
59208	On prior RL list	1023	Y	Y	N	N	N	N
242993	On prior RL list	1024	N	Y	N	N	N	N
167548	Wrong Juris – Should be Uninc. (125139)	1025	N	Y	N	N	N	N
243416	On prior RL list	1026	N	Y	N	N	N	N
243618	On prior RL list	1026	N	Y	N	N	N	N
231455	On prior RL list	1027	N	Y	N	N	N	N
196799	On prior RL list	1028	N	Y	N	N	N	N
33922	On prior RL list	1029	Y	Y	N	N	N	N
47289	Wrong Juris – Should be Uninc. (125139)	1029	N	Y	N	N	N	N
58693	On prior RL list	1030	Y	Y	N	N	N	N
28164	On prior RL list	1031	N	Y	N	N	N	N
89874	On prior RL list	1031	N	Y	N	N	N	N
43311	Wrong Juris – Should be Uninc. (125139) / Address typo: 803 CAMELLIA DR	1032	Y	Y	N	N	N	N
27817	On prior RL list	1033	Y	Y	N	N	N	N
28174	On prior RL list	1033	Y	Y	N	N	N	N
37996	On prior RL list	1033	Y	Y	N	N	N	N
38747	On prior RL list	1033	Y	Y	N	N	N	N
39201	On prior RL list	1033	Y	Y	N	N	N	N
242992	On prior RL list	1034	N	Y	N	N	N	N
91842	On prior RL list	1035	N	Y	N	N	N	N
9449	On prior RL list	1036	Y	Y	N	N	N	N
3065	Wrong Juris – Should be Uninc. (125139)	1036	N	Y	N	N	N	N
58788	Wrong Juris – Should be Uninc. (125139)	1038	N	Y	N	N	N	N

FEMA RL Number	QC Comment 2023	RLA ID	Mitigated	NFIP Repetitive Loss	NFIP Severe Repetitive Loss	FMA Repetitive Loss	FMA Severe Repetitive Loss	Not Repetitive Loss
28080	On prior RL list	1039	N	Y	N	N	N	N
187719	On prior RL list	1040	N	Y	Y	N	Y	N
277501	On prior RL list	1040	N	Y	N	N	N	N
44072	On prior RL list	1041	Y	Y	N	N	N	N
38647	On prior RL list	1042	Y	Y	N	N	N	N
164018	On prior RL list	1043	N	Y	N	N	N	N
273708	On prior RL list	1043	N	Y	N	N	N	N
237563	On prior RL list	1044	N	Y	N	N	N	N
213406	On prior RL list	1045	N	Y	N	N	N	N
299957	On prior RL list	1045	N	Y	N	N	N	N
59171	On prior RL list	1046	Y	Y	N	N	N	N
27807	On prior RL list	1047	N	Y	N	N	N	N
164201	On prior RL list	1047	N	Y	Y	Y	Y	N
74107	Wrong Juris – Should be Uninc. (125139)	1048	N	Y	N	N	Y	N
213370	On prior RL list	1049	N	Y	N	N	N	N
197799	On prior RL list	1050	N	Y	N	N	N	N
74999	On prior RL list	1051	N	Y	N	N	N	N
104869	On prior RL list	1053	N	Y	N	N	N	N
10942	On prior RL list	1054	N	Y	N	N	N	N
123920	On prior RL list	1054	N	Y	N	N	N	N
279111	NEW on 2023 list - Within existing RLA 1055	1055	N	N	N	N	N	Y
277449	On prior RL list	1055	N	Y	N	N	N	N
253555	On prior RL list	1056	N	Y	N	N	N	N
250082	On prior RL list	1058	N	Y	N	N	N	N
272788	On prior RL list	1060	N	Y	N	N	N	N
93481	On prior RL list	1062	N	Y	N	N	N	N
188339	On prior RL list	1065	N	Y	N	N	N	N
86907	On prior RL list	21001	N	Y	N	N	N	N
302893	On prior RL list	21001	N	Y	Y	N	Y	N
303030	On prior RL list	21001	N	Y	N	N	N	N
306709	On prior RL list	21001	N	Y	Y	N	Y	N
263603	On prior RL list	21002	N	Y	N	N	N	N
305175	On prior RL list	21002	N	Y	N	N	N	N

FEMA RL Number	QC Comment 2023	RLA ID	Mitigated	NFIP Repetitive Loss	NFIP Severe Repetitive Loss	FMA Repetitive Loss	FMA Severe Repetitive Loss	Not Repetitive Loss
295393	On prior RL list	22001	N	Y	N	N	N	N
300831	On prior RL list	22002	N	N	Y	N	Y	N
302843	On prior RL list	22003	N	Y	N	N	N	N
86890	NEW on 2023 list - Revise RLA 22004 to include this area	22004	N	N	N	N	N	Y
302967	Wrong Juris – Should be Uninc. (125139)	22005	N	Y	N	N	N	N
123744	NEW on 2023 list - Evaluate for potential new RL area	Evaluate with 5-year update	N	N	N	N	N	Y
252899	NEW on 2023 list - Evaluate for potential new RL area	Evaluate with 5-year update	N	N	N	N	N	Y
243620	NEW on 2023 list - Review, potentially revise boundary of RLA 1015	Evaluate with 5-year update	N	N	N	N	N	Y
301632	NEW on 2023 list - Review, potentially revise boundary of RLA 21001	Evaluate with 5-year update	N	N	N	N	N	Y
4828	Address not found	N/A	Y	Y	N	N	N	N
7036	Address not found	N/A	Y	Y	N	N	N	N
58883	Address not found	N/A	N	Y	N	N	N	N
83096	Address not found	N/A	N	Y	N	N	N	N
58469	Address not found	N/A	N	Y	N	N	N	N
99287	Address not found	N/A	N	Y	N	N	N	N
58787	Address not found - 5785 is highest	N/A	Y	Y	N	N	N	N
8047	Address not found (May be Belcher Rd N Largo; or S in Clearwater)	N/A	N	Y	N	N	N	N
94424	Address not found; Maybe Lake Vista Dr in City of Seminole	N/A	Y	Y	N	N	N	N
164173	NEW on 2023 list - Address not found	N/A	N	N	N	N	N	Y

FEMA RL Number	QC Comment 2023	RLA ID	Mitigated	NFIP Repetitive Loss	NFIP Severe Repetitive Loss	FMA Repetitive Loss	FMA Severe Repetitive Loss	Not Repetitive Loss
213019	NEW on 2023 list - NEW on 2023 list - Wrong Jurisdiction - CLEARWATER	N/A	N	N	N	N	N	Y
86737	NEW on 2023 list - Wrong Juris - St Petersburg	N/A	N	N	N	N	N	Y
317954	NEW on 2023 list - Wrong Jurisdiction - BELLEAIR BEACH	N/A	N	Y	N	N	N	N
240770	NEW on 2023 list - Wrong Jurisdiction - PINELLAS PARK	N/A	N	N	N	N	N	Y
303204	Not an RLA	N/A	N	Y	N	N	N	N
302939	Not an RLA - 2022 added new Uninc. RL, only claims 82 and 83; no other claims in area since 84	N/A	N	Y	N	N	N	N
213746	Not an RLA - Mitigated - Second Structure was in depressional area, but was demolished	N/A	Y	Y	N	N	N	N

Table 2: Repetitive Loss Properties Overview

Total Count of RL Properties	177
Minimum Loss Date	09/22/1979
Maximum Loss Date	11/12/2020
Count of “Mitigated”	43
Count of "Not Repetitive Loss"	20
Count of "NFIP Repetitive Loss"	153
Count of “NFIP Severe Repetitive Loss”	16
Count of "FMA Repetitive Loss"	2
Count of "FMA Severe Repetitive Loss”	20

APPENDIX J – LMS PROCEDURES

This appendix includes the LMS Procedures.

PINELLAS LMS PROCEDURES

The following section outlines the roles and responsibilities of the LMS Working Group (LMSWG) and its members. In addition, the process Pinellas County's LMSWG follows for Hazard Mitigation Grant Program (HMGP) funding to meet the State's requirements is also highlighted below.

LOCAL MITIGATION STRATEGY WORKING GROUP (LMSWG)

The Pinellas LMSWG is a voluntary group comprised of representatives from all 24 of Pinellas County's municipalities, regional partners, public and private non-profit organizations and other interested groups or entities. It includes members representing a wide variety of disciplines, such as emergency management, planning, zoning, public works, public roads, and healthcare organizations. The Pinellas County Board of County Commissioners (BOCC) does not appoint any members of this group.

PURPOSE

The purpose of the LMSWG is to mitigate risks from natural, manmade or technological disasters to the county's citizens, governments, businesses, and other institutions. This group develops, monitors, implements, and maintains a comprehensive plan for hazard mitigation. The LMS Plan is intended to accomplish this purpose.

To maintain LMSWG membership and eligibility for hazard mitigation funding, members must:

- Participate in LMSWG meetings.
- Assist with developing and submitting the state-mandated annual and FEMA-mandated five-year LMS Plan updates.
- Contribute to maintaining **LMS Table D-1 Mitigation Initiatives**, a prioritized mitigation project list required for federal mitigation funding eligibility.
    - Prioritize mitigation projects.
- Identify mitigation policies and actions.
- Designate the LMS Chair and Vice Chair.
- Develop and revise the LMS Plan as necessary.
- Coordinate with the **Flood Risk and Mitigation Public Information Working Group (FRMPIWG)** to ensure the LMS Annual Update supports all participating jurisdictions in meeting **Community Rating System (CRS) requirements** each year.

ORGANIZATIONAL STRUCTURE

The overall current organizational structure for Pinellas County's LMS includes the:

- LMS Working Group
    - Primary and Secondary (or Alternate) Members
    - Stakeholders
- LMS Scoring Committee
- LMS Chair and Vice Chair

MEMBERSHIP

All entities participate in the LMSWG voluntarily. Membership in the working group is open to county government agencies, all municipalities within the County, state agencies, private and civic organizations, water management districts, regional planning councils, neighboring counties, independent special districts, businesses, nonprofits, and individuals who support its purpose. The LMS Plan's Roster lists all current LMSWG members and their contact information.

LMS MEMBERSHIP TYPES AND DESCRIPTIONS

The County's LMS membership consists of two types of members: **voting** and **advisory**.

Voting Members

- Representatives from all participating municipalities and Pinellas County Government.
- Each jurisdiction has at least one or two representatives serving as primary or secondary (or alternate) members.
- Have formal voting rights within the LMSWG.

Advisory Members (Stakeholders)

- Represent other public and private agencies, including regional partners, nonprofits, and community members from different jurisdictions.
- Provide technical expertise and valuable input into the planning process.
- Do not have formal voting rights.

Additional Membership Details

- The LMS Roster is regularly updated to reflect current membership.
- Updates to the roster are shared with the Florida Division of Emergency Management (FDEM) as part of the Annual Update.
- 'Jurisdictions' for LMS procedures include Pinellas County and its 24 municipalities.

LMSWG VOTING PROCEDURES

The LMSWG formally votes on key LMS agenda items, including but not limited to:

- Election or re-election of the LMS Chair and Vice-Chair.
- Approval of the LMS Annual Update and Five-Year Updates, including transmittal to the State.
- Approval of the final Prioritized Project List (PPL) for all HMGPs for transmittal to the State.
- Addition of new projects to the LMS Table D-1 Mitigation Initiatives.
- Updates to any part of the LMS Plan.

- Revisions to the LMS Project Scoring Sheet.
- Finalization of the LMS meeting schedule for a calendar year.
- Any other significant LMS Plan decisions as determined by the LMSWG.

Voting Eligibility

- Only jurisdictions participating in the LMSWG are allowed to vote.
- Each participating jurisdiction is allowed one vote.

LMSWG ATTENDANCE

- Participation Expectations
    - All LMSWG members must participate in the LMS Annual Update, Five-Year Update, and other required processes to meet State and FEMA requirements.
    - At least one representative from each jurisdiction is expected to attend a majority of LMS meetings each year, either virtually or in person.
- HMGP Project Attendance Requirement
    - Project leads or staff directly involved with an HMGP project must attend the LMSWG meeting(s) where the LMS Prioritized Project List (PPL) for that project is discussed and voted on.
- Meeting Notifications & Documentation
    - All LMSWG meetings are advertised on the LMS Webpage.
    - Meetings and actions taken by the LMSWG are documented, and meeting materials are available to the public upon request.

LMS SCORING COMMITTEE

The LMS Scoring Committee consists of 3 to 7 members, including the LMS Chairperson, Vice-Chairperson, and representatives from other jurisdictions. Only voting members may serve on the Scoring Committee.

ROLE OF THE SCORING COMMITTEE

The role of the Scoring Committee is to review the self-scores for all submitted projects requested to be added to the LMS Table D-1. The Scoring Committee on behalf of the LMSWG:

- Reviews if the new project requested to be added is aligned with the LMS Goals and Objectives.
- Review the project self-scoring for consistency with respect to how similar projects have been previously scored.
- Ensure the project's self-score is based on a uniform interpretation of the scoring criteria given in the LMS Scoring Sheet across projects.
- As a part of the LMSWG's internal process for developing a PPL for HMGP funding, the Scoring Committee, as assigned by the LMSWG, has an additional responsibility to suggest ranking options for presentation to the LMSWG. The LMSWG then reviews the

suggested ranking options to select a final ranking that serves as the PPL for a specific HMGP period.

LMS CHAIR AND VICE-CHAIR SELECTION PROCESS

- LMS Chair and Vice-Chair nominations are requested at the beginning of the calendar year.
- The LMS Chair and Vice-Chair can be selected from any of the participating jurisdictions.
- The LMSWG elects the Chair and Vice-Chair by a formal vote at the first LMSWG meeting of the calendar year.
- Once elected, the Chair and Vice-Chair serve for one year.
- If a vacancy occurs, LMSWG solicits nominations and conducts a formal vote for the replacement.

LMS CHAIR AND VICE-CHAIR RESPONSIBILITIES

- Coordination of LMSWG Meetings
    - The LMS Chair or Vice-Chair coordinates LMSWG meetings.
    - The LMS Chair coordinates the LMS Five-Year Update, Annual Update, and the Prioritized Project List (PPL) development for HMGP.
- Liaison Role
    - The LMS Chair is the liaison between the State, LMSWG, and other stakeholders.
- Meeting Management
    - The LMS Chair runs the LMSWG meetings.
    - The LMS Vice-Chair assumes these duties in the absence of the Chair.
- Letter of Endorsement
    - According to Florida Administrative Code (FAC) 27P-22, the LMS Chair or Vice-Chair is responsible for providing a letter of endorsement to the State.
    - The letter confirms that a project is:
        - On the LMS Plan's Table D-1.
        - Is aligned with the LMS Plan's goals.
        - Is prioritized within the list of submitted projects.
- Prioritized Project List (PPL)
    - The PPL is a ranked list of projects that reflects the LMSWG's priorities for a Hazard Mitigation Grant Program (HMGP).

PROJECT SCORING CRITERIA

- Ranked List Requirement
    - State Statute requires the LMSWG to maintain a ranked list of mitigation projects.
    - Pinellas County's LMS Plan includes a ranked list of mitigation projects called Table D-1 Mitigation Initiatives.
- Scoring Process

    - The LMSWG uses a scoring sheet based on FEMA guidelines to evaluate and prioritize mitigation projects.
    - The scoring sheet assesses factors such as:
        - Sustainability
        - Risk reduction.
        - Cost
- Project Scoring Requirements
    - A scoring sheet must be filled out for every new project.
- LMS Scoring Sheet Approval
    - The LMS project scoring sheet is an integral part of the LMS Plan.
    - The State and FEMA approve the current LMS Scoring Sheet as part of the LMS Five-Year Update.

LMS PROJECT SUBMISSION, SCORING, AND REVIEW PROCESS

- Project Submission
    - All new projects to be added to the LMS Table D-1 or considered for HMGP must be submitted to the LMS Chair or Vice-Chair with a completed scoring sheet.
    - Only jurisdictions and other eligible entities (such as applicants or sub-applicants) can request to add projects to the LMS Table D-1.
- Project Self-Scoring
    - Applicants self-score their projects using the LMS project scoring sheet.
- Project Submission Timeline
    - Applicants must submit the scoring sheet to the LMS Chair or Vice-Chair at least two weeks before the LMSWG meeting, during which the project will be reviewed and voted on.
    - Projects received after this timeline will be moved to the subsequent LMSWG meeting.
- Distribution of Projects
    - All new projects are distributed to the LMSWG by the LMS Chair or Vice-Chair at least one week before the meeting when the project will be reviewed and voted on.
- Review and Approval
    - The LMS Scoring Committee reviews each project's self-score.
    - The project is then presented to the LMSWG for review and approval by the LMS Chair or Vice-Chair.
- Project Addition Timing
    - New projects can be added at any LMSWG meeting throughout the year.
    - Typically, new projects are added:
        - At the January meeting when the LMSWG approves the Annual Update package.
        - When HMGP funding is announced.
        - At the last quarter meeting for projects applying for BRIC.
- Final Approval

- All projects are added to the LMS Table D-1 through formal voting by the LMSWG members.

LMSWG'S INTERNAL PROCESS FOR HMGP

Announcement of the notice of funding availability (NOFA)

- When an HMGP allocation becomes available following a Presidential disaster declaration, the LMSWG is responsible for finalizing the PPL.
- The PPL is a ranked list of projects recommended to the Florida Division of Emergency Management (FDEM) for consideration for HMGP grants.
  - For each HMGP, the State requires the LMSWG to submit a separate Prioritized Project List (PPL).

Role of the LMSWG for HMGP

- LMSWG Role
  - Under Rule 27P-22, Florida Administrative Code, all project applications must go through the LMSWG of the County where the project will take place.
  - The LMSWG's role is to rank projects submitted for HMGP according to FEMA standards.
- Eligibility for HMGP
  - Being approved by the LMSWG for inclusion in the PPL and the LMS Table D-1 helps applicants meet two of the eligibility requirements for HMGP.
  - FDEM conducts these reviews to see if the application needs to meet additional eligibility requirements for HMGP.

HMGP Notice of Funding Availability (NOFA) Process

- When the State announces a NOFA for a new HMGP, the LMSWG meets to:
  - Review and approve the process for developing the final ranked list (i.e., the PPL).
  - Approve the timeline for developing the PPL.
- The LMSWG decides:
  - The deadline for submission of the Intent to Apply Forms and Scoring Sheets for potential HMGP projects.

Submission of the Intent to Apply (ITA) Forms

Applicants submit an ITA form for the specific HMGP and a completed scoring sheet for every project they wish to apply for to the LMS Chair by the decided deadline. All received ITA forms are compiled and distributed to the LMS WG by the LMS Chair. Only projects for which

completed ITA forms and scoring sheets were submitted to the LMS Chair within the decided deadline are considered for the PPL.

Scoring Committee's Review and Development of the PPL

- The scoring sheets are distributed to the Scoring Committee for:
    - Review of the self-scores for consistency.
    - Developing options for the ranked list.
- The Scoring Committee:
    - Develop ranking options based on the self-scores.
    - Considers additional criteria as needed for developing ranking options for specific HMGPs, such as:
        - The State's guidance within the NOFA
        - Specific needs or priorities highlighted by disaster events.
        - The discretion of the LMS Scoring Committee
- All criteria considered for ranking are:
    - Presented to the LMSWG at the subsequent meeting.
    - Discussed before voting on the final PPL.

Final PPL Selection and Submission Process

- After the Scoring Committee completes its review, the recommended ranking options are presented to the LMSWG for:
    - Selection and approval of a final PPL will be transmitted to the State.
- Attendance Requirement
    - All applicants, especially the respective project lead responsible for submitting the application to FDEM, must attend the LMSWG meeting.
    - Project leads can present their projects to the LMSWG during this meeting.
- Voting on Ranking Options
    - All LMSWG members, except those in the Scoring Committee, can vote on the recommended ranking options.
    - Only one vote per jurisdiction is allowed.
    - The final ranked list of projects selected by the LMSWG through a majority vote at the meeting is submitted to FDEM as the PPL for that specific HMGP.
- In Case of Disagreement
    - If a majority of LMSWG members in attendance do not agree with any of the presented ranked options, the LMSWG decides how to develop an alternate ranked list together as a group.
    - Additional LMSWG meetings may be scheduled as needed, based on the direction of the LMSWG, to discuss the PPL.
- Adding New Projects
    - No new projects are added to the PPL after it is finalized by the LMSWG unless directed by the LMSWG.

- Endorsement Letter and Coordination
    - After the final PPL is selected, the LMS Chair or Vice-Chair provides the endorsement letter to the applicants for inclusion in their HMGP applications.
    - The LMS Chair, Vice-Chair, and respective HMGP applicants coordinate to ensure that the final costs shown in the PPL match the project cost in the LMS Table D-1 and the cost provided by the applicants in their respective applications.
- PPL Updates
    - Any request for an updated PPL from FDEM is brought to the LMSWG by the LMS Chair or Vice-Chair.
    - An updated PPL is provided to the State once the LMSWG approves the requested updates.

APPENDIX K – VULNERABILITY ASSESSMENT

(Flood Assessment for Current and Future Conditions)

Vulnerability Assessment

Sea Level Rise and Storm Surge Vulnerability

Pinellas County, in cooperation with its 24 municipalities, conducted Phase I of a countywide sea level rise (SLR) and storm surge vulnerability assessment in 2021. This project was funded through the RESTORE Act Direct Component grant program administered by the U.S. Treasury's Office of Gulf Coast Restoration in combination with dedicated non-federal county allocated funds to complete this work.

This project was conducted to address the risks to the county presented by sea level rise and increasing risks from future storm surge. It involved multiple steps such as – review and collection of assets data; asset exposure analysis; and planning-level vulnerability assessment including impact analysis. Based on the results of the planning-level vulnerability assessment and discussions with county subject matter experts, five facilities were selected for detailed facility-level assessments.

The two main hazards that were studied are 1) tidal flooding (flooding due to sea level rise that could occur outside of storm events) and (2) storm surge. The project provided a detailed assessment of current and future flooding conditions, which then led to risk identification for several critical infrastructure assets across the county. The effort included modeling of potential impacts of sea level rise and storm surge in the county over various time horizons. The overall data parameters for the assessment included:

- 3 SLR scenarios (NOAA intermediate low, intermediate, and high)
- 4-time horizons (present day, 2040, 2070 and 2100)
- 8 asset categories (airports, transportation, stormwater, water supply, wastewater, natural gas, railway, and electricity distribution networks)

The results show dramatic increases in flood risk over time, particularly due to the flat topography of Pinellas County and because the county is a coastal peninsula. The results of this assessment were generated to facilitate effective decision-making, guide sustainable policies, and help prioritize efforts to ensure the long-term viability and resiliency of the county's coastal economy, infrastructure, and quality of life. The data developed for this study is assembled by the county into a Geographic Information System (GIS) database for use as a decision support tool moving forward.

The hazard, exposure, and risk data generated by this project is available as a resource to all county municipalities as they move forward with their adaptation planning efforts. It is understood that effective planning and implementation of future resilience measures will require collaboration between county and its various jurisdictions, as these risks do not adhere to municipal boundaries. The initial phase of the Sea Level Rise and Storm Surge Vulnerability Assessment was completed in 2022.

The Executive Summary for the initial phase of the Vulnerability Assessment is accessible at: Sea Level Rise & Storm Surge - Vulnerability Assessment Executive Summary - December 2022. Additional information is available at: Sea Level Rise & Storm Surge Vulnerability Assessment - Pinellas County.

In October 2022, Pinellas County was awarded additional funding from the Resilient Florida grant program to launch a second phase of the Sea Level Rise and Storm Surge Vulnerability Assessment. This current phase will expand the project to analyze more County assets, enhance modeling by including more factors (e.g. rainfall) and develop an Adaptation Plan.

While this Vulnerability Assessment ties into various LMS goals and objectives, it especially helps advance the specific goal to become more disaster resilient and provides guidance and resources to the county and its municipalities, for addressing sea level rise. For the report, maps and data that were developed as a part of the Sea Level Rise and Storm Surge Vulnerability Assessment, please contact: Lauren Wolf, lwolf@pinellas.gov.

Additional Information Regarding Vulnerability Assessments

Many communities in Pinellas County receive Resilient Florida grants through the Florida Department of Environmental Protection (FDEP) - Resilient Florida Program | Florida Department of Environmental Protection.

Pinellas County and its municipalities have been awarded $118,550,983 to date across 34 projects, with 16 of those being planning grants and 18 being implementation grants. The planning grants are similar in intent to the LMS in that they provide a risk assessment and often include policy concerns. However, the grants are specific to current and future flood items only (as opposed to all hazards) and have prescribed requirements in what is analyzed per state statutes that are in effect at the time of scoping (although these can sometimes be changed through grant amendment process). The planning grant awards are listed below:

- 22PLN99 - City of St. Pete Beach - Pinellas
  - City of St. Pete Beach Vulnerability Assessment Update
- 24PLN09 - City of St. Petersburg - Pinellas
  - City of St. Petersburg Comprehensive Vulnerability Assessment
- 24PLN10 - City of Dunedin - Pinellas
  - City of Dunedin Comprehensive Vulnerability Assessment
- 24PLN21 - City of Seminole - Pinellas
  - City of Seminole Comprehensive Vulnerability Assessment
- 24PLN32 - City of Safety Harbor - Pinellas
  - City of Safety Harbor Comprehensive Vulnerability Assessment and Adaptation Plan
- 24PLN57 - City of South Pasadena – Pinellas
  - City of South Pasadena Comprehensive Vulnerability Assessment
- 24PLN58 - City of Belleair Bluffs - Pinellas
  - City of Belleair Bluffs Comprehensive Vulnerability Assessment
- 23PLN131 - Pinellas County - Pinellas
  - Pinellas County Dunedin Causeway Resiliency and Adaptation Plan
- 23PLN127 - Town of Kenneth City - Pinellas
  - Town of Kenneth City Vulnerability Assessment
- 23PLN123 - City of Gulfport - Pinellas

    - City of Gulfport Comprehensive Vulnerability Assessment
- 23PLN122 - City of Oldsmar - Pinellas
    - City of Oldsmar Vulnerability Assessment Update
- 23PLN121 - City of Treasure Island - Pinellas
    - City of Treasure Island Comprehensive Vulnerability Assessment
- 22PLN91 - City of Clearwater - Pinellas
    - Vulnerability Assessment with City Simulator
- 22PLN92 - City of St. Pete Beach - Pinellas
    - Update to St. Pete Beach Phase II Vulnerability Assessment
- 22PLN94 - Pinellas County - Pinellas
    - Pinellas County Comprehensive Vulnerability Assessment Including Some Municipalities
- 22PLN93 - City of Tarpon Springs - Pinellas
    - City of Tarpon Springs Vulnerability Assessment and Action Plan