Sarasota County Unified Local Mitigation Strategy

January 2021

Executive Summary

Sarasota County and its jurisdictions face a variety of natural and man-made hazards that could affect the lives and property of residents and visitors. The development and implementation of the Sarasota County Unified Local Mitigation Strategy (LMS) provides a mechanism for the County, its jurisdictions, and partners to address issues through implementation of projects that will reduce or eliminate exposure to and the impacts of hazards. The last update of the LMS, conducted in 2016, was a result of a coordinated, cooperative effort of local government and partners who make up the Sarasota County Local Mitigation Strategy Working Group.

Over the past 5 years Sarasota County has seen an increase in residential and commercial growth, including several high-rise condominium and hotels built in the downtown Sarasota area along the bayfront. Additional construction impacts the vulnerability of a community to hazards, primarily hurricane, flooding, and other severe weather. However, as growth increases some vulnerability is reduced. New construction in areas that used to be the wildland-urban interface reduces wildfire threat. Public safety also increases with growth. North Port for example will build two new fire stations within the next four years. Sarasota County Fire Department has added Station 10 in the eastern portion of the county with a fire engine and rescue crew, and Longboat Key has seen an increase in the demo-rebuild market. Mitigation activities have included wind retrofit and 1ft to 3ft freeboard to meet current local ordinances and state building codes. In 2018 Sarasota County Schools completed a construction project at Booker High School that meets the Enhanced Hurricane Protection Area requirements by adding 2400 shelter spaces and a project began in 2020 to retrofit and harden Taylor Ranch Elementary school in Venice in order to add more shelter space in the south part of the county.

Hazard mitigation is defined as any action taken to permanently reduce or eliminate long-term risk to people and property from the effects of hazards. Some examples of hazard mitigation include land use planning techniques that limit infrastructure in high hazard areas and programs for retrofitting existing structures to meet new building codes and standards. Ideally, a community can minimize the effects of future hazards through a mix of code enforcement, planning, and responsible development.

Mitigation occurs in many ways through various activities of governmental and non-governmental agencies and stakeholders. Together, these activities establish the mitigation goals for a community and provide the framework for effective redevelopment. Existing plans, programs, policies, and ordinances should regularly be reviewed to identify mitigation activities that have been implemented within a jurisdiction. These independent activities are combined and contained in the LMS.

Effective mitigation should not be viewed as an impediment to continued growth and development of a community. An overarching philosophy of mitigation should be applied to all decisions related to a community's growth so that communities across Florida can grow smarter. The intent of incorporating mitigation into development practices should be the creation of safer and more economically resilient communities.

The 2021 Sarasota County Unified Local Mitigation Strategy plan was developed as a multi-jurisdictional, multi-hazard strategy to involve the public, assess the hazards, determine the vulnerability, identify risks, set goals, and identify mitigation activities, and plan for natural and manmade hazards to Sarasota County and the jurisdictions therein. The LMS was established and continues to operate in accordance with prevailing federal, state, and local guidelines and requirements.

The LMS is a streamlined document, is user friendly, and is not maintenance intensive. This concept was originally incorporated to the FEMA-approved 2010 LMS and remains in place in the 2021 update. All planning requirements are met with little extra verbiage or information found in other plans.

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Section I: Planning Process

Local hazard mitigation planning is the process of organizing community resources, identifying and assessing hazard risks and determining how to best minimize or manage those risks. This process culminates in a hazard mitigation plan that identifies specific mitigation actions designed to achieve both short-term planning objectives and a long-term community vision.

Communities that participate in hazard mitigation planning may experience benefits including:

- Saving lives and property.
- Saving money.
- Accelerating recovery following disasters.
- Reducing future vulnerability (improving resiliency) through wise development and post-disaster recovery and reconstruction.
- Expediting the receipt of pre-disaster and post-disaster grant funding; and
- Demonstrating a firm commitment to improving community health and safety.

A. Multi-Jurisdictional Planning Participation

Development of the 2021 Sarasota County Unified Local Mitigation Strategy update was a multi-jurisdictional effort encompassing all the jurisdictions represented by the plan. Beginning in December of 2007, and each calendar quarter thereafter, the Sarasota County Local Mitigation Strategy Working Group has held quarterly meetings to identify, discuss, and recommend changes to maintain and update the plan. Each continuing and new jurisdiction participated in the development of the plan and was a full and integral member of the review and decision process. Table 1 below identifies the participating jurisdictions in The 2021 Sarasota County Unified Local Mitigation Strategy update. Meeting agendas, minutes, and public notices may be found in Appendix F.

Table 1: Participating Jurisdictions

Jurisdiction	Planning Participation		
	New	Continuing	No Longer
City of North Port		**X**	
City of Sarasota		**X**	
City of Venice		**X**	
Sarasota County		**X**	
Sarasota County Schools		**X**	
Sarasota Memorial Hospital		**X**	
Town of Longboat Key		**X**	
Sarasota Soil and Water Conservation District	X		

The Sarasota County Unified Local Mitigation Strategy includes Sarasota County, its unincorporated areas, four incorporated municipalities, Sarasota County Sheriff's Office the Sarasota County School Board, Sarasota Memorial Hospital, and the Sarasota County Soil and Water Conservation District. To satisfy multi-jurisdictional participation requirements, the county and participating jurisdictions were required to perform the following tasks:

- Participate in mitigation planning workshops.
- Provide data for the Hazard Analysis and Risk Assessment.
- Identify completed mitigation projects; and
- Adopt the Updated Local Mitigation Strategy.

B. Multi-Jurisdictional Plan Adoption

Adoption of the plan is a multi-jurisdictional function that requires each participating jurisdiction to independently accept and adopt the plan by resolution or ordinance. The specific jurisdictions represented by the 2021 Sarasota County Unified Local Mitigation Strategy plan are:

- City of North Port
- City of Sarasota
- City of Venice
- Town of Longboat Key
- Sarasota County
- Sarasota County Schools
- Sarasota Memorial Hospital
- Sarasota County Soil and Water Conservation District

Each participating jurisdiction will formally adopt the LMS following approval by FDEM/FEMA and adoption by the Sarasota County Board of County Commissioners. Supporting documentation for each jurisdiction will be incorporated into Appendix A once approval and adoption is complete.

C. History of Hazard Mitigation in Sarasota County

The first Sarasota County Local Mitigation Strategy was approved in 1999 and updated in 2004, 2009, and 2016. During the Spring of 2020, the Local Mitigation Strategy Work Group met to focus on the development of a process to update the 2016 LMS. The initial meeting identified two main focal points for the members: updating the current plan in accordance to established standards, and the integration of local floodplain plans into the local mitigation strategy to form one document.

A process was established to review the 2016 plan based upon the Local Mitigation Plan Review Crosswalk and to identify any deficiencies in that plan. Members were also tasked with identifying portions of the 2016 plan that did not meet their current goals and strategies. Through a series of quarterly meetings by the Local Mitigation Strategy Working Group and the Regional Floodplain Management Planning and Coordination Committee, a detailed analysis was conducted. Recommended revisions to the plan were drafted by the Emergency Management Chief (LMS Chair) of Sarasota County Emergency Management and forwarded to the Vice Chair for the initial review. Once the initial review was complete, the revisions were forwarded to the entire Local Mitigation Strategy Working Group for review and approval. Upon approval by the members of the Working Group, the revisions were incorporated into the updated plan.

The Local Mitigation Strategy Working Group and the Regional Floodplain Management Planning and Coordination Committee meeting laid the foundation for combining the Local Mitigation Strategy Plan with each jurisdiction participating in the Community Rating Systems Floodplain Management Plan. The plans were combined by including them as an annex to the Local Mitigation Strategy Plan. While this accomplishment is minor in the overall scheme, it did save several work hours for the participating jurisdictions by precluding the need for separate resolutions on each plan. Each jurisdiction continues to develop strategies and methods for the continued coordination of both plans.

During the December 2007 Sarasota County Local Mitigation Strategy Working Group meeting, a discussion took place to determine the need to form a plans committee. A decision was made that a separate plans committee would be formed after the update was completed and would be tasked with advising and recommending changes based upon new State and Federal regulations in subsequent years. It was determined by the members that each participating jurisdiction should have an equal and participating role in the update of the plan.

D. The 2021 LMS Update

The Sarasota County Local Mitigation Strategy Working Group prepared the 2021 LMS update by working collaboratively utilizing the Smartsheet application. The LMS Working Group Chair, Ed McCrane, Sarasota County Emergency Management Chief, led the update process, which was facilitated by Emergency Management Officer Ryan Murphy. Table 2 identifies the 2021 Local Mitigation Strategy Working Group members. The update of the Sarasota County LMS Plan began in January 2020.

The Sarasota County Local Mitigation Strategy Working Group reviewed and analyzed each section of the 2016 plan in accordance with the current Local Mitigation Plan Review Crosswalk. During the update of the 2010 LMS a unanimous decision was made to ensure the LMS is a streamlined document, is user friendly, and is not maintenance intensive. This concept remains in place in the 2021 LMS. All planning requirements are met with little extra verbiage or information found in other plans.

The Sarasota County Local Mitigation Strategy Working Group utilized the mitigation planning process recommended by FEMA (Publication Series 386) and the Florida Division of Emergency Management to complete the update of the Sarasota County LMS. A Local Mitigation Plan Crosswalk (Appendix J) provides a detailed summary of FEMA's current minimum standards of acceptability for compliance with the Disaster Mitigation Act of 2000 and notes the location of each requirement within the Plan.

The update process involved identifying additional hazards, updating the risk assessment using the most recent and best available data, and evaluating existing mitigation goals, projects, and programs for overall effectiveness. The hazard analysis includes the hazards from the 2010 LMS hazard profile, information from the August 2013 Florida State Risk Assessment, and hazards identified in other emergency management plans for Sarasota County. The 2021 LMS Update was prepared using and incorporating relevant content from the 2016 Sarasota County LMS.

Priority considerations that are reflective of some minor revisions to The 2021 LMS Update include change of leadership and impacts from Hurricane Irma. Since the 2015 LMS Update three of the five members of the Sarasota County Board of County Commissioners have changed. In addition, in 2018 Sarasota County hired a new County Administrator. The City of Sarasota has seen three different Mayors, as well as changes on their commission since the 2015 LMS Update. Similarly, the City of North Port received a new City Manager in 2017 and changes to it's commission and Mayor. The City of Venice has seen its entire council change since the 2015 LMS Update. The Town of Longboat Key hired a new Town Manager in 2018 and newly elected members of their commission and a new mayor. These changes in leadership have influenced many policy related decisions across each municipality within the LMS Working Group. Hurricane

Irma also served as a learning experience, which yielded 93 action items following an After-Action Review. Those lessons learned have influenced updates to The 2021 Local Mitigation Strategy.

Sarasota County and its jurisdictions are vulnerable to man-made and technological hazards. Man-made hazards are threats having an element of human intent, negligence, or error; or involving a failure of a human-made system. This is as opposed to natural hazards that cause natural disasters. The 2021 LMS update includes a man-made hazard profile.

Table 2: 2021 Planning Process Contributors

Jurisdiction	LMSWG Member	Title
City of North Port	Eric Tiefenthaler	EM Chief
City of North Port	Valerie Malingowski	Grants Coordinator
City of North Port	Elizabeth Wong	Storm Water Manager
City of Sarasota	Cynthia Cahill	CRS Coordinator
City of Sarasota	Richard Kerkering	EM Chief
City of Venice	Kathleen Weeden	City Engineer
City of Venice	Gillian Carney	Stormwater Engineering Research Analyst
Ringling Museum	Cherie Knudsen	Security Director
Sarasota County	Ed McCrane, Chairman	EM Chief
Sarasota County	Donna Bailey	CRS Coordinator
Sarasota County	Ryan Murphy	EM Officer
Sarasota County School Board	Darrell Reyka	Director, Safety and Security
Sarasota County Sheriff's Office	Karen Silano	Grant Coordinator
Sarasota Memorial Hospital	John Salt	Facilities Mgmt. Director
Sarasota Memorial Hospital	Aaron Schneck	EM Manager
Town of Longboat Key	James Linkogle	Public Works Director
University of South Florida	Richard Lyttle	Facilities Director

Coordination with other agencies and organizations outside of Sarasota County took place in many different forms. Notification to neighboring jurisdictions occurred via email and face to face updates during regional and other ongoing Emergency Management meetings and other projects. As in most local governments, employees are often involved in several different projects at the same time, but of a similar nature. The members of the Sarasota County Local Mitigation Strategy Working Group represent a diverse group of job specialties including professional planners, engineers, public works professionals, emergency management professionals and educators. Many of these same members participated in the Pennsylvania State University Sea Level Rise project in Sarasota County and continue to be involved in the Sarasota County Post Disaster Redevelopment Plan. Additionally, each job specialty offers its own set of collaboration methods with the member's counterparts in jurisdictions outside of Sarasota County. The jurisdiction of the Town of Longboat is equally divided between Sarasota and Manatee Counties and the representative from the Town of Longboat Key is a member on both LMS Working Groups. While direct involvement was limited by parties outside the jurisdiction, the indirect sharing of ideas, goals and objectives were of great value in the development of the updated plan.

The Sarasota County Local Mitigation Strategy Working Group continues to recognize that opportunity exists for greater involvement amongst the remaining jurisdictions, nonprofits, and other interested parties within the county as well as our neighboring communities. Additional jurisdictions include, but are not limited to, Englewood Water District, Englewood Fire District, and the Sarasota Bradenton Airport Authority. In addition to non-participating jurisdictions, the Working Group has identified educational, business, and civic groups for direct invitations to participate with the LMS Working Group.

E. Integration with Other Plans

Several existing plans and studies were reviewed or participated in by members of the Local Mitigation Strategy Working Group and the Regional Floodplain Management Planning and Coordination Committee. These included, but were not limited to:

- Sarasota County Comprehensive Emergency Management Plan
- Pennsylvania State University Sea Level Rise Study
- Post Disaster Redevelopment Plan (On-going)
- Sarasota 2050
- Jurisdiction Comprehensive Plans
- Jurisdiction Floodplain Management Plans
- Jurisdiction Codes and Ordinances
- State of Florida Hazard Mitigation Plan
- Peace River/Manasota Regional Water Supply Authority Reservoir Emergency Action Plan
- Unified Program for Public Information
- Sarasota County Continuity of Operations Plan (COOP) Update

Participating jurisdictions have incorporated the Local Mitigation Strategy and hazard mitigation into their local land use and comprehensive plans. Each of the cities through their comprehensive plans, permitting processes, and land development regulation programs implement the goals of the Sarasota County LMS.

Sarasota Memorial Hospital is a special jurisdiction which differs from local government as far as policies related to mitigation. However, the hospital requires all new project construction and renovation consider community wide vulnerability analysis and builds hurricane protection features into all new buildings and renovations of current facilities. A wind retrofit of the Sarasota Memorial East Tower was funded by a $619,851 Hazard Mitigation Grant Program to install hurricane shutters on the facility. Sarasota Memorial is an active participant in the Sarasota County LMS working group and continues to apply for future mitigation grants. See Sarasota Memorial's policy memo dated September 30, 2015 in Appendix K.

Sarasota County School Board is a special jurisdiction which also differs from local government as far as policies related to mitigation. By policy, Sarasota County

School Board has goals and objectives associated with providing a safe learning environment for the community, including multi-jurisdictional, multi-hazard strategies to assess hazards, identify risks, determine vulnerabilities, establish mitigation activities, and plan for natural and manmade hazards. School Board policies and procedures reflect their commitment to current and future initiatives of the updated 2016 Local Mitigation Strategy. See Sarasota County Schools LMS 2015 memo in Appendix K.

Examples of LMS and Hazard Mitigation integration in participating jurisdiction plans are provided in Appendix K.

F. Public Involvement

An important component of this planning process is the opportunity for the public to provide input. Individual citizen and community-based input provides the planning team with a greater understanding of local concerns and increases the likelihood of successfully implementing mitigation actions by developing community support 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 natural hazards present in their community and take the steps necessary to reduce their impacts. Public awareness is a key component of any community's overall mitigation strategy aimed at making a home, neighborhood, school, business, or city safer from the potential effects of natural hazards.

Public input was sought using a variety of methods. Appendix F provides documentation of LMS public meeting notices, surveys, and other public involvement and outreach in the LMS update process. A webform survey was made available on the county website over a two-week period allowing citizens to review the draft update and provide feedback. This was review period was promoted via social media reaching nearly 20,000 followers. Engagement metrics from the associated social media posts are in Appendix F. No citizen input was received during this review period.

Improvements to obtaining a greater level of public feedback can be made in a number of ways. Specifically, for the next update the webform survey will be made available prior to draft revisions in order to gain public feedback early for ease of integration. Additional social media posts will be made encouraging feedback and a longer review period will be implemented. In addition, a key improvement will be to hold meetings in-person. Since March 2020 LMS Working Group Meetings have been help virtually due to challenges associated with the COVID-19 pandemic.

<u>Website</u>

The public has been provided an opportunity to provide input on the Sarasota County LMS since the December 2007 meeting. Each Local Mitigation Strategy Working Group meeting is advertised as a public service announcement in the local

newspaper. Sarasota County Emergency Management has also created a separate link for Local Mitigation Strategy on Sarasota County's All-Hazards web site. The website may be found at https://www.scgov.net/government/emergency-services/local-mitigation-strategy. This web site not only provided an opportunity to view the draft copy, but a direct link to email questions or comments to the Working Group via the lms@scgov.net email address. Prior to each jurisdiction's approval resolution, the public will be afforded a final opportunity to comment on the plan during the respective jurisdiction's adoption process.

Social Media

Sarasota County jurisdictions utilize social media for public outreach, disaster preparation messaging, and hazard mitigation activities. County staff posted information related to the LMS Plan Update on Sarasota County's Facebook page and that post carried through to other Facebook pages.

Community Meetings & Outreach

Participating jurisdictions constantly provide disaster preparedness and hazard mitigation activities and information to the public. These include community meetings, speaking engagements, use of social media, and other outreach campaigns.

The Sarasota County LMS Working Group survey is used during public outreach events. The survey is a tool to educate the public about the LMS as well as to receive input from the public about completed and future mitigation activities and/or projects.

Section II: Community Profile

A. Geographic Profile

Sarasota County is located on the west coast of Florida about 60 miles south of Tampa Bay. It is bordered to the north by Manatee County, the east by DeSoto County, to the south by Charlotte County, and to the west by the Gulf of Mexico. Sarasota County encompasses a total area of 725 square miles, of which 572 square miles is land, and 154 square miles are classified as a water feature. The county is surrounded by 35 miles of open shoreline along the Gulf of Mexico.

Sarasota County includes 4 incorporated jurisdictions:

- City of North Port
- City of Sarasota

- City of Venice
- Town of Longboat Key

Table 3: Jurisdiction Land Distribution

Jurisdiction	Land Area (Square Miles)	Percent of Total Land Area
City of North Port	**104.1**	**18.1%**
City of Sarasota	**14.7**	**2.6%**
City of Venice	**16.6**	**2.9%**
Town of Longboat Key	**2.3**	**0.4%**
Unincorporated County	**435**	**76%**

Sarasota County's generally flat topography is characterized by isolated swamps and marshes, which connect into sloughs and meandering streams that flow into the coastal estuaries. Elevation along the Gulf of Mexico coastline ranges from 1 to 18 feet above sea level with the highest natural elevation in the northeast portion of the County at 95 feet above sea level.

B. Population and Demographics

Sarasota County's 2019 population is 426,275 according to Florida's Bureau of Economic and Business Research (BEBR). Since the last decennial census in 2010, Sarasota County added 46,827 new residents countywide, but there were significant variations in the population growth within the jurisdictions. As a whole, the County grew by 12%, the same rate of growth experienced by the City of Venice. Sarasota County growth is being driven by new housing developments being built east of the I-75 corridor particularly in mid county. The City of Sarasota and the unincorporated area both increased their populations by 9% while the Town of Longboat Key (Sarasota County portion) grew by 2%. The City of North Port outpaced all other jurisdictions with a growth rate of 28% from 2010 to 2019. The extensive growth in the City of North Port has been partly due to the development and expansion of the planned West Villages community. In 2018, the City of North Port also saw the opening of the new Atlanta Braves spring training stadium known as Cool Today Stadium. Growth across all municipalities continues to be driven by housing developments. A new hospital is currently under construction and is scheduled to open in 2021 near Laurel Road and I-75. It is expected that this will bring additional jobs and residents to the area. With increased hardscape resulting from residential and commercial development throughout each municipality the potential vulnerability for residential flooding does increase; however, is offset through the development review process during which requirements for stormwater mitigation are closely analyzed. Sarasota County along with each municipality (City of Venice, City of Sarasota, City of North Port and Town of Longboat Key) have established development review processes that engage stormwater staff to ensure reductions in flood risk. Similarly, the development review process includes comments from transportation, planning, environmental services and others to further mitigate risk associated with traffic, coastal erosion, and structural damage. The mitigation stemming from increased regulatory standards actually decreases overall vulnerabilities by ensuring new development meets all codes.

For the next decade of 2020 to 2030, Sarasota County's population is expected to increase by 13%. As the population growth continues the LMS Working Group will continue to update the LMS accordingly to be reflective of community needs and changes. This will be

accomplished through our quarterly meetings and ensuring that representatives from Sarasota County Planning and Development are included in the working group. Table 4 below reflects the population growth projections through 2045 in Sarasota County.

Table 4: Population Projections

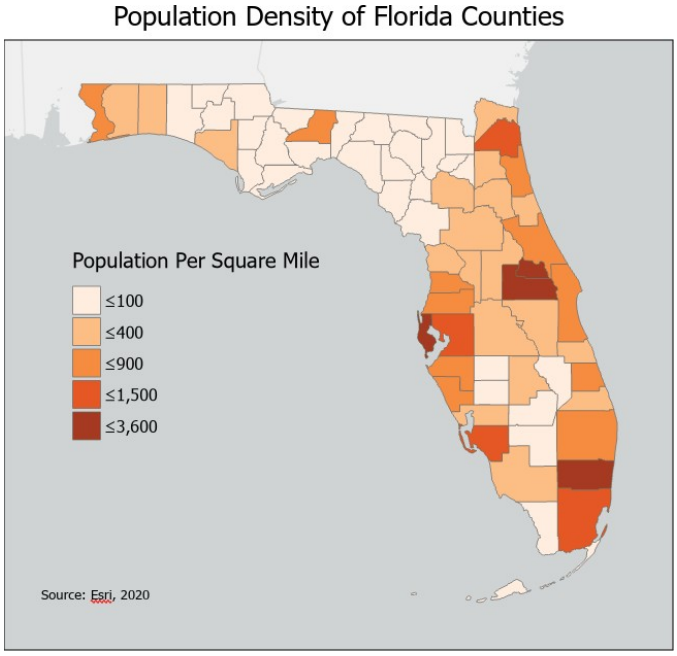
	BEBR Estimate	**Bureau of Economic and Business Research University of Florida Florida Population Studies, Volume 53, Bulletin 186, January 2020**					
Year	2019	2020	2025	2030	2035	2040	2045
Population	426,275	433,300	464,900	489,600	510,500	529,400	546,500

Sarasota County annually experiences many tourist/seasonal visitors throughout the County. According to the Economic Development Corporation of Sarasota County, the County experiences an average of 200,000 visitors per calendar year quarter, with an average stay of six or seven days. Peak visitation is usually during the first quarter of the year. Table 5 below reflects the population distribution by age in Sarasota County based on the 2019 estimates from BEBR.

Table 5: Population Distribution by Age

	Age Group				
	0-14	**15-24**	**25-44**	**45-64**	**65 Plus**
Population	51,430	36,680	76,059	113,472	148,634

Source: BEBR, Bulletin 187, June 2020



Population density per square mile for Florida counties excluding census blocks with zero population, 2020. Source: ESRI Demographics

C. Economic Profile

According to the 2018 U.S. Census Bureau's American Community Survey one-year estimates, Sarasota County's median household income was $61,683. Additionally, it was estimated that 10.3% of the population lived below the poverty level. Tables 6 through 8 are provided to offer a brief description of Sarasota County's economic profile.

Table 6: **Employment and Wages in Sarasota County, 2019**

Industry Title	Average Monthly Employment	Average Annual Wages
Total, All Industries	302,528	$46,268
Agriculture, Forestry, Fishing and Hunting	3,993	$28,199
Mining, Quarrying, and Oil and Gas Extraction	49	$122,135
Construction	25,840	$50,934
Manufacturing	16,793	$56,370
Wholesale Trade	8,139	$66,406
Retail Trade	43,949	$32,064
Transportation and Warehousing	7,156	$42,339
Utilities	674	$100,331
Information	3,265	$65,508
Finance and Insurance	8,063	$89,664
Real Estate and Rental and Leasing	6,546	$47,060
Professional and Technical Services	15,745	$70,782
Management of Companies and Enterprises	3,211	$121,901
Administrative and Waste Services	21,410	$39,725
Educational Services	18,497	$46,550
Health Care and Social Assistance	49,535	$51,275
Arts, Entertainment, and Recreation	9,997	$37,875
Accommodation and Food Services	35,672	$22,788
Other Services, Except Public Administration	11,222	$34,760
Public Administration	12,495	$55,803
Unclassified	277	$52,475

Source: Florida Department of Economic Opportunity, Quarterly Census of Employment and Wages, 2019 Annual Averages

Table 7: Sarasota County Unemployment Statistics, 2019

Category	Value
Labor Force	369,130
Employment	357,670
Unemployment Level	11,460
Unemployment Rate	3.1%

Source: Florida Department of Economic Opportunity, Local Area Unemployment Statistics, 2019 Annual Averages

Table 8: Sarasota County Property Values (All Jurisdictions)

Property Type	# of Parcels	% of Parcels	Total Value	Avg Value
Residential	271,034	94.25%	$66,934,453,600	$246,960
Commercial	9,014	3.13%	$8,959,332,800	$993,935
Industrial	2,598	.90%	$1,489,053,500	$573,154
Agriculture	849	.30%	$1,803,547,400	$2,124,320
Public	1,814	.63%	$6,098,663,500	$ 3,361,998
Miscellaneous	2,267	.79%	$539,335,200	$ 237,907

Source: Sarasota County Property Appraiser

Section III: Hazard Identification and Analysis

A. Identifying Hazards

Sarasota County is a medium-sized coastal community located in southwest Florida that is vulnerable to many types of natural hazards (i.e., hurricanes, flooding, wildfire). Residents and visitors are aware of the County's location within the "Hurricane Belt" but are complacent or unaware about the potential for other severe natural disasters within the County. All parts of the County are subject to natural disasters to some extent, which can take occur any time. Due to the County's low coastal topography and usually high-water table, the County can be particularly vulnerable to natural hazards that directly or indirectly result in flooding. Portions of coastal Sarasota County have begun to experience sunny day flooding associated with King Tides.

Historical occurrence of identified hazards shows that each participating jurisdiction is vulnerable to almost every hazard. The exception is the City of North Port, which is not considered directly vulnerable to coastal erosion or tsunami.

The 2021 Sarasota County Unified Local Mitigation Strategy plan profiled all hazards identified by the LMS Working Group, and considered historical occurrences, geographic extent, and probability for future occurrences. As part of the

2021 plan revision, each hazard was reconsidered, and new information was added for the updating period. The LMS Group focused on updating and adding new information relating to the hazards and emphasized the streamlining approach by considering the following:

- Validating the current general information.
- Identifying new hazard occurrences since the 2016 Plan.
- Identifying specific jurisdiction hazard variations.
- Aligning the extent and probability factors with the Sarasota County Comprehensive Emergency Management Plan and the State Mitigation Plan.

Hazard Probability and Impacts by Jurisdiction

Table 9 offers a brief description identifying the hazard type, location, extent, and probability that affect the jurisdictions within Sarasota County (refer to Tables 9A, 9B, and 9C for clarification of the data). A narrative description of each hazard follows Table 9C. Table 10 documents overall impacts on structures and infrastructure from each identified hazard. Jurisdiction boundary maps may be found in Appendix G. At a minimum, the risk assessment will be reviewed and validated at least annually by the Local Mitigation Strategy Working Group.

Table 9: Identified Natural Hazards

Hazard Type	Jurisdiction (1)	Extent (2)	Probability (3)
Avalanche	None	Unlikely	None
Coastal Erosion	2,3,4,7	Extensive	Annual
Coastal Storm	All	Extensive	Annual
Dam Failure	1,4	Low	Low
Drought	All	Low	Annual
Earthquake	All	Low	Unlikely
Expansive Soils	All	Unlikely	None
Levee Failure	1,4	Low	Unlikely
Flood	All	Catastrophic	Annual
Hailstorm	All	Low	Annual
Hurricane	All	Catastrophic	Annual
Land Subsidence	All	Low	Medium
Landslide	None	Unlikely	None
Seasonal Severe Weather Storm	All	Extensive	Annual
Tornado	All	Low	Annual
Tsunami	2,3,4,7	Unlikely	None
Volcano	None	Unlikely	None
Wildfire	All	Extensive	Annual
Windstorm	All	Extensive	Annual

Table 9A Jurisdiction

Jurisdiction	Identification #
City of North Port	1
City of Sarasota	2
City of Venice	3
Sarasota County Government	4
Sarasota County Schools	5
Sarasota Memorial Hospital	6
Town of Longboat Key	7

Table 9B Extent of Impact

Population Affected	Extent
No data available	Unlikely
0-1,000	Low
1,001 – 5,000	Medium
5,001 – 10,000	High
10,001 – 25,000	Extensive
25,001 plus	Catastrophic

Table 9C Probability of Impact

Years Between Events	Classification
Annual	Annual
1 – 5	High
6 – 10	Medium
11 – 20	Low
20 plus	Unlikely
No Occurrence on Record	None

Table 10: Impacts on Structures and Infrastructure from Identified Natural Hazards

Column1	All Structures	Mobile Homes	Poorly Constructed Homes	Non Elevated Homes	Government Facilities	Telecommunications	Electrical Utilities	Sewage Systems	Potable Water	Roadways	Waterways	Airports	Agriculture	Livestock	Fisheries	Economic Disruptions	Environmental Damage	No Risk
Avalanche																		X
Coastal Erosion	X				X	X	X	X	X	X	X					X	X	
Coastal Storms	X	X	X	X	X	X	X	X	X	X	X	X				X	X	
Dam Failure				X		X	X	X	X	X								
Drought									X				X	X		X	X	
Earthquake	X		X		X	X	X	X	X	X	X	X						
Expansive Soils																		X
Levee Failure			X	X		X	X	X	X									
Flood	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	
Hailstorm	X	X	X		X	X	X	X	X			X						
Hurricane	X	X	X		X	X	X	X	X	X	X	X	X	X	X	X	X	
Land Subsidence	X	X	X		X	X	X	X	X	X		X				X	X	
Landslide																		X
Seasonal Severe Weather	X	X	X		X	X	X	X	X	X		X				X	X	
Tornado	X	X	X		X	X	X	X	X	X	X	X	X	X	X	X	X	
Tsunami	X	X	X		X	X	X	X	X	X	X	X	X	X	X	X	X	
Volcano																		X
Wildfire	X	X	X		X	X	X	X	X	X		X	X	X		X	X	
Windstorm	X	X	X		X	X	X	X	X	X	X	X	X	X	X	X	X	

B. Profiling Hazards Vulnerability

Avalanche

An avalanche is defined as a fall or slide of a large mass down a mountainside. Due to the topography of Sarasota County and the jurisdictions within, avalanches are not a natural threat. There have been no historical references to an avalanche taking place within Sarasota County. Avalanches are not considered a risk and therefore it will not be fully profiled.

Coastal Erosion

Coastal erosion is the removal of land or beach or dune sediments by wave action, tidal currents, wave currents, or drainage. Waves generated by coastal storms or hurricanes 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. Erosion in one location may result in accretion elsewhere. The jurisdictions that are affected by coastal erosion in Sarasota County are the City of Sarasota, City of Venice, unincorporated Sarasota County, and the Town of Longboat Key.

Sarasota County has taken the preemptive approach of creating of the Coastal Resources Department within the Environmental Protection Division of the Planning and Development Services Department. This organization focuses on numerous shoreline interests, from maintenance of navigable waterways to shoreline enhancement, habitat restoration, and the monitoring of coastal erosion through a series of benchmarks placed every 1000 feet along our shoreline. The extent of coastal erosion is measured by the linear mile of coastline impacted. One of the most important mitigation efforts to have taken place was the approval of the Coastal Setback Code with amendments on October 28, 2008. The revised code creates consistency with the Comprehensive Plan and other natural resources protection codes and addresses the requirements for shore protection structures such as seawalls and rock revetments.

The beaches and inland waterways will continue to shift and change; and will therefore continue to be an identifiable hazard. Whether or not coastal erosion takes place over a long period of time or by a single incident, coastal erosion is a continued hazard to the jurisdictions identified in Table 9.

Sarasota County has 35 miles of Gulf beach shoreline. Approximately 31 of these miles stretch along several barrier islands, including the southern portion of Longboat Key and the northern portion of Manasota Key, both of which extend into neighboring counties. The vast majority of the privately-owned properties located on the County's barrier islands, in addition to those within the Town of Longboat Key and the City of Sarasota, have been developed, while the publicly held properties are predominantly utilized as natural area parks (e.g., Siesta Key Public Beach, Caspersen Public Beach, Blind Pass Park). As land values have increased, redevelopment of the finite number of privately-owned, previously developed coastal properties has become common. Observed trends include the conversion of commercial marinas to condominiums, teardown, and reconstruction of single-family residences with larger structures and more impervious surfaces, and additional often larger ancillary features (e.g., pools, garages, docks, and patios). These trends have placed new demands and threats on coastal resources, which are being managed with regulatory and public educational programs. These trends can have a positive result, i.e., redevelopment has modernized structures to comply with improved building codes that better enable structures to withstand the adverse effects of hurricanes and coastal erosion. This will improve public health, safety and general welfare and reduce the need for Gulf-front coastal armoring (Source: Sarasota County Comprehensive Plan).

Vulnerability can impact the quality of life through damage to buildings, roads/bridges, and infrastructure (lifeline systems). According to the USGS, during the landfall of a category-1 storm, with wind speeds between 75 and 94 miles per hour, over wash is very likely for 70 percent of Gulf Coast beaches.

Over wash occurs when waves and storm surge overtop dunes and transport sand landward. Over wash is likely at these locations because of increased water levels at the shoreline. During category-1 hurricane events on the Gulf Coast, wave height and storm surge combine to increase water levels at the shoreline by 14.5 feet higher than their normal levels. Additional findings from the report show that during a category-1 storm landfall, 27 percent of sandy beaches along the U.S. Gulf of Mexico are projected to be inundated, which occurs when increased water levels completely submerge beaches and dunes. As a recreational amenity, the beaches are vital to the County's economic base. Recreational and visual access to the beaches and waters of the Gulf of Mexico are major factors in attracting tourists and residents to Sarasota County.

Coastal erosion and/or accretion occurs in various parts of Sarasota County's coastline and inland waterways throughout the year. The erosion and/or accretion rates within Sarasota County are very dynamic between the barrier islands and at different locations on the same island. The bay waters shaped by these dynamic features include Sarasota Bay, Little Sarasota Bay, Dona/Roberts Bays, and Lemon Bay. Elevations on the barrier islands are generally less than 15 feet. Changes in barrier island shorelines are the direct result of the energy associated with winds, waves, currents, and tides. The typical average rates within Sarasota County for a specific location range from ten feet of accretion to ten to fifteen feet of erosion. All coastal structures as well as the critical facilities that support these structures could be impacted by coastal erosion. During the previous ten years, Sarasota County has averaged the loss of one structure per year with a value of $1-5M because of coastal erosion and or undermining of the foundation. For planning purposes, this average is consistent with the expectations of the Local Mitigation Strategy Working Group estimates for this natural hazard occurrence per event.

In 2008, Tropical Storm Fay caused approximately $3M in coastal beach erosion. Sarasota County was eligible for Public Assistance under the FEMA-1785-DR.

Impacts in June 2012, Tropical Storm Debby developed from a trough of low pressure in the central Gulf of Mexico and made landfall near Steinhatchee, Florida. Initial predictions anticipated the storm to move towards Louisiana or Texas, but the storm moved in the opposite direction. Upwards to 10 inches of rain fell in Sarasota County flooding many secondary roads. The Lido Beach parking lot was impacted by flooding from the shifting of the high-water mark due to surf and tide conditions. Overall, Sarasota County suffered almost $2,000,000 in beach erosion damage which included Lido Key. Hurricane Irma passed just east of Sarasota County in September of 2017 however is inland path caused water to flow away from the shoreline and did not cause any coastal erosion.

For a complete listing of events recorded by the NOAA Satellite and Information Service that have taken place in Sarasota County from January 1, 1950 to January 31, 2020 please refer to Appendix I.

Coastal Storms

Coastal storms are typically associated with hurricanes and or other tropical depressions and storms that may impact Sarasota County. The difference between the vulnerabilities and impacts of coastal storms and hurricanes is separated by the severity of the event. Coastal Storms will be profiled under the Hurricane natural hazard description.

Dam Failure

According to the US Army Corps of Engineers (USACE) National Inventory of Dams, as shown in Figure 4-1, only one dam exists in Sarasota County. The Hi-Hat Ranch Pond is an earthen dam. The area is surrounded by rural and agricultural lands. Failure of this dam is not likely to have a major impact on the surroundings. The main vulnerability would be flooding of agricultural land resulting in little to no structural impacts.

The Peace River/Manasota Regional Water Supply Authority (PRMRWSA) Reservoir is located in neighboring DeSoto County. Failure of this dam may affect Sarasota County and/or one of its incorporated municipalities. Depending on the location of the failure and water level of the reservoir, properties within the inundation area could experience water depths from 2 to 4 feet. The dam failure could impact non-elevated homes and temporarily impact critical facilities that directly support these homes.

The PRMRWSA Reservoir is located in a rural part of town, with some population residing in the potential impact area. There is minimal impact to the economy and major employers. However, flooding from a dam failure could damage property, and may cause drowning and/or injury to residents in the potential impact area. There is an Emergency Action Plan for this dam. The PRMRWSA has a reverse-911 system to alert and advise nearby property owners and residents in the event of an emergency condition at the reservoir.

The Reservoir is bounded by 4 miles of highly engineered earthen embankment. The embankment was designed to withstand a Category 5 hurricane and a simultaneous 48-hour, 60-inch rainfall event. The probability of a dam failure at the Reservoir is low.
Approximately 3,942 properties exist within the potential impact area and are vulnerable to the dam failure. PRMRWSA analyzed several breach scenarios and mapped the affected areas. The PRMRWSA performed a breach analysis to evaluate the impacts of a failure during extreme rain events. Attachment 10 contains inundation maps resulting from a Probable Maximum Precipitation condition along with a failure of the dam.

The recent completion of the six billion gallon Peace River/Manasota Regional Water Supply Authority Reservoir located in DeSoto County Florida has added the unlikely potential of a dam failure occurring and impacting a small population of residences located within Sarasota County and the City of North Port. The inundation maps indicate an impact to areas within unincorporated Sarasota County (all undeveloped ranch lands) and within the City of North Port. Sarasota County has identified those undeveloped areas within the unincorporated area and flagged them in the permitting system so if they should start developing them, the Emergency Management Department will be notified and E.M. will implement an emergency plan as required by the CRS program.

Currently, based upon the inundation studies, of the 3,942 properties located within the potential impact area, only two properties have structures with a combined value of $174K. Considering the different factors associated with a dam breach and the actual number of structures in the area, the impact would not exceed the $200K at this time.

Due to the partnership and collaboration of the Peace River/Manasota Regional Water Supply Authority and the surrounding jurisdictions, the threat of a dam failure in the future is unlikely.

A failure by any one or several of the structures within the County may have an impact on one or all the jurisdictions. While the loss of life or property damage would likely be minimal, there could be an undetermined measure of economic loss and inconvenience due the closure of a major roadway. Dam failures can result from anyone, or a combination, of the following causes:

- Prolonged periods of rainfall and flooding, which cause most failures.
- Internal erosion caused by embankment or foundation leakage or piping.
- Improper maintenance, including failure to remove trees, repair internal seepage problems, or maintain gates, valves, weirs, structure supports and other operational components

Depending on the location and extent of a dam or levee failure, impacts to congregate facilities, i.e. schools, nursing homes, etc., could result in facility evacuations. Evacuations may also be needed if residents in areas are impacted by flooding. Temporary roadway closures could result in traffic congestion. Floodwaters could cause wastewater treatment facilities to shut down, contaminate local water supplies, and disrupt utilities. These impacts would be short term, however. The overall extent of dam failure would be measured by the depth of flooding and the miles of impact.

According to the NOAA Satellite and Information Service, Sarasota County, and the jurisdictions within have experienced zero dam failure events during the last 5 years. To date, the only reported occurrences of dam (water control gate) failure within Sarasota County is located within the City of North Port. For a complete listing of events recorded by the NOAA Satellite and Information Service that have taken place in Sarasota County from January 1, 1950 to January 31, 2020 please refer to Appendix I.

Based upon historical data and the type and function of the dam structures located within Sarasota County, it would be unlikely to see results of the subsequent flooding in depths greater than two feet. If this event were to occur within Sarasota County, non-elevated structures and critical facilities in the vicinity could be temporarily impacted. Structural damage because of this event would be like the historical average $500K per incident for flooding. For planning purposes, this average is consistent with the expectations of the Local Mitigation Strategy Working Group estimates for this natural hazard occurrence per event.

Drought

A drought is defined as a period of abnormally dry weather sufficiently prolonged by the lack of precipitation to cause a serious hydrological imbalance. While droughts are a normally occurring event, they are difficult to predict or forecast both as to when they will begin and how long they will last. The severity of a drought will depend upon the duration, seasonal or extended, moisture deficiency, and the size of the affected area.

Conceptually, droughts have often been associated with their impact on the agriculture industry of the affected area, but there may also be socioeconomic impacts because of a drought. Based upon Sarasota County's long history of involvement in the agriculture and livestock industry, an extended drought or drought conditions could be devastating to that particular industry, but as a whole it would be a low impact on the entire county and jurisdictions within based upon the direct population that would be impacted. As the duration of a drought increases, so does the socioeconomic impacts of the drought. Watering restrictions would be instituted, limitations in freshwater recreation and the potential increase of wildfires, while generally inconvenient to most, could impact the County as a whole.

Vulnerability to drought conditions is measured according to the characteristics of population, activities, or the environment that make them susceptible to the effects of drought. The degree of vulnerability depends on the environmental and social characteristics of the region and is measured by the ability to anticipate, cope with, resist, and recover from drought. Prolonged dry periods have spurred wildfires in North Port and Sarasota County, a reduction in the water table, water restrictions countywide, endangerment of wildlife and loss of crops in Sarasota County's agriculture areas. Economic impact to the community includes reduced farm revenue, and increased prices for produce and other farm-related items. In addition to a drought's social and economic risks, there is also the potential increase in the formation of sinkholes.

Sarasota County utilizes the Keetch-Byram Drought Index (KBDI) to monitor drought conditions. The Keetch-Byram drought index (KBDI) is a continuous reference scale for estimating the dryness of the soil and duff layers. The index increases for each day without rain (the amount of increase depends on the daily high temperature) and decreases when it rains. The scale ranges from 0 (no moisture deficit) to 800. The range of the index is determined by assuming that there are 8 inches of moisture in a saturated soil that is readily available to the vegetation.

Sarasota County reached its highest level on the KBDI scale with a 675 on June 10, 2006. All of Sarasota County and the jurisdictions within may be affected by drought conditions on an annual basis and could expect to see similar levels as high on the KBDI scale in the future.

According to the NOAA Satellite and Information Service, Sarasota County has not had a recorded drought that has taken place from January 1, 1950 to January 31,

2020. For a complete listing of events recorded by the NOAA Satellite and Information Service that have taken place in Sarasota County from January 1, 1950 to January 31, 2020 please refer to Appendix I.

Earthquake

An earthquake is defined as a sudden and sometimes violent movement of the earth's surface because of movement along a fault or by volcanic disturbance. Earthquakes are measured by the Modified Mercalli Intensity Scale (Table 11A below) which measures detectability/level impact or by the Richter Scale (Table 11B below) which measures logarithmic magnitude scale of earthquake energy.

Table 11A: Modified Mercalli Intensity Scale

Intensity	Detectability/Level Impact
I	Detected only by sensitive instruments
II	Felt by a few persons at rest, especially on upper floors
III	Felt noticeably indoors, but not always recognized as a quake
IV	Felt indoors by many, outdoors by a few
V	Felt by most people, damage to glass and plaster
VI	Felt by all, many frightened and run outdoors, damage small
VII	Everybody runs outdoors, damage to buildings varies
VIII	Panel walls thrown out of frames, fall of walls and chimneys
IX	Buildings shifted off foundations, cracked, thrown out of plumb
X	Most masonry and framed structures destroyed; ground cracked
XI	New structures still standing, bridges destroyed, ground fissures
XII	Damage total, waves seen on ground surface

Table 11B: Richter Scale

Magnitude	Energies (TNT)
1	1.7 Kilograms
2	5.9 Kilograms
3	180 Kilograms
4	6 Tons
5	199 Tons
6	6,270 Tons
7	100,000 Tons
8	6,270,000 Tons
9	199,000,000 Tons

While Florida is not known for earthquakes, there have been over 30 recorded seismic activities in the State since the late 1700's. Sarasota has not recorded any damage from these seismic activities, but an event could affect all the jurisdictions within the County. The last seismic event to take place within the area occurred on September 10, 2006, in which the epicenter was located an estimated 250 miles west-southwest of the County in the Gulf of Mexico.

Based upon past historical data, the extent of damage from an earthquake would be low for all the jurisdictions within the County. Based upon these historical occurrences, the LMS Working Group estimates the probability of this phenomenon occurring in Sarasota County is 20 plus years between occurrences and would measure level I on the Modified Mercalli Intensity Scale. If this natural hazard did occur within Sarasota County, the impact could influence all the structures and critical facilities depending upon the severity. The structures most susceptible to damage can depend on the material that the structure is made from, the type of earthquake wave (motion) that is affecting the structure, and the ground on which the structure is built. Even though the entire county would be impacted in the event of an earthquake the damage (if any) would be minimal.

Typical impacts for a low-level earthquake could be cracks in walls from shaking or items knocked off shelves. Doors and windows could rattle but breaking of glass is unlikely.

For a complete listing of events recorded by the NOAA Satellite and Information Service that have taken place in Sarasota County from January 1, 1950 to January 31, 2020 please refer to Appendix I.

Expansive Soils

Expansive soils are soils that expand with the addition of water and contract as the soil dries out. This may cause foundations and walls of structures to shift or crack. The 1991 Soil Survey of Sarasota County, Florida conducted by the United States Department of Agriculture did not highlight or specifically identify expansive soils as a hazard to any of the areas within the county. There have been no historical references to an expansive soil incident taking place within Sarasota County. Expansive soils are not considered a risk and therefore it will not be fully profiled.

Levee Failure

A levee failure is defined as a break in the water-retaining earthwork, allowing water to flood the land that the levee was designed to protect. Levee failure inundation studies conclude that depending upon the location of the failure and current level of the reservoir, residents within the inundation area could experience water depths from two to four feet. The impact of a levee failure could impact non-elevated homes and have a temporary impact to the critical facilities that directly support these homes. There have been no historical references to a levee failure taking place within Sarasota County. The overall extent of levee failure would be measured by the depth of flooding and the miles of impact.

There are no certified levees for Unincorporated Sarasota County; however, there are two non-certified levees that may affect Sarasota County. One private levee located in the Hidden River subdivision is maintained privately by their community HOA, and one public levee located in the Bahia Vista subdivision area. The Hidden River levee if breeched would impact the Hidden River subdivision in the eastern portion of un-incorporated Sarasota County. The Bahia Vista Levee, if breeched would primarily impact the southeastern part of the City

of Sarasota and the adjoining portion of un-incorporated Sarasota County.

The privately owned levee is located on the Myakka River at the Hidden River Subdivision. This levee has breached in the past after large rain events and flooding of the upper Myakka River. Even though privately owned, Emergency Services has a monitoring and response plan for this levee. According to Emergency Services, the levee breaches at approximately 22'. A levee failure at the Hidden River subdivision would place dozens of residential homes at risk for flooding, which could cause significant structural damage to these residential homes.

A rain gage is located on the river that monitors river levels near this structure. The gage belongs to our ARMS (Automated Rain Monitoring System) program, When the water reaches 18', a notification response is triggered and Alert Sarasota County is implemented for this neighborhood. This plan is part of Sarasota County's Comprehensive Emergency Management Plan.

The Bahia Vista Flood Reclamation Project in Sarasota County is designed to alleviate flooding along a roadway and surrounding properties. The majority of stormwater management facilities in the County have an operation and maintenance plan by which the control structures are inspected periodically for structural integrity. In addition, many are designed to the 100-year flood event. Therefore, the probability of structure failure is relatively low. If the Bahia Vista Levee were to fail residential and road flooding would result impacting dozens of residential structures and potentially casing temporary rad closures.

Flood

Flooding has been the most frequent occurrence in Sarasota County over the past 100 years. Sarasota County residents can experience flooding from two sources, and they can occur at the same time:

- Coastal flooding and erosion triggered by tropical storms and hurricanes.
- Riverine flooding, which is intense and abundant rainfall into our river, streams, channels, and numerous low-lying areas.

The extent of a flood is generally measured in water levels and amount of damage done. Sarasota County is highly subject to riverine flooding due to heavy rains. They are categorized using the following:

- 500-year flood (.02 percent chance per year)
- 100-year flood (1 percent chance per year)
- 50-year flood (2 percent chance per year)
- 25-year flood (4 percent chance per year)
- 10-year flood (10 percent chance per year)

These categories indicate a probability of occurrence (a 100-year flood has a 1% chance of occurrence in one year). The smaller percent chance of occurrence the more devastating the flood. In a worst-case scenario event, isolated areas in

Sarasota County can expect to experience up to 10 feet of flood waters but average flood water depths are 4 feet to 5 feet.

General flooding in the County has typically accompanied storms which have passed over or near Sarasota. In 1962, over 16 inches of rain fell in a 48-hour period. The “No Name" storm of 1982, caused severe flooding along the bays and coastline, while the accompanying heavy rain and wind in the region created floodwaters that inundated residential areas on the coastal islands, and covered. In 1992 areas of the county experienced almost 20 inches of rainfall over just a few days in late June, and 14 inches during about the same time in 2003.

Because of their proximity to bodies of water, or low-lying areas, all jurisdictions in Sarasota County are vulnerable to flooding. Major flooding occurring in the County would have a significant impact on population, property, and economy, along with the threat to human life. In addition, floodwaters could cause wastewater treatment facilities to shut down, contaminate local water supplies, and disrupt utilities. Major property losses could be expected in the communities previously mentioned. Floodwaters could also submerge portions of I-75, US41 and east west highways. The loss of these transportation networks would hinder evacuation and relief efforts, making it difficult to provide emergency response services.

Since 1950, there have been 46 flood events within Sarasota County recorded by the NOAA Satellite and Information Service. Usually these events have floodwaters ranging from one to two feet, and impact non-elevated structures causing a temporary disruption to critical facilities. In rare situations within the County, floodwaters have reached five to seven feet in depth and have impacted all types of structures. In these rare events, there have been disruptions to critical facilities.

Storm Events Database

Search Results for Sarasota County, Florida

Event Types: Coastal Flood, Flash Flood, Flood, Heavy Rain, Lakeshore Flood

Sarasota county contains the following zones:
'Coastal Sarasota', 'Inland Sarasota'

46 events were reported between 01/01/1950 and 01/31/2020 (25598 days)

Summary Info:

Number of County/Zone areas affected:	1
Number of Days with Event:	40
Number of Days with Event and Death:	1
Number of Days with Event and Death or Injury:	1
Number of Days with Event and Property Damage:	25
Number of Days with Event and Crop Damage:	0
Number of Event Types reported:	3

Specific jurisdiction details relating to locations, extent, past occurrences, structures, and the probability of future events occurring, may be found in each jurisdiction's Floodplain Management Plans located in Annexes A through E. Typical impacts over the last 5 years include mostly street flooding and occasional house flooding. Road closures due to bank erosion, failed pipes and overloaded drainage systems also occur. Structural damage because of flooding has been recorded 25 times by the NOAA Satellite and Information Service. Damage has ranged from as little as $1K to as much as $2.3M with the average of $500K per event. For planning purposes, this average is consistent with the expectations of the Local Mitigation Strategy Working Group estimates for this natural hazard occurrence per event.

Additional vulnerability information for this natural hazard, in relation to hurricane surge, is in the Hazard Identification and Vulnerability Analysis located in Appendix H. Maps associated with this natural hazard may be found on-line at https://www.scgov.net/AllHazards/Pages/LocalMitigation.aspx For a complete listing of events recorded by the NOAA Satellite and Information Service that have taken place in Sarasota County from January 1, 1950 to January 31, 2020 please refer to Appendix I.

Repetitive Loss Properties

The jurisdictions within Sarasota County utilize National Flood Insurance Program data for tracking flood claims, locations, and losses. This data is used as a reliable base for identifying potential flood risks neighborhoods and hazard mitigation planning. The CRS coordinator in each jurisdiction also targets specific outreach for these areas of potential flood blight and/or federal grant opportunities. Table 12 below describes the vulnerability by jurisdictions in terms of numbers of repetitive loss and severe repetitive loss properties located within Sarasota County. Table 12A reflects the types of properties located in each jurisdiction.

Table 12

Jurisdiction	# of Repetitive Loss Properties	# of Severe Repetitive Loss Properties
City of North Port	0	0
City of Sarasota	50	3
City of Venice	16	0
Sarasota County Government	198	16
Town of Longboat Key	87	8

Table 12A

Type	City of North Port	City of Sarasota	City of Venice	Sarasota County	Town of Longboat Key
Single Family	0	32	1	183	82
Condominiums	0	15	14	3	3
Improved Commercial	0	3	1	11	7

Multi-Family (-10)	**0**	**3**	**0**	**15**	**0**
Mobile Homes	**0**	**0**	**0**	**3**	**3**

Hailstorm

Hail is a form of precipitation that occurs when updrafts in thunderstorms carry raindrops upward into extremely cold areas of the atmosphere where they freeze into balls of ice. Hail can damage aircraft, homes, and cars, and can be deadly to livestock and people. Hail is usually pea-sized to marble-sized, but big thunderstorms can produce big hail. The largest hailstone recovered in the U.S. fell in Vivian, SD on June 23, 2010 with a diameter of 8 inches and a circumference of 18.62 inches. It weighed 1 lb. 15oz.

Hail size is estimated by comparing it to a known object. Most hailstorms are made up of a mix of sizes, and only the very largest hail stones pose serious risk to people caught in the open.

- Pea = 1/4-inch diameter
- Marble/mothball = 1/2-inch diameter
- Dime/Penny = 3/4-inch diameter
- Nickel = 7/8 inch
- Quarter = 1 inch — hail quarter size or larger is considered severe
- Ping-Pong Ball = 1 1/2 inch
- Golf Ball = 1 3/4 inches
- Tennis Ball = 2 1/2 inches
- Baseball = 2 3/4 inches
- Teacup = 3 inches
- Grapefruit = 4 inches
- Softball = 4 1/2 inches

Hailstorms usually accompany thunderstorms which are common occurrences in Sarasota County. The extent of people impacted could be County-wide in all jurisdictions. Since 1969 the largest recorded hail in Sarasota County was 1.75”. Damage to structures and critical facilities is typically minimal.

Hailstorms associated with thunderstorms are not limited to any area of the county, but may be associated with damage to roofs, skylights, windows, patio furniture, and automobiles. Older construction and mobile homes may be more likely to be damaged by hail. While all populations can be impacted by hailstorms, lack of shelter puts the homeless population at highest risk.

Storm Events Database

Search Results for Sarasota County, Florida

Event Types: Hail, Marine Hail

Sarasota county contains the following zones:
'Coastal Sarasota', 'Inland Sarasota'

48 events were reported between 01/01/1950 and 01/31/2020 (25598 days)

Summary Info:

Number of County/Zone areas affected:	1
Number of Days with Event:	44
Number of Days with Event and Death:	0
Number of Days with Event and Death or Injury:	0
Number of Days with Event and Property Damage:	3
Number of Days with Event and Crop Damage:	0
Number of Event Types reported:	1

According to the NOAA Satellite and Information Service, Sarasota County, and the jurisdictions within have experienced 48 hailstorm events during the period from January 1, 1950 to January 31, 2020. The last hailstorm event occurred on July 11, 2017. For a complete listing of events recorded by the NOAA Satellite and Information Service that have taken place in Sarasota County from January 1, 1950 to January 31, 2020 please refer to Appendix I.

Hurricanes

Hurricanes are large cyclonic storms with counter-clockwise winds of 74 mph or greater based upon the Saffir-Simpson Hurricane Wind Scale (Table 13). Coastal areas that receive the full force of hurricane winds and storm surge sustain the most damage. Since hurricanes dissipate quite rapidly to less than hurricane strength after they make landfall, inland areas typically receive less catastrophic damage. Inland damage is usually in the form of flooding associated with the exceptionally heavy rains commonly associated with the remaining storm system.

The maximum extent of hurricane impact to Sarasota County, City of Sarasota, City of North Port City of Venice and Town of Longboat Key would be from a Category 5 storm on the Saffir-Simpson Hurricane Wind Scale.

Table 13: Saffir-Simpson Hurricane Wind Scale

Category	Sustained Winds	Potential Damage
Tropical Storm	**39-73 mph**	**Some**
1	**74-95 mph**	**Some**
2	**96-110 mph**	**Extensive**
3	**111-130 mph**	**Devastating**
4	**131-155 mph**	**Catastrophic**
5	**156 mph plus**	**Catastrophic**

An average of two hurricanes make landfall in the continental U.S. annually, causing massive destruction and huge loses for anyone in its path. Sarasota County was impacted by Hurricane Irma in 2017.

Coastal storms, hurricanes and windstorms, and their associated consequences, all have the potential probability to affect all the jurisdictions within Sarasota County to varying degrees. The extent may vary from jurisdiction to jurisdiction, but each have the potential to create extensive to catastrophic damage based upon the dynamics of each storm. Hurricanes would cause the greatest impact to the jurisdictions of Sarasota County; thus, mitigation efforts are focused on hurricanes and include the mitigation efforts associated with coastal storms and wind events. This mitigation has resulted in Sarasota County and the City of North Port to be awarded the designation of "Storm Ready" from the National Weather Service. Sarasota County was among the first counties in Florida to achieve this distinction in 2001 and has updated it every 3 years since. North Port renewed its "Storm Ready" status in 2019 and is good until July 2023. North Port also became a Weather Ready Nation Ambassador (WRN) in 2019. The City of Sarasota achieved the Storm Ready Community Status in 2015 and the County's other 2 municipalities plan to become "Storm Ready".

The consequences of hurricane winds and storm surge, which are also seen in tornadoes, include loss of life, flooding, coastal erosion, structural failures, power failures, and utilities disruption and felled trees, as well as economic disruption.

Freshwater flooding associated with a hurricane may also inundate potential evacuation routes and prevent persons from evacuating areas vulnerable to storm surge. Flooded roads and storm drains have resulted in fatal accidents in many areas either during the effects of hurricanes or immediately following.

In terms of economic damage, the five costliest hurricanes in the history of the United States all impacted portions of Florida. Hurricane Charley (August 2004), which impacted the bordering county to the south, is ranked as the 4th costliest hurricane, at $15 billion.

Due to its geographic location in the subtropics, adjacent to the Gulf of Mexico, the entire County is vulnerable to damage caused by hurricane force winds and related flooding. Vulnerability to hurricane related flooding is dependent upon the severity of storm surge, a general rise in sea level caused by the low pressure and strong winds around a hurricane's eye, and the amount of rain carried by the

hurricane. Storm surge is related to hurricane velocity and can rise twenty feet or more above normal sea level and cause massive flooding and destruction along shorelines in its path. Flooding due to heavy rainfall may extend over widespread areas of the County.

During past storm events, private and public structures, shoreline protection structures, public roads, and facilities in Sarasota County have been damaged. Most recently, in 2008, due to Tropical Storm Fay, Sarasota County and the jurisdictions within experienced an estimated $3M in coastal beach erosion. Sarasota County has not experienced a severe hurricane for several decades, and the full impact of a destructive storm, for example, a landfall Category-4 hurricane, remains unknown and could exceed several billion dollars. In 2017, Hurricane Irma made landfall as a category 3 impacting Sarasota County causing significant coastal erosion, debris, and the mobilization of numerous resources to aid in recovery and coastal evacuations. Estimated damages were incurred by Sarasota County were approximately $10.5 million.

Storm Events Database

Search Results for Sarasota County, Florida

Event Types: Hurricane (Typhoon), Tropical Depression, Tropical Storm

Sarasota county contains the following zones:
'Coastal Sarasota', 'Inland Sarasota'

3 events were reported between 01/01/1950 and 01/31/2020 (25598 days)

Summary Info:

Number of County/Zone areas affected:	1
Number of Days with Event:	3
Number of Days with Event and Death:	0
Number of Days with Event and Death or Injury:	0
Number of Days with Event and Property Damage:	2
Number of Days with Event and Crop Damage:	0
Number of Event Types reported:	1

Sarasota County has been affected by hurricanes or Tropical Storms a total of 3 times since 1950. For a complete listing of events recorded by the NOAA Satellite and Information Service that have taken place in Sarasota County from January 1, 1950 to January 31, 2020 please refer to Appendix I.

Additional vulnerability information for this natural hazard is the Hazard

Identification and Vulnerability Analysis located in Appendix G Maps associated with this natural hazard may be found on-line at: https://www.scgov.net/AllHazards/Pages/LocalMitigation.aspx

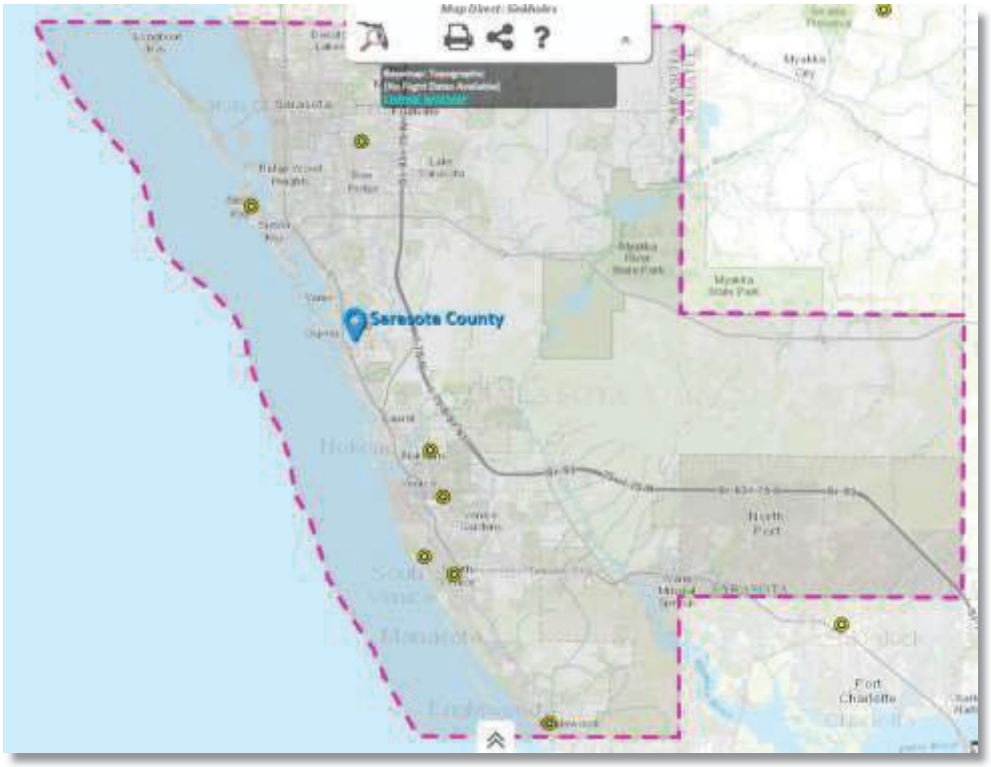
Land Subsidence/Sinkholes

Land subsidence is the lowering of a portion of the earth's crust and can occur naturally or because of human activity. Natural subsidence may occur when limestone, which is easily eroded carved by water, collapses and forms sinkholes on the surface, or by earthquakes along fault lines. Human activities such as mining or the extraction of oil, gas (through fracking) and water may also lead to land subsidence. Sinkholes are a common feature of Florida's landscape due to land subsidence. The extent of land subsidence/sinkhole is measured by the depth in feet.

Sinkholes are only one result of karst landforms, which include caves, disappearing streams, springs, and underground drainage systems, all of which occur in Florida. Sinkholes form in karst terrain principally from the collapse of surface sediments into underground cavities in the limestone bedrock. Slightly acidic ground water slowly dissolves cavities and caves in the limestone over a period of many years. When a cavity enlarges to the point that its ceiling can no longer support the weight of overlying sediments, the earth collapses into the cavity, forming a sinkhole. Sinkhole probability in Sarasota County is "uncommon" by the Florida Geologic Survey but deep collapse types and small subsidence sinkholes are possible and can be formed in the shallow shell beds.

Vulnerability from sinkholes includes impact to structures, roadways, or other infrastructure. All structures, utilities, systems, and populations are equally vulnerable. Depending on the location and size of a sinkhole, the social and economic impact can range from minimal to extensive. While sinkholes have been reported throughout the county, most are small and cause little damage. Impacts could range from minor damage to a home or road, to an entire city block. Even a small sinkhole can cause foundations or walls to shift or crack. Sinkholes typically reduce real estate values which has a direct impact on the economy and the tax base of local governments. Increase in insurance costs and uninsured losses becoming more frequent as affordable insurance becomes less available.

All jurisdictions within Sarasota County are vulnerable to land subsidence and the sinkholes that may be created in their aftermath. Since July of 1981, Sarasota County, and the jurisdictions within have recorded seven sinkhole events, all less than ten feet in diameter, and each was centered on a single property. The extent of sinkhole damage is low, and the probability of future occurrences is low based upon the number of historical occurrences. All structures and critical facilities could be impacted by this hazard along with the associated economic disruptions and environmental damage an incident could create. Based upon current historical data, it would be unlikely for a sinkhole event greater than ten feet in diameter to occur. Subsidence map from the Florida Geological Survey:



Of the 7 mapped Subsidence Incident Reports in Sarasota County, only 1 occurred in the last 5 years. Reported on July 7, 2013 several small holes were reported after heavy rainfall. The maximum dimensions were 2-8' wide with no property damage.

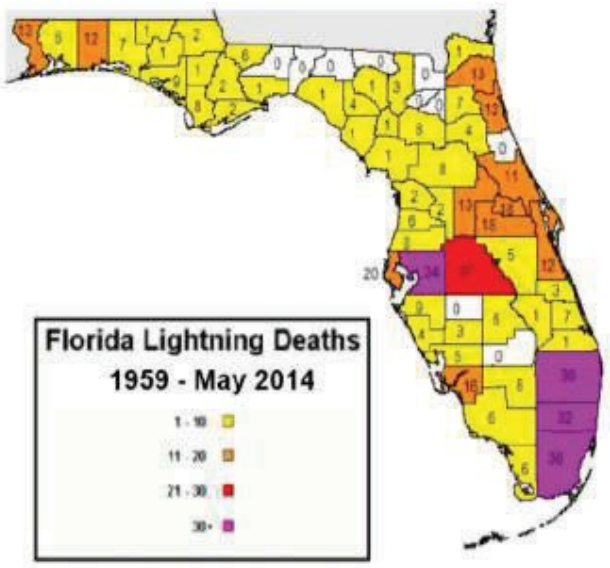
The Florida Division of Emergency Management completed a statewide Sinkhole vulnerability analysis in 2017.

Landslide

A landslide is defined as a mass movement of soil, mud, and (or) rock down a slope. Due to the topography of Sarasota County and the jurisdictions within, landslides are not a natural threat. There have been no historical references to a landslide taking place within Sarasota County. Landslides are not considered a risk and therefore it will not be fully profiled.

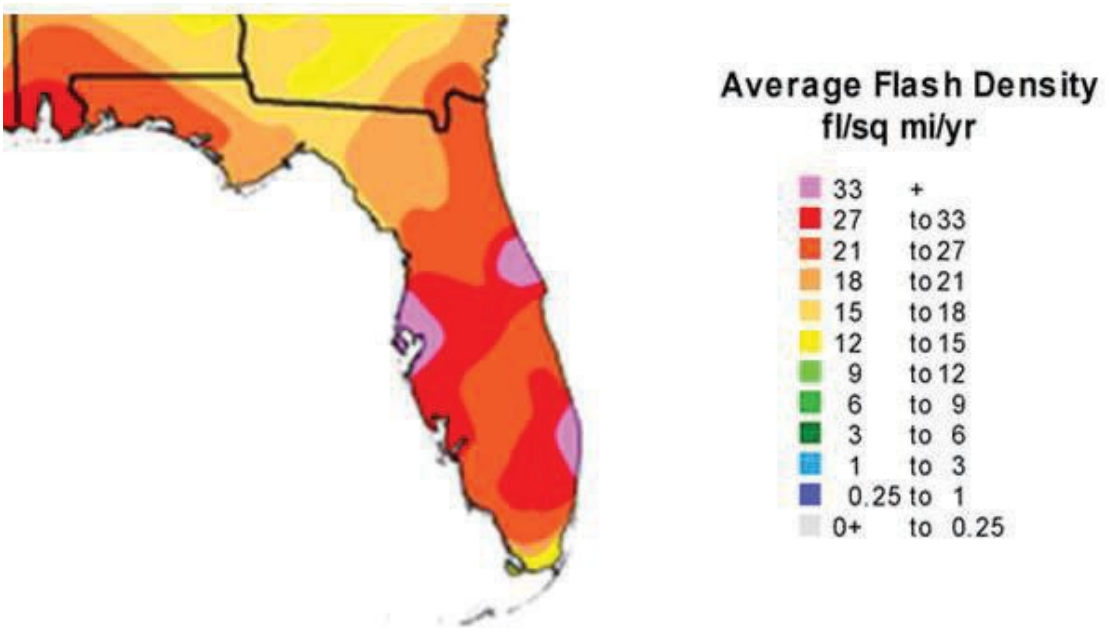
Severe Weather Storms

Phenomena associated with weather generated events are grouped under the category Seasonal Severe Weather. Each severe weather hazard has its own natural characteristics, areas, and seasons in which it may occur, duration, and associated risks. While these hazards have their own characteristics and effects, they often occur in conjunction with one another, thereby increasing and intensifying the effects. The primary hazards included under this category include lightning, freezes, and damaging winds.



Lightning is a discharge of electrical energy resulting from the buildup of positive and negative charges within a thunderstorm, creating a "bolt" when the buildup of charges become strong enough. This flash of light usually occurs within the clouds or between the clouds and the ground. A bolt of lightning can reach temperatures approaching 50,000 degrees Fahrenheit.

Central Florida is the most lightning prone area in the United States with about 90 thunderstorm days a year. Because of this, Florida has more lightning deaths than any other state. In fact, lightning kills more people in Florida than all other weather hazards combined. In the Florida Peninsula, thunderstorm season has two general periods. The summer months, running from early May to early October, is known as the wet season. Conversely, October through May is known as the dry season. Historically, the most dangerous months are June, July, and August.



Source: http://www.lightningsafety.noaa.gov/stats/97-11Flash_Density_miles.png

Sarasota County and all jurisdictions are vulnerable to lightning. Lightning occurs randomly and it is impossible to predict where it will strike. According to NOAA, Sarasota County average lightning density is 21 to 27 flashes per square mile per year. The risk of lightning is high in Sarasota County, mostly affecting electrical service to communities with restoration of service typically occurring within the same day. More critical is potential loss of physical damage and loss to computer systems/networks which are relied upon by businesses. Many lightning victims are individuals engaged in recreation or work. Recreational activities occur throughout the county. The worst-case scenario for Sarasota County would be to receive a thunderstorm that has cloud to ground lightning that strikes at a large outdoor gathering and injures or kills several people. A separate but also bad case scenario would be lightning that sparks a wildfire (see wildfire extent).

Lighting events have been recorded 26 times since 1950 by the NOAA Satellite and Information Service in Sarasota County. Structural damage because of lighting for these recorded events has totaled over $1.17M for an average of $45K per event. For planning purposes, this average is consistent with the expectations of the Local Mitigation Strategy Working Group estimates for this natural hazard occurrence per event.

Storm Events Database

Search Results for Sarasota County, Florida

Event Types: Extreme Cold/Wind Chill, Frost/Freeze

Sarasota county contains the following zones:
'Coastal Sarasota', 'Inland Sarasota'

1 events were reported between 01/01/1950 and 01/31/2020 (25598 days)

Summary Info:

Number of County/Zone areas affected:	1
Number of Days with Event:	1
Number of Days with Event and Death:	0
Number of Days with Event and Death or Injury:	0
Number of Days with Event and Property Damage:	0
Number of Days with Event and Crop Damage:	0
Number of Event Types reported:	1

Sarasota County is susceptible to freezing temperatures and damage resulting from freezes. A freeze is weather marked by low temperatures especially when below the freezing point (0° Celsius or 32° Fahrenheit) for a significant period. Freezing temperatures can damage agricultural crops and burst water pipes in homes and buildings. Frost often associated with freezes can increase damaging effects. Frost is a layer of ice crystals that is produced by the deposit of water from the air onto a surface that is at or below freezing.

The damage that can result from a freeze is typically associated with the agriculture industry, and not one affecting persons, structures, or associated property directly. During extended periods of low temperatures, individuals can suffer hypothermia and frostbite. Those highest at risk are primarily either engaged in outdoor activity or are the elderly who are chronically exposed to colder indoor temperatures. Vulnerable populations include elderly, homeless, and low-income residents. Sarasota County has had occurrences in the past where the temperature has dropped into the low 20's for several hours during the night and early morning according to the National Climatic Data Center report information. In the worst-case scenario Sarasota County could expect to see temperatures in the low 20's for 8-10 hours before warming to a less critical temperature. During cold weather events Sarasota county has a process in place to open cold weather shelters for those vulnerable to impacts.

Typically, December through February, are the months most susceptible to freeze events. A severe freeze in Sarasota County is possible each winter season. The exact probability would be very difficult to determine, but based on past experiences, it would be very low. The entire citrus and vegetable industry are vulnerable to freezes. The maximum threat for the County would be for a late or early season freeze to occur. Agricultural damage because of freezes for these recorded events has totaled over $12.4M.

Storm Events Database

Search Results for Sarasota County, Florida

Event Types: High Wind, Strong Wind, Thunderstorm Wind

Sarasota county contains the following zones:
'Coastal Sarasota', 'Inland Sarasota'

144 events were reported between 01/01/1950 and 01/31/2020 (25598 days)

Summary Info:

Number of County/Zone areas affected:	1
Number of Days with Event:	114
Number of Days with Event and Death:	1
Number of Days with Event and Death or Injury:	4
Number of Days with Event and Property Damage:	51
Number of Days with Event and Crop Damage:	1
Number of Event Types reported:	1

All of Sarasota County is susceptible to severe weather events on an annual basis and the damage could be extensive throughout the county. While not classified as a tropical cyclone, the most significant event occurred on June 18, 1982 when a no-name storm impacted the county with six inches of rain and 60 mph winds.

Damaging winds can be a consequence of hurricanes and tropical storms as well as thunderstorms. There are a variety of types of damaging winds formed by different thunderstorm processes, but thunderstorms produce some straight-line winds when the thunderstorm downdraft hits the ground and flows outward. A downburst is a strong downdraft which induces an outburst of damaging winds on or near the ground, and a microburst is a small but powerful downburst. Microburst winds can cause significant damage. Winds can cause damage when they reach 50 mph. In a windstorm, wind gusts could be as high as 73 mph and sustained winds can be up to 39-73mph in Sarasota County. While severe thunderstorm events may create high and damaging winds, their impact is usually not long lasting. Winds that are over 68mph trigger severe thunderstorm warnings from the National Weather Service. High winds associated with thunderstorms have been recorded 144 times since 1950 by the NOAA Satellite and Information Service in Sarasota County. Structural damage because of thunderstorms for these recorded events has totaled over $2.457M for an average of $17K per event. For planning purposes, this average is consistent with the expectations of the Local Mitigation Strategy Working Group estimates for this natural hazard occurrence per event.

Additional vulnerability information for this natural hazard is the Hazard Identification and Vulnerability Analysis located in Appendix H. Maps associated with this natural hazard may be found on-line at https://www.scgov.net/AllHazards/Pages/LocalMitigation.aspx
For a complete listing of events recorded by the NOAA Satellite and Information Service that have taken place in Sarasota County from January 1, 1950 to January 31, 2020 please refer to Appendix I.

Tornado/Waterspout

One of the most frequent and unpredictable natural hazards that all communities face are tornadoes. Tornadoes are cyclonic windstorms that usually accompany thunderstorms and hurricanes. While relatively short-lived in duration, tornadoes are intensely focused, making them one of the most destructive natural hazards. The weather conditions that tend to generate this phenomenon are unseasonably warm and humid earth surface air, cold air at the middle atmospheric levels, and strong upper-level jet stream winds. Waterspouts are weak tornadoes that form over warm water and occasionally move inland and become tornadoes.

More tornadoes and waterspouts occur in the United States than anywhere else in the world and Florida is considered an “at risk” state. Florida has two tornado/waterspout seasons. The summer tornado and waterspout season runs from June until September and has the highest frequencies of occurrences with usual intensities of EF0 or EF1 on the Enhanced Fujita Scale (Table 14). Since a waterspout is a tornado that is over

water the Fujita Tornado scale is also used to measure the extent of waterspouts. The spring tornado and waterspout season runs from February until April and is characterized by more powerful tornadoes on the Enhanced Fujita Scale.

Table 14: Enhanced Fujita Tornado/Waterspout Scale

Classification	MPH
EF0	65-85
EF1	86-110
EF2	111-135
EF3	136-165
EF4	166-200
EF5	Over 200

The Enhanced F-scale still is a set of wind estimates (not measurements) based on damage. Its uses three-second gusts estimated at the point of damage based on a judgment of 8 levels of damage to 28 indicators. These estimates vary with height and exposure. **Important**: The 3 second gust is not the same wind as in standard surface observations.

Source: http://www.spc.noaa.gov/efscale/ef-scale.html

All jurisdictions (City of Sarasota, City of North Port, City of Venice, Town of Longboat Key and Sarasota County) within Sarasota County are at risk to tornadoes. Coastal jurisdictions vulnerable to waterspouts are City of Sarasota, City of Venice, Town of Longboat Key and Sarasota County. Sarasota County has experienced 90 tornado and/or Waterspout events between January 1, 1950 and January 31, 2020. Several tornadoes have caused $500,000 or more in damage per incident.

Tornado History in Sarasota County: January 1950 – January 2020

Source: www.tornadohistoryproject.com

Following a tornado in June 2013, a National Weather Service survey found a narrow path of damage starting near the coast of Venice and moving northeast towards Highway 41. Damage included a few uprooted trees, including one large oak tree, numerous large branches down, minor roof damage to a couple houses and general light damage to a few car ports, pool cages, and fences. Damage was roughly estimated at $10,000.

All jurisdictions in Sarasota County can be impacted by a tornado. In January 2015, a Myakka State Park Forest Ranger reported tornado damage to a ranger station and a mobile home trailer at around 3:50 am. A subsequent NWS storm survey found a 50-yard-wide, one mile long intermittent path of damage that included snapped and uprooted trees and a mobile home trailer that had been picked up and tossed 30 to 40 yards. The damage was found to be consistent with an EF-0 tornado making multiple touchdowns with estimated peak winds of 85 mph. The survey found low end EF-0 damage to the east of the Myakka River State Park that included minor roof damage, a bent stop sign pole, and numerous broken tree branches.

A potent storm system developed and tracked quickly eastward across the Gulf of Mexico, and toward the state of Florida during Saturday January 16th, 2016. The impacts from this storm reached west central and southwest Florida during the early morning hours of Sunday January 17th, 2016. This storm system represented a classic setup for a strong El Nino tornado outbreak across the Florida peninsula. Preparation and public outreach efforts for just such an event, given the ongoing strong El Nino, had been underway at the NWS office in Ruskin for several months.

A squall line of strong and severe thunderstorms organized and quickly moved eastward during the 16th across the western and central Gulf of Mexico ahead of a cold front. This line of storms approached the Florida west coast after 2 AM EST on the 17th. Just ahead of this squall line, individual supercell thunderstorms developed and moved quickly northeastward toward the coast, south of the Tampa Bay area.

Multiple fast-moving supercell thunderstorms crossed the southwest Florida coast, with one storm producing at least two confirmed EF-2 tornadoes. The first tornado formed as a waterspout and came ashore near the Siesta Key/Sarasota area before briefly lifting. The same supercell then shortly thereafter produced another EF-2 tornado further inland, over northeast Manatee County, near the town of Duette.

The tornado that impacted Siesta Key in Sarasota County was rated as an EF2 with peak winds of 132 mph. It touched down at 3:17 a.m. and remained on the ground for five minutes, traveling just over one mile. It started out about 350 yards wide and narrowed to about 100 yards wide. The tornado damaged the roof of 3 condominium buildings and destroyed one two story home in the Baywinds neighborhood.

Factors that contribute to the vulnerability from tornadoes and waterspouts are the abundance of pre- engineered structures (including manufactured housing and metal buildings), recreational vehicles, and high concentrations of elderly populations. The most vulnerable populations include those in mobile home parks, recreational

vehicles, and aged or dilapidated housing. The potential for damage and loss of life increases as a function of population density. As the number of structures and people increase, the probability that a tornado will cause property damage or human casualties also increases. All critical facilities in the county and jurisdictions are susceptible to impacts from tornadoes. Coastal populations, structures and personal property such as boats are particularly vulnerable to waterspouts. Effective early warning systems are the best way to reduce the vulnerability from tornadoes. Damage to coastal structures including docks and coastal buildings, as well as personal property (boats) are at risk of waterspouts.

Historically, Sarasota County typically experiences tornado and waterspout activity on the EF0 or EF1 Fujita Tornado Scale, but a tornado of a higher magnitude EF3, struck the City of Venice in 1985 causing one death, 45 injuries, and damage to 150 homes. Based upon historical data, it would be highly unlikely for Sarasota County to experience a tornado or waterspout greater than an EF3. A tornado of any scale could impact all types of structures and critical facilities within its path. Economic disruptions and environmental damage will be dependent upon the magnitude of the tornado. Similarly, waterspouts can impact all coastal areas causing damage to coastal structures, such as docks and personal property including boats.

Tsunami

A tsunami is defined as a sea wave of local or distant origin created by an underwater disturbance such as an earthquake, landslide, volcanic eruption, or meteorite. Offshore and coastal features can determine the size and impact of tsunami waves. Reefs, bays, entrances to rivers, undersea features, and the slope of the beach all help to modify the tsunami as it approaches the coastline. When the tsunami reaches the coast and moves inland the water level can very quickly rise many feet. The extent of a tsunami would be measured by the depth of flooding and how far inland (in miles) the impacts extend.

Overall, Florida has not experienced any destructive tsunami events, but all coastlines of Florida, including Sarasota County's coastal jurisdictions, are prone to tsunami events. There is no historical data available to estimate the extent of impact or probability of an event occurring within Sarasota County. There are no significant earthquake sources within the Gulf of Mexico that are likely to generate tsunamis, despite recent seismic activity in the area. Tsunami propagation from significant earthquake sources outside the Gulf of Mexico, such as the northern Panama Convergence Zone, Northern South America, Cayman Trough, the Puerto Rico trench, or the Gibraltar area shows that wave amplitude is greatly attenuated by the narrow and shallow passages into the gulf, and as a result, these tsunami sources do not constitute a tsunami hazard to the Gulf of Mexico coast. This was reinforced by the Regional Assessment of Tsunami Potential in the Gulf of Mexico published by USGS in 2009.

Since Florida is not located along the convergent margins of the tectonic plates, there is no likelihood of earthquake-generated tsunamis. While history has shown that Florida's east coast has experienced some tsunami activity, there is no such

record for the Gulf coast due to the large continental shelf located in the Gulf of Mexico, even when the latest 6.0 earthquake happened on September 10, 2006 at 8:56 a.m. There were no documented flooding or aftereffects from this event. Consequently, it can be assumed that the Gulf coast has little to fear from this natural occurrence, however there is still a possibility that it could happen.

If a tsunami were to occur impacts would be felt by those with coastal frontage; specifically, Sarasota County, City of Sarasota, City of Venice and Town of Longboat Key. The City of North Port would likely not experience impacts as it is located inland and has no direct coastal exposure. Impacts would result in structural damage to coastal structures, both commercial and residential, as well as potential loss of life as many of our residents live within a mile or less of the coastal zone. Flooding would be significant causing damage to structures within a 1 to 3-mile radius of the coastal zone. Those structures and residents living within 1-mile of the coastal zone are the most vulnerable to impacts from tsumani.

Because of the extremely low probability and minimal, if any impacts, no further analysis will be completed for tsunami.

Additional vulnerability information for this natural hazard is the Hazard Identification and Vulnerability Analysis located in Appendix G Maps associated with this natural hazard may be found on-line at https://www.scgov.net/AllHazards/Pages/LocalMitigation.aspx

Volcano

A volcanic eruption is defined as the discharge of fragmentary ejecta, lava, and gases from a volcanic vent. Due to the topography of Sarasota County, the jurisdictions within, and the absence of any known volcanoes, this natural hazard is not a natural threat. There have been no historical references to a volcanic eruption taking place within Sarasota County. Volcanoes are not considered a risk and therefore it will not be fully profiled.

Wildfire

A wildfire is defined as an intense fire that usually occurs in both rural and urban settings. Sarasota County has experienced many wildfires each year of varying degrees of scale. This is a major concern for all the jurisdictions, directly or indirectly, within the County because over 75% of the County is vulnerable to wildfires. While the Town of Longboat Key is the only jurisdiction not directly vulnerable to wildfires it may be indirectly affected by the smoke and other associated hazards. The fire departments located within the County to work closely with outside fire suppression agencies on fire mitigation and controlled burns, and recently instituted a local Firewise Communities Program. Table 15 below addresses the wildfire by cause data in fiscal year 2020 (October 1, 2019 to September 30, 2020).

Table 15: Wildfires by Cause 10/2019 – 9/2020

Cause	Fires	Percent	Acres	Percent
Campfire	**2**	**7.69**	**7.0**	**7.53**

Children	**2**	**7.69**	**1.1**	**1.18**
Debris Burn*	**0**	**0**	**0**	**0**
Debris Burn--Auth--Broadcast/Acreage	**0**	**0**	**0**	**0**
Debris Burn--Auth--Piles	**0**	**0**	**0**	**0**
Debris Burn--Auth--Yard Trash	**0**	**0**	**0**	**0**
Debris Burn--Nonauth--Broadcast/Acreage	**0**	**0**	**0**	**0**
Debris Burn--Nonauth--Piles	**0**	**0**	**0**	**0**
Debris Burn--Nonauth--Yard Trash	**0**	**0**	**0**	**0**
Equipment use*	**0**	**0**	**0**	**0**
Equipment--Agriculture	**1**	**3.85**	**32.5**	**34.98**
Equipment--Logging	**0**	**0**	**0**	**0**
Equipment--Recreation	**1**	**3.85**	**3.0**	**3.23**
Equipment--Transportation	**0**	**0**	**0**	**0**
Incendiary	**0**	**0**	**0**	**0**
Lightning	**8**	**30.77**	**27.5**	**29.60**
Miscellaneous --Breakout	**2**	**7.69**	**5.1**	**5.49**
Miscellaneous --Electric Fence	**0**	**0**	**0**	**0**
Miscellaneous --Fireworks	**0**	**0**	**0**	**0**
Miscellaneous --Power Lines	**1**	**3.85**	**2.0**	**2.15**
Miscellaneous --Structure	**0**	**0**	**0**	**0**
Miscellaneous--Other	**2**	**7.69**	**0.6**	**0.65**
Railroad	**0**	**0**	**0**	**0**

Smoking	**0**	**0**	**0**	**0**
Unknown	**7**	**26.92**	**14.1**	**15.18**
Total	**26**		**92.9**	

Source: Florida Forest Service http://tlhfor013.doacs.state.fl.us/PublicReports/FiresByCause.aspx

Table 15 details wildfire activity in fiscal year 2019. Over the last 5 years Sarasota County and its jurisdictions have experienced 256 reported fires.

Wildfires impact residents and businesses by threatening physical structures. However, smoke can also have widespread impacts including closure of roadways and evacuations of areas of heavy smoke. This has personal as well as economic impacts, depending on the area affected. Uncontrolled wildfires can also cause severe economic impact to the agricultural industry. The extent of wildfires are measured in the number of acres impacted.

The largest wildfire on record for Sarasota County was over 6,00 acres in the Carlton Preserve during April of 2001. While the County has not experienced a wildfire of this magnitude since, it is still reasonable under the proper conditions that a similar fire of this severity could occur again. Most structures within the vicinity of the fire would be impacted as well as the critical facilities. Depending on the location within the County, a similar fire could cause an economic disruption and or environmental damage. The overall reduction of wildfires can be attributed to the Florida Forest Service Firewise Communities Program and the recent increase in precipitation.

Fire management has created a reduction in large fires. Sarasota County Mitigation Program has conducted over 300 prescribed burns since 2015 and burned more than 40,000 acres in that time. Also, other local agencies as well as private ranches have increased the amount of burning, they do. Additionally, steps have been taken to reduce the threat along each park and preserve within Sarasota County to reduce the threat of a wildfire impacting residents.

As the population in Sarasota County continues to grow, the number of residents living in or near wildland areas will also continue to increase. Subsequently, the threat of wildfire will increase as the urban areas extend into previously forested areas, or into or adjacent to forested areas not prescriptively burned on a regular basis. The number of human-caused fires is also predicted to increase as the population living in wildland urban interface areas continues to grow, and as natural areas within the urban area age out absent prescriptive fire or other vegetation and leaf litter management. Growth can reduce wildfire impacts. For example, North Port will build two new fire stations within the next four years. These additional firefighting resources will reduce response times and provide additional capabilities.

Firefighters from multiple jurisdictions extinguished a five-alarm wildfire in Venice on March 18, 2012. Roughly 20 to 30 homes were evacuated, and 3,700 households were without electricity while power lines were shut down as a precaution. The fire burned approximately 12 acres. Source: http://www.heraldtribune.com/article/20120318/BREAKING/120319544/0/search

One home was damaged in two brush fires just one mile apart on April 26, 2012 in North Port. One home had minor damage when pine needles in its gutters caught fire. Both fires were only about a quarter acre in size. Source: http://www.heraldtribune.com/article/20120426/BREAKING/120429672/0/search

A 100-acre wildfire caused Interstate 75 to be shut down for four hours on May 11, 2015. According to North Port spokesman Josh Taylor this is the biggest fire the department has found in about the last five years. Firefighters from Englewood, Nokomis and Sarasota, Charlotte, Lee, and Collier counties assisted the North Port fire department. Minor property damage, including a melted light on a home, some warped gutters and fences with burn marks also occurred. Source: http://www.heraldtribune.com/article/20150511/ARTICLE/150519960/0/search

The maximum and minimum size of a wildfire, and the associated impacts, cannot be easily calculated. A small fast-moving fire in the urban interface could cause property damage or injuries while a large fire in a rural area could cause neither.

The City of North Port is currently developing a Community Wildfire Protection Plan (CWPP) with an expected completion date of 2021. The Sarasota County Fire Department (Mitigation) has also partnered with the City of North Port. The development of a CWPP is due to the large size of the city 104.1 square miles, and the high hazard of Wildfire/Urban Interface (WUI) within the city. Also taking into consideration the City of North Port geographic location, with the Carlton Preserve to the Northern city boundary. The Deer Prairie Creek-Schewe Tract to the Western city boundary, and the large tract of undeveloped city area to the East creates further risk.

Windstorm

Damaging winds can be a consequence of hurricanes and tropical storms as well as thunderstorms. While severe thunderstorm events may create high and damaging winds, their impact is usually not long lasting. Winds that are over 68mph trigger severe thunderstorm warnings from the National Weather Service. High winds associated with thunderstorms have been recorded in Sarasota County by the NOAA Satellite and Information Service 144 times since 1950. Structural damage because of thunderstorms for these recorded events has totaled over $2.46M for an average of $17K per event. For planning purposes, this average is consistent with the expectations of the Local Mitigation Strategy Working Group estimates for this natural hazard occurrence per event.

Damage from high winds can impact all structures and utilities. The structures most susceptible to damage are older buildings, dilapidated housing, and other less hardened properties, such as mobile homes. Depending on the intensity of a hurricane, economic impacts can be severe. All populations may be impacted by these events, but those at highest risk are the elderly, the disabled, lower income, and the homeless. Hurricanes can also cause extensive environmental damage.
In a windstorm, wind gusts could be as high as 73 mph and sustained winds can be up to 39-73mph in Sarasota County.

Impacts from high winds in all Sarasota County jurisdictions could be like previous occurrences of high winds:

June 2009: Several manufactured homes along Blackburn Boulevard and Imperial Drive sustained damage when winds ripped off carports and portions of roofs.

March 2011: There was one large tree that fell onto a home causing some structural damage on Edmondson Road. In addition, there was some vehicle damage and damage to a carport as a large, snapped tree limb fell onto it. There was some roof damage to a home on Adriatic Street, and a snapped tree caused some vehicle and structure damage on Jessica Street.

July 2012: Broadcast media reported straight line winds removed a section of roofing from a shopping center on US 41 and Holland Street in Osprey. As a result of the roof damage, rainwater got into the building and caused further damage.

June 2015: Broadcast media relayed a report and picture of a large sign for a car repair business damaged by wind gusts.

August 2018: Winds damaged four roofs and six carports in communities such as Lake Village Mobile Home Park in Nokomis. The entire mobile home park lost power for a while. Nokomis firefighters helped residents safely place tarps over damaged roofs. The National Weather Service reported that the damage was most likely caused by microbursts from the storms.

All Sarasota County jurisdictions are vulnerable from high winds. Specific vulnerabilities include the number of mobile homes and structurally unsound buildings that were built before enhancements to local and the Florida building code. Sarasota County has adopted standards for canopy roads to help maintain and enhance scenic beauty, provide shade, increase economic value of properties, conserve the environment, and create a unique sense of character for these communities. These trees if not properly maintained however can increase vulnerability from high wind events.

Above ground powerlines are also common throughout the developed areas of Sarasota County. These above ground lines are vulnerable to impacts from high winds. While newer neighborhoods have underground powerlines, Florida Power & Light estimates only 30% of their lines are underground. http://realestate.heraldtribune.com/2015/06/07/power-lines-appeal-vs-cost/

As the population increases, ensuring that Sarasota County has enough shelter space to provide for its residents is paramount. The protection of critical infrastructure, communication systems, and power sources are key to the recovery after a tropical cyclone event. Ensuring that our private and public sector facilities meet existing building code to withstand the impacts of hurricanes should continue to be implemented.

Besides the damage severe weather (storm) events can produce, high winds can also create significant quantities of debris from downed trees, branches, and damaged buildings. This debris can impede emergency management efforts; present a safety hazard for emergency and repair workers and citizens; and present significant storage and disposal issues.

Storm Events Database

Search Results for Sarasota County, Florida

Event Types: High Wind, Strong Wind, Thunderstorm Wind

Sarasota county contains the following zones:
'Coastal Sarasota', 'Inland Sarasota'

144 events were reported between 01/01/1950 and 01/31/2020 (25598 days)

Summary Info:

Number of County/Zone areas affected:	1
Number of Days with Event:	114
Number of Days with Event and Death:	1
Number of Days with Event and Death or Injury:	4
Number of Days with Event and Property Damage:	51
Number of Days with Event and Crop Damage:	1
Number of Event Types reported:	1

All of Sarasota County is susceptible to severe weather events on an annual basis and the damage could be extensive. While not classified as a tropical cyclone, the most significant event occurred on June 18, 1982 when a no-name storm impacted the county with six inches of rain and 60 mph winds.

Pandemics

Beginning in January of 2020 the coronavirus disease 2019 (COVID-19) evolved from an isolated disease in a region of China to a global pandemic that brought countries to a standstill, pushed hospital systems to the brink, and dragged the global economy into a recession.

The first confirmed case of the novel coronavirus in the United States was discovered on January 21st in a Washington state resident. The man had recently returned from Wuhan on January 15. The CDC soon after deployed a team to help with the investigation, including potential use of contact tracing. On February 3rd, the President declared a public health emergency due to the coronavirus outbreak. The announcement came 3 days after the World Health Organization (WHO) declared a Global Health Emergency as more than 9800 cases of the virus and more than 200 deaths had been confirmed worldwide.

On March 9th, Governor Ron DeSantis issued Executive Order 20-52, declaring a State of Emergency for COVID-19. By declaring a State of Emergency, Governor DeSantis helped to ensure that state and local governments could acquire the resources and have the flexibility they needed to prepare and respond. On March 16th, Sarasota County declared a State of Emergency for the Novel Coronavirus and the Emergency Operations Center went to Level2

(partial activation). Due to the contagious factors of the virus the EOC was activated using initial entry screening, multiple rooms, social distancing, and virtual meetings.

The Sarasota County EOC went into a continuous state of level 2 activation (partial) with daily virtual Command meetings, weekly coordination calls with the Florida Division of Emergency Management and municipal, constitutional officers and response partners. The activation level remained at level 2 throughout most of 2020.

Man-made Hazards

The following man-made hazards are identified as possibly impacting Sarasota County jurisdictions.

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

Civil Disturbance
Civil disturbances can occur due to socio-economic, political, or other reasons. These types of events typically occur in public places, including court houses or town civic spaces. The Sarasota County Sheriff's Office maintains awareness of potential civil disturbance activity through various intelligence sources including trends on social media.

Terrorism
Terrorism includes any attempt to attack, cripple or damage public goods, public infrastructure, or citizens on a large scale. Sarasota County Emergency Services as well as the municipal law enforcement agencies maintain involvement with the Southwest Florida Regional Domestic Security Task Force to monitor and receive threat information.

Hazardous Materials
Hazardous material (HazMat) includes events when liquid, solid or gaseous chemicals that are harmful or fatal to humans or ecological infrastructure disperse into the atmosphere.

Mass Migration
Mass-migration occurs when persons of one geographic area move in large numbers to another geographic location. Although Sarasota County is more much farther away from Cuba than

other counties in southwest Florida, thirty Cuban migrants were dropped off on Longboat Key by a large fishing boat in 2006.

Analyzing Development Trends

Land uses and development trends are defined within each jurisdiction's adopted Comprehensive Plan. State Statues have given local governments the responsibility for coordinating the overall pattern of physical development in a community. To achieve this coordination, a local government needs a document which establishes long- range, general policies for the physical development of the community. A comprehensive plan meets this need.

The contents of these plans are all-inclusive, general, and long-range. "All-inclusive" means that the plan addresses all geographical parts of the community and all functional elements that can affect physical development. "General" means that it includes general policies and designations, not detailed regulations. "Long-range" means that the plan looks beyond pressing current issues to the problems and possibilities of years in the future.

Comprehensive plans can be amended at a specific time of year called the yearly amendment cycle. Amendments may be initiated by private citizens and the jurisdiction. Jurisdiction Commissions may approve an amendment after the State Department of Community Affairs considers the proposed change to follow state law.

In addition, the Sarasota 2050 is a 50-year land use plan designed to manage and shape future growth in Sarasota County. Sarasota 2050's primary goals are preserving our county's natural, cultural, and physical resources while making all neighborhoods more livable.

City of North Port, City of Sarasota, City of Venice, Sarasota County Government, and Town of Longboat Key future land use maps may be found in Appendix G. Sarasota County Schools and Sarasota Memorial Hospital do not have comprehensive land use plans.

Multi-Jurisdictional Risk Assessment

The multi-jurisdictional risk assessment may be found in Table 9. Due to the topography of the County, the jurisdictions within Sarasota County are vulnerable to the same natural hazards, with three exceptions. Coastal erosion and tsunamis only affect the City of Sarasota, City of Venice, Sarasota County Government, and the Town of Longboat Key because of their respective jurisdictional border with the Gulf of Mexico. A levee failure may impact the City of North Port and Sarasota County Government due to the reservoir located in an adjacent county that borders the two jurisdictions. Another area of concern is the Hidden River made berm along the Myakka River. This berm failed during a heavy rain event in 2003. The Sarasota County Flood warning and Response plan calls for a warning to residents of Hidden River when the water level on the man-made berm reaches 18 feet. It also initiates the plan for opening a command post and shelter at the Old Miakka Church which is located a short distance from the entrance to Hidden River.

Section IV: Mitigation Strategy

A. Local Hazard Mitigation Goals

The overall goal of the Sarasota County Local Mitigation Strategy Working Group is to develop and maintain a "Disaster Resilient Community", through awareness and application of hazard mitigation policies and the identification, prioritization, and achievement of cost-effective mitigation projects. To implement the strategy, the following goals and objectives or action items were established based effectively and efficiently upon the 2004, 2014 and 2015 versions of the LMS and were reviewed and updated in 2020:

Goal 1: Assess vulnerabilities and identify mitigation models for natural hazards relevant to Sarasota County.	
Objective 1:	Maintain up-to-date community-wide vulnerability assessment.
Objective 2:	Identify mitigation models and disseminate community wide.
Goal 2: Identify, prioritize, and achieve cost-effective mitigation projects for the prevention and protection of lives, property, and natural resources within Sarasota County.	
Objective 1:	Identify projects to mitigate losses and meet the strategies of mitigation "Best Practices" for:
	Acquisition of hazard prone property and conversion to open space.
	Retrofitting existing buildings and facilities.
	Elevation of flood prone structures.
	Vegetative management and soil stabilization.
	Infrastructure protection measures.
	Storm Water management.
	Minor structural flood control projects.
	Post-disaster code enforcement activities.
Objective 2:	Educate stakeholders in mitigation grant criteria.
Objective 3:	Maintain up-to-date project list and supporting documentation.
Objective 4:	Timely distribute grant opportunity information to stakeholders.
Goal 3: Promote the continued participation in the National Flood Insurance Program and the Community Rating System.	
Objective 1:	Continue to contribute, review, and support local ordinances related to the floodplain regulations within the National Flood Insurance Program and jurisdictional Floodplain Management Plans.
Objective 2:	Maintain, support, and improve administrative requirements at the local jurisdiction.
Goal 4: Maintain and develop effective "Public Outreach" activities.	
Objective 1:	Maintain citizen informational and contact web site.
Objective 2:	Maintain and distribute Federal Emergency Management Agency and National Flood Insurance Program literature to the citizens of Sarasota County.
Objective 3:	Appropriately advertise all Local Mitigation Strategy Working Group and Regional Floodplain Management Planning and Coordination Committee meetings.
Goal 5: Maintain and increase participation in the Sarasota County Local Mitigation Strategy Working Group.	
Objective 1:	Distribute annual invitation to non-participating jurisdictions.
Objective 2:	Identify Non-profit and Profit Non-Governmental Organizations and distribute invitations to participate.
Objective 3:	Identify Neighborhood Associations and distribute invitations to participate.
Goal 6: Support mitigation activities and research projects within Sarasota County and the surrounding local, State of Florida and Federal jurisdictions.	
Objective 1:	Participate in adjoining County Local Mitigation Strategy meetings.

Objective 2:	Identify and participate in mitigation activities and projects at all jurisdictional levels.
Objective 3:	Encourage research and demonstration projects within Sarasota County.

B. Identification and Analysis of Mitigation Actions

The 2021 Sarasota County Unified Local Mitigation Strategy plan identifies and analyzes a wide range of mitigation actions and projects for the natural hazards that may affect the jurisdictions encompassed by this plan. Projects range from public outreach to reducing the effects of natural hazards on new and existing buildings. A complete list of mitigation projects and actions may be found in Appendix D.

C. Identification and Analysis of Mitigation Actions: National Flood Insurance Program (NFIP) Compliance

The communities of both incorporated and unincorporated Sarasota County have adopted, and continue eligibility in, the National Flood Insurance Program, which allows all residents to purchase Federal Flood Insurance and qualify for emergency assistance. Sarasota County Schools and Sarasota Memorial Hospital are legal jurisdictions in the State of Florida and may also purchase federal flood insurance through the respective eligible community. Tables 16A through 16C below summarize each participating community's involvement in the National Flood Insurance Program and Community Rating System (CRS) program as of May 1, 2020. CRS status changes are reported by FEMA twice a year on May 1st and October 1st. Those changes are posted to a website under "Communities and their Classes" visit http://www.fema.gov/library/viewRecord.do?id=3629 Additional information is provided in each jurisdiction's respective Floodplain Management Plan that may be found in Annexes A –E.

Table 16A Community Rating System Class

Jurisdiction	Date Joined NFIP	CRS Class	% of Savings	Office Designated as Floodplain Administrator
City of North Port	1981	5	25	Neighborhood Development Services
City of Sarasota	7/30/71	6	20	Development Services
City of Venice	7/30/71	6	20	Engineering Department
Sarasota County Government	12/71	5	25	Building Official
Town of Longboat Key		6	20	Town Manager

Table 16B National Flood Insurance Policies & Claims

Jurisdiction	# of Policies	Claims	
		#	$
City of North Port	2,091	88	$992,285
City of Sarasota	8,128	888	$7,057,885
City of Venice	5,396	316	$1,075,358
Sarasota County Government	37,783	2282	$27,438,659
Town of Longboat Key	11,691	754	$5,429,665

Table 16C Flood Map Dates

Jurisdiction	Date of Current Effective Maps*
City of North Port	November 4, 2016
City of Sarasota	November 4, 2016
City of Venice	November 4, 2016
Sarasota County Government	November 4, 2016
Town of Longboat Key	8-4-2016 (Sarasota) March 17, 2014

* Effective and historic Flood Insurance Rate Maps (FIRMs) are available both on line at www.msc.fema.gov . The printing of paper Flood Insurance Rate Maps was discontinued by FEMA on October 1, 2009; however, these maps are required to be retained by the Floodplain Manager in each participating community. Paper FIRMs are also available at the following libraries for review Selby and Fruitville Libraries in Sarasota, Venice Library, Elsie Quirk Library in Englewood, and the North Port Library.

Draft Digital Flood Insurance Rate Maps were released to the unincorporated and incorporated areas of Sarasota on December 15, 2014. A 90 Day Appeal and Comment period occurred January 30, 2015 and ended on April 30, 2015. Upon FEMA review and approval these map products became effective November 4, 2016. A second round of federal funding was also issued to the unincorporated and incorporated areas of Sarasota County to perform a coastal and tidal influence study which began in 2014 and is expected to be completed in 2018. In addition, Sarasota County Stormwater will continue with updates to the areas that were not digitally prepared for these products and will keep the public informed with public outreach as new products are available for review and eventual adoption. FEMA Coastal RISK map and local study map updates were sent to Sarasota County 12-31-2019. 4 public meetings were held in March 2020. The map process can take 18-24 months before they become effective. We anticipate the maps to be updated in late 2021.

The digital maps will include public comments about the riverine flood insurance study updates performed by both Sarasota County and SWFWMD, and utilize

updated LiDAR (topography aerials) performed by the State of Florida Sarasota County has developed an online High Risk Flood Zone interactive mapping application that allows all interested parties to search for County parcels by address and determine if the parcel is intersected by a PRELIMINARY FEMA-designated High Risk Flood Zone. The Flood Zone interactive mapping application also includes the current FEMA Flood Zones so the user can compare the current flood zones vs the preliminary flood zones. The application results-window also provides links for more flood information and to the Sarasota County Property Appraiser. Additionally, the Property Appraiser website displays flood data on all property record cards with a link to the flood zone interactive mapping application. https://ags3.scgov.net/sarcoflood/

Local community flood study updates not subject to federal regulation 44 CFR have occurred and been adopted and used for regulation in unincorporated Sarasota County since 1994. This flood risk data and regulations associated are routinely made available to as a regular step of the permit process.

Each jurisdiction plans to continue to comply with the NFIP. Each participating jurisdiction will:

- Continue to enforce its adopted Floodplain Management Ordinance requirements, which include regulating all new development and substantial improvements in Special Flood Hazard Areas (SFHA).
- Continue to maintain all records pertaining to floodplain development, which shall be available for public inspection.
- Continue to notify the public when there are proposed changes to the floodplain ordinance or Flood Insurance Rate Maps.
- Maintain the map and Letter of Map Change repositories.
- Continue to promote Flood Insurance for all properties.

D. Implementation of Mitigation Actions

Each jurisdiction within the Sarasota County Unified Local Mitigation Strategy plan may submit mitigation actions and projects to the Chairperson of the LMS Working Group at any time during the calendar year. All mitigation actions and projects will be prioritized using a cost benefit analysis through an evaluation criteria worksheet that is reviewed by the LMS Chair. At the time of submission, each jurisdiction is required to complete and submit to the Chairperson of the LMS Working Group a Hazard Mitigation Project Evaluation Criteria Worksheet (Appendix C) in order for the project to be added to the Sarasota County Local Mitigation Strategy Working Group Project List.

The Hazard Mitigation Project Evaluation Criteria Worksheet located in Appendix C includes a wide range of information related to a specific mitigation action or project. This information includes, but is not limited to, the responsible department, potential financial resources, timeframe of completion and the goals achieved. Also included is a cost-benefit review of each mitigation action or project. Using the Hazard

Mitigation Project Evaluation Criteria Worksheet projects are added by the Chairperson after careful consideration to cost benefit. If the cost of the project exceeds the overall long-term benefit it may not be considered for addition to the project list. Ultimately, it is the responsibility of each jurisdiction's representative of the LMS Working Group to keep the Chairperson informed on the status of their mitigation actions and/or projects. At a minimum, the LMS Working Group will conduct a review of the project list at the regularly scheduled December quarterly meeting to coincide with the January submissions of the project list to the Florida Division of Emergency Management.

As a benchmark for progress, completed mitigation actions and projects will be removed from the project list and placed in the Sarasota County Local Mitigation Strategy Working Group Successful Mitigation Projects booklet (Appendix E). Projects that are deferred will remain on the project list and a description will be listed as to why the project was deferred. A project that is identified to be deleted from the project list will remain on the project list for one reporting cycle along with a description as to why the project will be removed.

Jurisdictions wishing to submit a grant application for a specific action or project will have the project reviewed by the Project Ranking Committee Mitigation actions and projects receive their final prioritization by the Project Ranking Committee for externally funded projects by the State of Florida and/or other Federal sources. Upon the completion of the ranking process, a general vote of the members of the LMS Working Group will be conducted to approve the ranking process.

E. Multi-Jurisdictional Mitigation Actions

Identifiable actions and projects for each jurisdiction are in Appendix D. As a benchmark for progress, successful projects are identified in Appendix E, and deferred projects remain on the project list with a brief description as to why the project was deferred. A project that is identified to be deleted from the project list will remain on the project list for one reporting cycle along with a description as to why the project will be removed.

In July 2020, the LMS Working Group developed Smartsheet to better track and update the LMS Project List. Using Smartsheet allows for real time updates to be completed by all partners within the LMS Working Group. The Smartsheet also allows for photos to be added for improved project documentation.

Section V: Plan Evaluation and Maintenance

A. Monitoring, Evaluating, and Updating the Plan

Monitoring

The Sarasota County Emergency Management Division has the primary

responsibility of monitoring and supporting the LMS Plan. This effort shall include technical and clerical support for the benefit of the LMS Working Group. The division will monitor the status of LMS-supported projects throughout the year; and on a semi-annual basis (i.e., January and June) will assess the Plan against the LMS

Working Group and the Florida Division of Emergency Management established evaluation criteria to determine if any changes to the Plan are necessary. If, based on this cursory review, the Plan requires a formal evaluation and update; the LMS Working Group Chair will schedule a LMS Plan Committee meeting. Additionally, if a significant event occurs in Sarasota County, for which an LMS-supported project may be eligible for grant funding, a special meeting of the LMS Plan Committee will be scheduled by the Chair.

Evaluating

If no potential changes have been identified in the Monitoring phase, the LMS Plan Committee will meet at least once annually to review and evaluate the LMS Plan against FDEM and LMS Working Group established evaluation criteria. The annual review will take place during the first quarter of each calendar year and no later than the second quarter of each calendar year to complete the review process prior to the onset of hurricane season.

The LMS Working Group evaluation criteria utilized by the Sarasota County Emergency Management Division and the LMS Working Group and/or the LMS Plan Committee are not limited to, but shall include:

1. Are there any new or changing laws, regulations or policies that require changes to the Local Mitigation Strategy?

2. Have there been any mandates from Federal, State, or local agencies that require changes to the Local Mitigation Strategy?

3. Do the goals and objectives of the LMS Working Group address current and expected conditions for Sarasota County?

4. Has the nature, magnitude, and/or type of risks changed for Sarasota County?

5. Are current resources appropriate for implementing the plan?

6. Are there implementation challenges, such as technical, political, legal financial, or coordination issues with other agencies?

7. Have the outcomes occurred as expected?

8. Are the jurisdictions and other partners participating as originally planned?

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

Updating

In the event that the LMS Plan Committee determines an update or change to the LMS Plan is required, the committee will prepare the update or change, along with supporting documentation, for this information to be presented to the LMS Working

Group. The presentation for changes may be made at a regularly scheduled meeting or a special meeting scheduled by the Chair. The significance of the update or change will determine the LMS Working Group course of actions. If the actions are minor (determined by County administrator, City/Town manager or Working Group Chair) the LMS Working Group voting members can approve the update or change, and it will be adopted accordingly. If the actions are major (determined by County administrator, City/Town manager or Working Group Chair) the LMS Working Group voting members may approve the update or change, and each jurisdiction will complete their respective Resolution process.

As part of the annual review and update process for the five-year cycle, Table 17 identifies the tentative meeting date, attendees, and the minimum agenda items to be discussed.

Table 17 LMS Working Group Schedule

DATE	ATTENDEE	AGENDA ITEM
March 2021	Working Group	Review Projects & Action Items Review 27-P annual requirements
June 2021	Working Group	Review Jurisdiction Planning Mechanisms
September 2021	Working Group	Review Public Outreach Strategy
December 2021	Working Group	Review Risk Assessment
March 2022	Working Group	Review Projects & Action Items Review 27-P annual requirements
June 2022	Working Group	Review Jurisdiction Planning Mechanisms
September 2022	Working Group	Review Public Outreach Strategy
December 2022	Working Group	Review Risk Assessment
March 2023	Working Group	Review Projects & Action Items Review 27-P annual requirements
June 2023	Working Group	Review Jurisdiction Planning Mechanisms
September 2023	Working Group	Review Public Outreach Strategy
December 2023	Working Group	Review Risk Assessment
March 2024	Working Group	Review Projects & Action Items Review 27-P annual requirements Establish Planning Committee for Plan Update
April 2024	Planning Committee	Review Previous Planning Process
May 2024	Planning Committee	Draft Update Planning Process
June 2024	Working Group	Review Jurisdiction Planning Mechanisms
July 2024	Planning Committee	Review Identification of Hazards
August 2024	Planning Committee	Review Profile Hazards
September 2024	Planning Committee	Review Profile Hazards
September 2024	Working Group	Review Public Outreach Strategy
October 2024	Planning Committee	Review Profile Hazards
November 2024	Planning Committee	Review Vulnerability Assessment
December 2024	Planning Committee	Review Vulnerability Assessment
December 2024	Working Group	Review Risk Assessment
January 2025	Planning Committee	Review Repetitive Loss Program
February 2025	Planning Committee	Review Structures/Economic Loss

March 2025	Planning Committee	Review Development Trends
March 2025	Working Group	Review Projects & Action Items Review 27-P annual requirements
April 2025	Planning Committee	Review Goals and Objectives
May 2025	Planning Committee	Review Mitigation Actions
June 2025	Planning Committee	Review National Flood Insurance Program
June 2025	Working Group	Review Jurisdiction Planning Mechanisms
July 2025	Planning Committee	Review Plan Maintenance Process
August 2025	Planning Committee	Complete Draft for Review by Working Group
September 2025	Planning Committee	Review Draft Changes and Amendments
September 2025	Working Group	Review Public Outreach Strategy
September 2025	Planning Committee	Submit Draft Plan for Review
October 2025	Working Group	Review Risk Assessment
December 2025	Jurisdictions	Board Resolutions

Incorporation into Existing Planning Mechanisms

As part of the annual series of quarterly meetings of the Sarasota County Local Mitigation Strategy Working Group, members will dedicate at least one quarterly meeting to ensuring that the goals, objectives, priorities, projects, and actions established in this plan are maintained or incorporated into participating jurisdictions planning activities. In the event of an activity not meeting the established goals, objectives, priorities, projects, and actions, it is the responsibility of each jurisdiction member to ensure the appropriate changes are made through their individual jurisdiction change process. While not limited to, Table 18 identifies other local planning mechanisms available for incorporating the mitigation requirements of the mitigation plan. At a minimum, the planning mechanisms listed in Table 18 will be reviewed at the designated quarterly meeting.

Table 18 LMS Incorporation into Existing Planning Mechanisms

Current Plans	City of North Port	City of Sarasota	City of Venice	Sarasota County	Sarasota County Schools	Sarasota Memorial Hospital	Town of Longboat Key
Comprehensive Plan	X	X	X	X	X	X	X
Floodplain Management Plan	X	X	X	X			X
Codes & Ordinances	X	X	X	X			X
Sarasota 2050	X	X	X	X	X	X	X
Post Disaster Redevelopment Plan	X	X	X	X			X
Local Mitigation Strategy Plan	X	X	X	X			X
Comprehensive	X	X	X	X	X	X	X

Emergency Management Plan							
Capital Improvement Project List	**X**	**X**	**X**	**X**	**X**	**X**	**X**

The responsibility of identifying the appropriate methods or actions of incorporating the mitigation strategy into existing planning mechanisms rest with each jurisdiction's LMS Working Group representative. The process of incorporating the Local Mitigation Strategy into existing planning mechanisms begins with an audit by each jurisdiction of their plans to determine which mechanism is due for a required review or which mechanism was determined by their respective Administration for review in the upcoming year. This information is presented to the LMS Working Group at the regularly scheduled quarterly meeting to assist each jurisdiction in creating a strategy for incorporating the Sarasota County Unified Local Mitigation Strategy plan into these planning mechanisms. State of Florida Statutes and Administrative Law require specific procedures to enact change in many of these planning mechanisms. Ultimately, it is the responsibility of each jurisdiction to implement the respective changes to their planning mechanisms, and it is the responsibility of the LMS Working Group to support and assist when possible, other members of the LMS Working Group in implementing these changes.

Each jurisdiction (City of Venice, City of Sarasota, City of North Port, Town of Longboat Key and Sarasota County) has agreed to follow the same process of integration as outlined above. The audit phase completed by the LMS Working Group representative from each municipality identifies plans where the LMS can be further integrated into additional planning mechanisms. As a group the LMS Working Group is able to support each other to help guide LMS integration for greater regional consistency. Integration of the LMS into additional policies, programs and planning mechanisms are not formally adopted until approved by the board of each municipality.

One of the key advantages of the Sarasota County Local Mitigation Strategy Working Group is that it is made up of a diverse group of job specialties ranging from professional planners, engineers, public works professionals, emergency management professionals and educators that operate on a daily basis in a diverse group of business environments. Membership includes representatives that range from a zoning official and public works professional whose collateral duties are that of the Community Rating System coordinator, two city engineers that are also the floodplain managers, and emergency management professionals who are all responsible for several other planning mechanisms. Having representatives from each municipal (City of Venice, City of Sarasota, City of North Port, Town of Longboat Key and Sarasota County) planning agencies allows for the LMS Working Group to continuously look at plans for incorporating LMS. Integration into additional and or new plans is achieved through a collaborative effort among the LMS Working Group. Representatives from each agency in the LMS Working Group are able to bring plans, policies and programs to the group for assistance with integration of the LMS. Final adoption of individual plans, policies and programs are done at the municipal level by each entity's respective board or council with the following differences:

- **Sarasota County has a 5-member Board of County Commissioners**

(Commission/County Administrator form of government)

- **City of Sarasota has a 5-member City Commission that includes a Mayor and Vice-Mayor (City Commissioner/City Manager form of government)**
- **City of North Port has a 5-member City Commission that includes a Mayor and Vice-Mayor (City Commissioner/City Manager form of government)**
- **City of Venice has a 7-member City Council that includes a Mayor and Vice-Mayor (Council/Manager form of government)**
- **Town of Longboat Key has a 7-member Town Commission that includes a Mayor and Vice-Mayor (Town Commission/Town Manager form of government)**

The LMS Working Group has demonstrated the incorporation of the mitigation strategy into other planning mechanisms by combining the Local Mitigation Strategy Plan with each jurisdiction's Floodplain Management Plan in this document. In previous years, these planning tools were separate documents with each requiring their own jurisdictional Board resolution. While this is an initial step, it has avoided the duplication of effort, duplication within the documents, and the requirement of two distinct board resolutions. The LMS Working Group and the Regional Floodplain Management Planning and Coordination Committee will continue to identify areas of common interest and requirements that can be documented in the LMS Plan to avoid further duplication and present a more refined document in the future.

Many of the members of the LMS Working Group were directly involved in the updating of the Sarasota County Comprehensive Emergency Management Plan 2019 edition, in which the jurisdiction description in this plan is based upon. Additionally, the risk assessment in the Comprehensive Emergency Management Plan was initially based upon the 2010 LMS Plan and was modified to create an up-to-date risk assessment. This new risk assessment found in the Comprehensive Emergency Management Plan was then utilized to create the foundation for this updated LMS plan.

Another keen aspect of the diversity within the LMS Working Group membership is all the County and municipality representatives are involved in the updating and maintenance of each jurisdiction's Comprehensive Plan. Florida Statute requires each jurisdiction to submit an Evaluation and Appraisal Report that has been approved by their respective Board to the Florida Department of Community Affairs for approval. Currently, the Cities of North Port and Venice and Sarasota County are in this review process, and the City of Sarasota and Town of Longboat Key will begin the review process in the upcoming year. These offsetting review cycles work to the advantage of the LMS Working Group by allowing the group to support one or two jurisdictions in the review process, instead of all at once.

Continued Public Involvement

The Sarasota County Local Mitigation Strategy Working Group is dedicated to public involvement in the hazard mitigation planning and review process and continues to seek opportunities to increase public participation. In addition to Goal 4, and associated objectives of the Local Mitigation Strategy Goals and Objectives, the Working Group will continue to advertise all quarterly and special meetings, update and maintain comprehensive mitigation video, and form partnerships with other related entities to keep

the public informed and create greater involvement. At a minimum, public outreach plans and opportunities will be discussed at one of the quarterly meetings. In addition, the Sarasota County web site will be available with the most up-to-date documentation and points of contact for the public.

The partnership forged by the LMS Working Group and the Regional Floodplain Management Planning and Coordination Committee will offer an increased opportunity for success in generating public involvement during activities such as the adoption process of the new Flood Insurance Rate Maps for Sarasota County. This partnership has also created a joint public outreach committee whose mission is to integrate the mitigation and Community Rating System outreach activities into one, to reduce expenditures and reach a greater number of community residents.

Section VI: Plan Adoption

The Sarasota County Clerk of the Circuit Court and the Clerk of each municipality shall maintain original signed copies of the resolutions adopting the LMS Plan Update. All partners must follow the participation requirements described in Section I to remain in good standing with the Sarasota County Local Mitigation Strategy. An executed adoption resolution along with compliance with LMS participation rules qualifies partners to submit qualified mitigation projects for federal funding consideration.

When this plan is approved by FDEM and FEMA the Sarasota County Board of County Commissioners will adopt the 2021 Sarasota County LMS. Following adoption each municipality and the School Board will also adopt the 2021 LMS. Each resolution will be available in Appendix A.

Benefits of Adoption

The Sarasota County LMS is a multi-jurisdictional plan that assesses the vulnerability of the County and its jurisdictions to hazards and elaborates on the risk associated with each type of hazard. It identifies and evaluates local mitigation efforts and their usefulness, as well as providing guidance for implementation at the jurisdictional level. Through adoption of this Plan, the County and its jurisdictions will be eligible for Federal funds to carry out mitigation actions. Adoption of this plan will provide the following benefits to both county and municipal governmental entities:

- Compliance with Administrative Rules 27P-6, Florida Administrative Code (F.A.C.), requirements for local comprehensive emergency management plans to identify and describe hazard mitigation.
- Universal points from the National Flood Insurance Program's (NFIP) Community Rating System (CRS) Program for developing a Floodplain Management Program, which may help further reduce flood insurance premium rates for property owners.
- Access to the Federal Emergency Management Agency's (FEMA) Federal Mitigation Assistance grant programs.

- Compliance with the Disaster Mitigation Act of 2000.
- Identify and prioritize projects for funding under the State of Florida's Residential Construction Mitigation Program, to help reduce losses from repetitive flooding damage.
- Set forth the guiding principles with which both the County and municipal governmental entities of Sarasota County will address the issue of all hazard mitigation.
- Identify the known hazards to which the County is vulnerable and the range of hazard impacts and delineate the individual vulnerabilities of the various jurisdictions and population centers within the county.
- Develop a detailed method by which Sarasota County (municipalities, County government, and partners) can evaluate and prioritize proposed mitigation projects along with new federal requirements.
- Ensures jurisdictional plans are consistent and supportive.
- Expedites the receipt of pre-disaster and post-disaster grant funding; and
- Demonstrates a firm commitment to improving community health and safety.