Local Mitigation Strategy

for

Seminole County

and its

Municipalities

SEMINOLE COUNTY
FLORIDA'S NATURAL CHOICE

2020-2025

Contents

Executive Summary

Seminole County is threatened by a variety of natural, technological, and human-caused hazards. These hazards may endanger the health and safety of the community, jeopardize its economic vitality, and threaten the quality of its environment. The public and private sectors of Seminole County have joined together to create the Seminole County Local Mitigation Strategy Working Group (LMS Working Group) to undertake a comprehensive planning process. This process analyzes all the hazards that affect Seminole County while developing effective mitigation measures to reduce the overall impact to the community.

This document encompasses a multi-jurisdictional approach to hazard mitigation planning. The planning process was conducted through the coordinated and cooperative effort of several local governments including City of Altamonte Springs, City of Casselberry, City of Lake Mary, City of Longwood, City of Oviedo, City of Sanford, City of Winter Springs, and Seminole County. Seminole County's seven municipalities have formally adopted the current Seminole County Local Mitigation Strategy. Upon approval of this update to the Local Mitigation Strategy a new resolution will be formally adopted.

The LMS Working Group has also conducted a significant amount of research to identify the hazards threatening Seminole County in order to estimate relative risk posed to the County by those hazards. For each hazard, an impact analysis was completed which evaluated impacts to the public, property, environment, and program operations. A consequence analysis was completed that examined the potential consequences in relationship to the economy, responder safety, continuity of operations, property/facilities/infrastructure, and public confidence in the jurisdictions' governance[1]. The information in this document has been used by the LMS Working Group to prioritize its planning efforts to assess the vulnerabilities of the facilities and neighborhoods of Seminole County to the impacts of future disasters.

Proposed projects and programs aimed at reducing the impacts of future disasters are called "mitigation initiatives" in this document. Mitigation initiatives have been developed and will continue to be developed by the LMS Working Group as new hazard research is conducted, risk levels are increased, and as resources and opportunities become available. Implementation of this strategy is essential and will continue to help make participating communities more resistant to the effects of major disasters.

This strategy will continue to be updated and expanded in the future to encompass changes in characteristics of hazards, experiences with disasters, and changing conditions of participating jurisdictions. The update process and future editions of this mitigation plan will be used to continue to inform and involve the public and other interested groups to improve the overall resilience of the whole community.

General

Introduction

Mitigation is any action taken to permanently reduce or eliminate the risk to people and their property from the effects of hazards. The key to successful hazard vulnerability reduction through mitigation is to implement a well-conceived planning process. The LMS Working Group was established to encourage the

[1] 2016 EMAP Standard 4.1.1/4.1.2

public, private, and non-profit sectors of the community to become more resistant to the impacts of future disasters. The LMS Working Group has been tasked with a comprehensive evaluation of the vulnerabilities of Seminole County for all-hazards in order to identify ways to make the community more resilient to the impacts of disasters.

Purpose

The primary purpose of the LMS is to establish an on-going process that encourages hazard mitigation as part of a daily routine for Seminole County. The LMS process encouraged Seminole County to assess its vulnerabilities to all types of hazards; identify a comprehensive list of goals, objectives, plans, programs and projects in order to decrease or eliminate the effects of the identified vulnerabilities; and then prioritize the implementation of the selected initiatives.

Planning Process

The LMS Working Group is comprised of all local government agencies within Seminole County, business leaders, community organizations, inter-faith groups, healthcare facilities, school board personnel and citizens.

On a periodic basis, the LMS Working Group solicits the continuing involvement in mitigation planning by each jurisdiction in Seminole County. Jurisdictions are encouraged to identify agencies and organizations that should represent the jurisdiction on the LMS Working Group. Written solicitation was issued by Seminole County's Office of Emergency Management to local jurisdictions, adjacent counties, and community organizations to attend a LMS Planning Team Kick-Off Meeting on March 28, 2019. Subsequent meetings were held on April 25th, June 13th, July 25th, August 22nd, and September 11th, 2019. Organizations not directly associated with the state, regional or local governments, such as large businesses and volunteer agencies and the public are solicited on an annual basis to join the planning process, as well as through periodic public information efforts through the LMS Working Group. Organizations that respond and attend the meetings are considered to be participants in the Seminole County LMS Planning Process and requested to engage in the meetings and planning activities necessary to develop, maintain and implement the plan.

Participating Organizations

Participating local government agencies are registered as organizations under the appropriate jurisdiction, as are other groups, associations, districts, regions, and agencies, both public and private, which serve the jurisdiction they are headquartered in.

Seminole County's multi-jurisdictional planning approach enables all interested organizations, groups, and agencies, regardless of their total number, to be directly and actively involved in the planning within a limited number of jurisdictions. Seminole County has involved seven jurisdictions defined as active participants in the planning process. The active planning participants include: City of Altamonte Springs, City of Casselberry, City of Lake Mary, City of Longwood, City of Oviedo, City of Sanford, City of Winter Springs, and Seminole County.

This is an all-inclusive list for all the entities within Seminole County required to approve the LMS as a multi-jurisdictional plan. Participation will be identified by attendance and active participation in the process. Participating municipalities are the same jurisdictions which participated in the 2015 plan update and have been consistently active in the process since that time.

This LMS Planning Team has had participation by all the entities listed below to the extent that they have attended the meetings, participated, and contributed to the update process of gathering data, or providing insight and information all in the effort to better mitigate Seminole County.

Name	Agency	Position
Lucius Cushman	Citizen	Citizen
Rob Wolf	Citizen	Citizen
Anthony Apfelbeck	City of Altamonte Springs	Director of Building & Fire Safety
Mark Gisclar	City of Casselberry	Public Works Director
Danielle Koury	City of Lake Mary	Engineer
Miguel Conde	City of Lake Mary	Assistant City Engineer
David Hamstra	City of Longwood	Pegasus Engineering
Michael Peters	City of Longwood	Fire Chief/ Emergency Manager
Jeff Buchanan	City of Oviedo	Fire Chief
Nichlaus Dorey	City of Oviedo	Division Chief
Craig Radzak	City of Sanford	Fire Chief
Michael Cash	City of Sanford	Planning Engineer/ Floodplain Manager
Bryant Smith	City of Winter Springs	Public Works Engineer
Cliff Frazier	Florida Forest Service	Wildfire Mitigation Specialist
Avi Bryan	Seminole County Emergency Management	Associate
Kathryn Valentine	Seminole County Emergency Management	Mitigation & Recovery Coordinator
Aaron Funk	Seminole County Emergency Management	Operations Manager
Alan Harris	Seminole County Emergency Management	Chief Administrator of Emergency Management
Josh Holder	Seminole County Emergency Management	Associate
Justin Nguyen	Seminole County Emergency Management	Associate
Steven Lerner	Seminole County Emergency Management	Senior Planner
Marie Lackey	Seminole County Public Works	Watershed Management Coordinator

Public Participation

At the start of the planning process, the Seminole County Office of Emergency Management (OEM) requested citizen members to join the LMS Planning Team using multiple avenues. The OEM requested

citizen representative suggestion from the Board of County Commissioners and also utilized social media to invite citizens to become part of the LMS Planning Team for the 2020-2025 update.

Several public information activities will be undertaken to allow for public comment on the draft plan. Every LMS Planning Team meeting was posted on the Prepare Seminole online calendar of events. The LMS Working Group will hold a public meeting to solicit input from citizens in person, and advertisements for this meeting will be shared through social media, the Prepare Seminole website, and a local newspaper advertisement. For the update of this document, a link will be added to www.prepareseminole.com to continue to allow the public to submit written input and comment for the LMS update. Comments from the public can be made through the Office of Emergency Management or directly via email to the LMS Coordinator.

The final opportunity for public comment will take place at the Board of County Commissioners meeting when the plan is presented for formal adoption.

Once the plan is adopted the approved plan will continue to be made available via the website for future review and comment. Public comment on the plan will continue to be encouraged on www.prepareseminole.com. In addition to seeking public comment and input to the overall planning process and the draft plan, many of the participating agencies and organizations in the LMS Working Group individually conduct efforts to inform the public about the impacts of disasters, hazard mitigation and the mitigation planning process.

Upcoming community outreach efforts will focus on including the precepts of mitigation in current public information activities, and to make the public aware of this planning process, its goals and objectives, and opportunities for public input at every possible occasion.

The Seminole County LMS Working Group will continue efforts to develop and implement a year-round program to engage the community in the LMS planning process and to provide them with mitigation-related information and educations. These efforts will be to continually invite public comments and recommendations regarding the mitigation goals for the community, the priorities for the planning, and the unique needs of each community for mitigation-related public information.

Update Process

The current LMS Working Group, participants and attendees came together to update the plan to meet the federal and state LMS Plan requirements. Using the 2015 plan as a foundation, a review of every section of the Seminole County LMS was conducted and the plan was revised using the *2018 Florida Local Mitigation Strategy Crosswalk* and the *2018 Florida Division of Emergency Management Local Mitigation Strategy Update Manual*.

During the 2019 Seminole County LMS update the following actions were taken by the LMS Working Group:

A LMS revision kick-off meeting with the LMS Planning Team was conducted to confirm the list of hazards as a starting point for the update of the plan.

The following sections were reviewed and updated:

General Section:
This section includes the plan introduction, purpose, and planning process. This section was revised to reflect the current approach and processes of the Seminole County LMS Working Group.

Risk Assessment Section:
This section includes the hazard analysis and assessing the vulnerabilities of Seminole County. This section was updated to reflect current documented history and outlook of the hazards that could impact Seminole County. Each section was revised to reflect updated hazard events and to reflect current vulnerabilities. The Seminole County LMS Working Group determined for continuity purposes the LMS hazards would remain consistent with the Seminole County Comprehensive Emergency Management Plan (CEMP).

Mitigation Goals Section
This section includes the mitigation goals, specific objectives under each goal, National Flood Insurance Program (NFIP) compliance data, and the process for mitigation project implementation. Each section was revised to reflect current updated goals for the LMS, updated NFIP data, and the revised process for the implementation of the mitigation projects.

Plan Maintenance Section
This section includes the monitoring and evaluation process for the LMS, the update process for the LMS, and how the LMS is implemented through existing plans and procedures. This section was revised to reflect the current processes for the monitoring, evaluation, and update for the LMS. The implementation of existing plans and processes for LMS were reviewed and revised to reflect the current implementation process.

LMS Working Group By-Laws Appendix
The LMS Working Group By-Laws were revised to reflect the current policies and guidelines of the Seminole County LMS Working Group.

The draft revisions of the LMS sections that required updates were disseminated to all LMS Working Group members for review and comment.

The LMS Working Group will continue to send out annual written invitations to everyone who may have a stake in the process, and will include any additional people or groups as needed and identified, as required by Florida Administrative Rule 27P-22.

Risk Assessment

Hazards

The technical planning process begins with hazard identification. In this process, the LMS Planning Team and representatives of individual jurisdictions identify all of the natural, technological and human-caused hazards that could threaten Seminole County. The following hazards were selected by the LMS Planning Team for the 2020-2025 LMS:

- Agriculture (Exotic Pests and Disease)
- Civil Disorder
- Critical Infrastructure Disruption
    - Communication
    - Power
    - Utility
- Cyber Security/Cyber Attack
- Disease and Pandemic Outbreak
- Drought and Water Shortage
- Earthquakes
- Extreme Heat
- Financial Collapse
- Fires/ Wildfires
- Flooding
- Hazardous Materials (Fixed Site and Transportation)
- Mass Gatherings/ Planned Events
- Mass Migration/ Repatriation
- Severe Weather
    - Hail
    - Lightning
    - Micro-bursts
    - Thunderstorms
- Sinkholes/Land Subsidence
- Terrorism
- Tornadoes
- Transportation Accident
    - Aircraft
    - Rail
    - Mass Casualty Incident
- Tropical Cyclones
    - Hurricanes
    - Tropical Storms
- Violent Acts (Non- Terrorism)
- Winter Storms/ Freezes

As hazards are identified for Seminole County, participants can make an estimate of the relative risk each possesses to the community. This section details the natural and human-caused hazards to which Seminole County is vulnerable.

The Seminole County LMS Planning Team has incorporated hazard history that was available. In the future, the LMS Planning Team will incorporate continued hazard history for inclusion in the LMS.

Relative Risk

Each hazard described in this section is ranked by level of relative risk based on probability and severity. These scales are defined below:

Probability Scale- based on historical data this scale takes into effect the likelihood that Seminole County will be impacted by the hazard within a given period of time

- 0=None- Although the hazard is noted, no previous occurrence has been recorded and the hazard is considered no threat to the jurisdiction
- 1=Low- Some potential for the hazard to exist once every 10 years or more
- 2=Moderate- Potential for the hazard to exist once every 5-10 years
- 3=High- Potential for the hazard to exist once every 1-5 years

Severity Scale- based on the magnitude of the hazard and the on-going mitigation measures

Magnitude

Human Impact (Possibility of death or injury)

- 0=None- No possibility of death or injury
- 1=Low- Some potential for death or injury
- 2= Moderate- Potential for death or injury
- 3=High- Strong potential for death or injury

Property Impact (Physical losses and damages)

- 0=None- No possibility of physical loss and/or damage
- 1=Low- Some potential for physical loss and/or damage
- 2=Moderate- Potential for physical loss and/or damage
- 3=High- Strong potential for physical loss and/or damage

Spatial Impact (Amount of geographic area affected)

- 0=None- No geographic area affected
- 1=Low- Up to 25% of total land mass affected
- 2=Moderate- 25%-50% of total land mass affected
- 3=High- 50% or more of total land mass affected

Economic Impact (Interruption of business services)

- 0=None- No interruption of business services
- 1=Low- Some potential for business service interruption
- 2=Moderate- Potential for business service interruption

- 3=High- Strong potential for business service interruption

Mitigation

Preparedness (Specialized Plans)

- 0=None-N/A
- 1=High- Specific plan dedicated to this hazard
- 2=Moderate- Hazard is addressed in other plans
- 3=Low- No specific plan for hazard

Training and Exercising (Multi-year Training and Exercise Planning)

- 0=None- No training or exercising on this hazard
- 1=High- Yearly training and exercising
- 2=Moderate- Training and exercising completed every other year
- 3=Low- Rarely trained or exercised

Logistics (Availability of specialized equipment, teams or support)

- 0=None- No specialized equipment, teams, or support
- 1=High- Highly specialized equipment, teams or support
- 2=Moderate- Minimal specialized equipment, teams or support
- 3=Low- Very few teams, equipment and support available

Relative Risk Calculation/Scale

Probability x (Magnitude-Mitigation) = Relative Risk

Low= 0%-30%	Medium= 31%-60%	High= 61%+

The following Hazard Analyses were developed through research of historical occurrences, input from outside agencies, and through several planning meetings involving stakeholders. Stakeholders at the plan review meetings discussed and determined the level of severity in the different impact categories, used historical knowledge to determine frequency of occurrence, and used knowledge of current operations and procedures to determine mitigation measures. After these summary sheets were developed, they were disseminated to the LMS Working Group to gather feedback and receive approval.

Hazard Analysis

Hazard: Agriculture (Exotic Pests and Diseases)

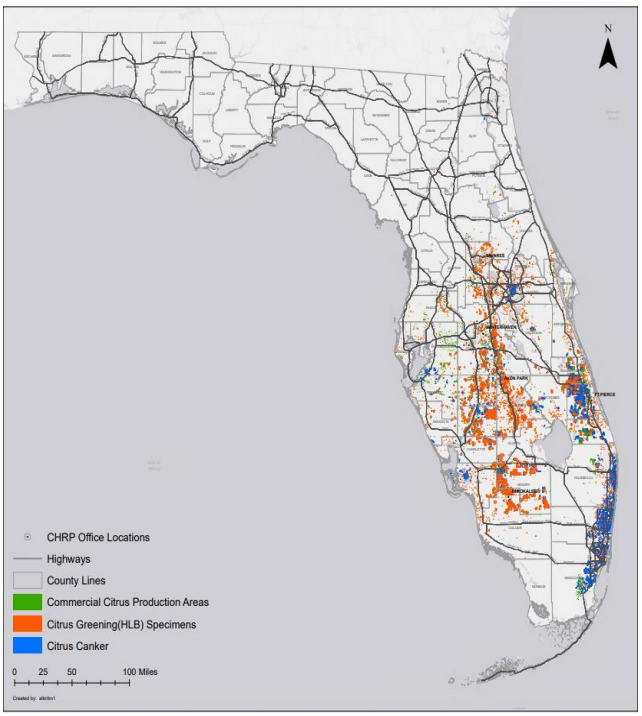
Probability of Occurrence	1-5 Years
Risk	17%
Relative Risk	Low
Description	Agriculture incidents in Seminole County are quite rare and historically have not caused much damage to the community. In coordination with Seminole County's Agriculture Extension Office, Emergency Management is made aware of incidents involving crops and exotic pest outbreaks that may pose a threat to the community. On-going crop diseases present a threat to the agriculture community in Seminole County.
Extent	Ranges from small affected area of crops, to all existing crops affected by disease.
Location	Much of the agricultural foundation of Seminole County is located in the northwestern portion of the county, but the effects of an incident may impact the entire county.
Significant Occurrences	(1982): The City of Longwood - toad infestation due to heavy rains (1995): Citrus Canker detected in Seminole County (1999): The City of Altamonte Springs experienced mice infestations (2007): Huanglongbing (HLB), also known as Citrus Greening, confirmed in Seminole County. Between 2008-2017, Seminole County citrus filled 157,000 boxes but declined to 29,000 boxes in less than one decade. Spatial extent - while the direct impacts may be less than 25%, the indirect effects of an incident could be county-wide

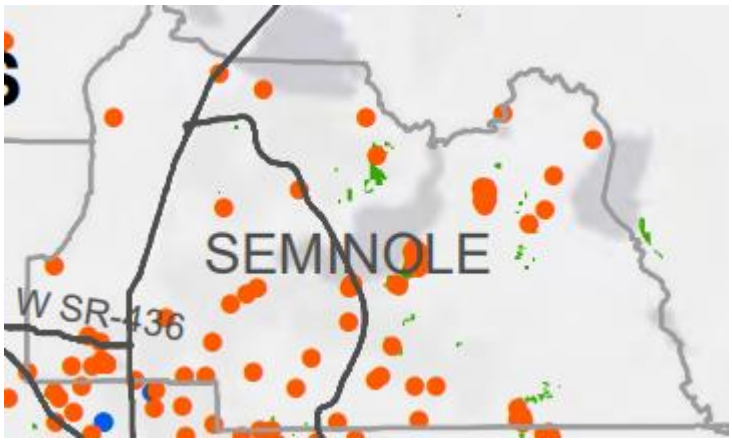
Impacts/ Consequences

Human	Moderate Impact Increased possibility of death or injury to agriculture diseases and risk to contaminated food crops.
Property	Low impact to critical infrastructure and property resulting in physical losses. Historically this hazard has more of an impact on crops. Exotic pests can become a nuisance to property owners if not properly treated.
Environment	Hazard can have broader negative impacts to local ecosystems such as habitat loss and biodiversity degradation. The 2018 National Climate Assessment reports that with a

	changing climate, the risk associated with disease-causing agents and parasites is expected to increase and that the risk of environmental impacts may increase over time.
Economic	Moderate Impact The community may experience a moderate economic loss, primarily for the farming and agriculture industry, as a result of a pest or disease outbreak.
Program Operations	The County Comprehensive Emergency Management Plan (CEMP) covers basic response and recovery capabilities for exotic pests and diseases that are agriculturally based.
Responders	Depending on the nature of the pest or disease, responders may require certain protective equipment and tools.
COOP	An agriculture incident would have minimal impacts on COOP Plan because this hazard would not disrupt normal procedures.
Property/ Facilities/ Infrastructure	There would likely be little impact to critical infrastructure, but privately owned farmland has the potential to be devastated.
Public Confidence in the Jurisdiction's Governance	Public confidence would depend on how satisfied those impacted are with the local response.
	Risk Reduction Through
Mitigation	Types of mitigation projects in the county include: Larvacide, adulticide, aerial spray Collection and destruction of infected plant species
Plans	Mosquito Control Procedures Rabies Procedures

Florida Department of Agriculture – Statewide Citrus Canker and Citrus Greening Map (2017):





Total Crops in Seminole County (2017):

Crop	Acres	
Vegetables (harvested for sale)	26	https://www.nass.usda.gov/Publications/AgCensus/2017/Full_Report/Volume_1,_Chapter_2_County_Level/Florida/st12_2_0001_0001.pdf
Citrus (commercial acres)	319	https://www.nass.usda.gov/Statistics_by_State/Florida/Publications/Annual_Statistical_Bulletin/2018/B1thru13Cit-2018.pdf
Orchards	664	https://www.nass.usda.gov/Publications/AgCensus/2017/Full_Report/Volume_1,_Chapter_2_County_Level/Florida/st12_2_0001_0001.pdf
Nurseries (stock crops)	127	https://www.nass.usda.gov/Publications/AgCensus/2017/Online_Resources/County_Profiles/Florida/cp12117.pdf
Pastureland	25,272	https://www.nass.usda.gov/Publications/AgCensus/2017/Full_Report/Volume_1,_Chapter_2_County_Level/Florida/st12_2_0008_0008.pdf

Hazard: Civil Disorder

Probability of Occurrence	6-10 Years
Risk	32%
Relative Risk	Medium
Description	Events of civil disorder are classified as armed violence, riots, protests, and threats against military or the government. The proper planning and prevention methods aid in the mitigation of civil disorder events. For threats of civil disorder utilizing armed violence, it is likely that a joint jurisdictional management of operations will take effect, coordinated at the county level between the Sheriff's Office, Florida Department of Law Enforcement (FDLE), and the Office of Emergency Management.
Location	Not specific to any geographic areas of Seminole County
Significant Occurrences	(2012): February 26 – Shooting of 17 year old, Trayvon Martin in Sanford. There were public protests, school walk outs, and thousands of planned rallies across the nation. The Seminole County EOC provided support for seven weeks in the trial phase of the event. While spatial extent of the hazard would be 25% or less, civil disorder could have county-wide effects.

Impacts/ Consequences

Human	Moderate Impact because the hazard is human in nature; tension between the public, law enforcement, judicial system, and media would be heightened. Disorder can also lead to violent acts potentially impacting the local population.
Property	Moderate Impact – there would be little impact in general, but protests and riots have the potential to cause localized problems.
Environment	Very little to no impact on the environment.
Economic	Moderate Impact – Depending on the population involved, strikes, protests, and riots could have negative impacts to economic prosperity including employees missing work.
Program Operations	A joint jurisdictional management of operations will likely take effect, coordinated at the County level between the Sheriff's

	Office, Florida Department of Law Enforcement (FDLE), and the Office of Emergency Management.
Responders	Those in Law Enforcement may need additional protective equipment when responding to potentially violent incidents of disorder. There may be possible increases in crime rate.
COOP	There could be some impact to COOP Plan as civil unrest could lead to disruption in operations in affected areas.
Property/ Facilities/ Infrastructure	Moderate impact to property, facilities, and infrastructure is possible caused from riots or malicious attempts to disrupt local infrastructure.
Public Confidence in the Jurisdiction's Governance	Public confidence may be a significant factor in the case of civil disorder. Public messaging will need to stay consistent throughout the event.

Risk Reduction Through

Mitigation	Types of Civil Disorder mitigation projects in the county include adding metal detector/hand held metal detector to critical facilities and adding security system/video surveillance for critical facilities.
Plans	CEMP – Civil Unrest Operational Plan

Hazard: Critical Infrastructure Disruption (Communication, Power, Utilities)

Probability of Occurrence	1-5 Years
Risk	71%
Relative Risk	High
Description	Numerous facilities in Seminole County are classified as critical infrastructure. Disruption of these facilities could severely impact the economic and social wellbeing of the citizens and patrons of Seminole County. The Office of Emergency Management maintains a listing of the critical infrastructures, protected by Florida Statute 119, for Department of Homeland Security 16 critical infrastructure sectors whose assets, systems, and networks, whether physical or virtual, are considered so vital to the United States that their incapacitation or destruction would have a debilitating effect on security, national economic security, national public health or safety, or any combination thereof. Presidential Policy Directive 21 (PPD-21): Critical Infrastructure Security and Resilience advances a national policy to strengthen and maintain secure, functioning, and resilient critical infrastructure.
Location	All of Seminole County
Significant Occurrences	Occurs fairly frequently mainly due to severe weather or in extreme cases tropical cyclones. Strong thunderstorms in the summer and storms associated with passing fronts or low pressure systems occur every year. Spatial Extent - Impacts from a disruption would impact less than 25% of the county, but may have county-wide effects.

Impacts/ Consequences

Human	Low impact - Could cause loss of power to homes, disruption in drinking water supply, and loss of communication to the public.
Property	Low impact - various homes and businesses could lose electrical power.
Environment	Hazards such as flooding from water main breaks, pollution from damaged or malfunctioning power plants and contamination from sewage/solid waste pose threats to local ecosystems and air quality.

Economic	Moderate impact – this would depend on the type, scale, duration, and severity of disruption.
Program Operations	Disruption to these facilities by threat or attack will be dealt with utilizing the Seminole County Terrorism Annex. In other situations the responsible agency would coordinate with emergency management.
Responders	Depending on the size of the disruption, this may cause an interruption of emergency radio traffic in the event of a communications failure.
COOP	There may be some impact to COOP Plan if communication is disrupted. If so, alternate methods would be used to coordinate the appropriate response.
Property/ Facilities/ Infrastructure	Facilities near the affected areas may have to shut down. Properties may have to undergo decontamination, and infrastructure at a regional level could be severely affected if shut down.
Public Confidence in the Jurisdiction's Governance	High confidence in jurisdictional response will be partially dependent on a timely recovery.

Risk Reduction Through

Mitigation	Types of Critical Infrastructure Disruption mitigation projects in the county include Backup generator for critical facilities Retrofit of network hardware and equipment for alternate 9-1-1 communications centers Shelter retrofit for generator electrical engineering
Plans	No Plans

Hazard: Cyber Security/Cyber Attack

Probability of Occurrence	1-5 Years
Risk	71%
Relative Risk	High
Description	Over the past decade, the nation as a whole has seen an increase in cyber-attack; defined as any offensive maneuver employed by individuals or whole organizations that target computer information systems, infrastructure and/or networks, by means of malicious acts to either steal, alter, or destroy a specified target. Seminole County's Office of Emergency Management and Seminole County's Information Services Department strive to ensure the safety and security of the technical infrastructure within the County. In doing so, threat analyses are completed to note vulnerabilities in the system and develop corrective actions to mitigate these attacks in the Seminole County Information Security Policy. The Internet Crime Complaint Center (IC3) has reported over $5.52 billion in monetary value was lost in 2017 alone. To prevent this crime, laws have been enacted, specifically, the Cybercrime Prevention Act of 2012. The focus in the future will be to ensure that Seminole County Information Services in partnership with various public safety agencies conduct annual exercises and monitor the current threat levels of cyber-attack for county information technology infrastructure.
Location	Not specific to any geographic areas of Seminole County
Significant Occurrences	The nation as a whole has been affected by various cyber-attacks, especially credit card fraud. In 2017, the Internet Crime Complaint Center (IC3) reported over $5.52 billion in monetary value lost. A cyber security threat would physically affect less than 25% of Seminole County, but could have county-wide effects.

Impacts/ Consequences

Human	High impact- potential for physical harm to the public as a result of cyber-attack on medical and other critical facilities.
Property	Medium impact- physical damage to property is possible through cyber-attack of critical facilities and infrastructure.

Environment	Low impact- potential for impact depending on the nature of the attack.
Economic	High impact- Depending on the nature of the threat, financial transactions and other economic processes could be heavily impacted.
Program Operations	Could have a high impact on program operations if data or vital systems are compromised.
Responders	Low impact to those responding to a cyber security threat.
COOP	Low impact to COOP, depending on target of attack. This may cause the relocation of a particular service if severe enough.
Property/ Facilities/ Infrastructure	Information technology infrastructure could be stressed or shut down, but otherwise there is a low risk to property and facilities.
Public Confidence in the Jurisdiction's Governance	Public confidence will depend on the timeliness of restoration of lost services or data.

Risk Reduction Through

Mitigation	Cyber Attack mitigation strategies include training and staying informed of new cyber threats
Plans	Seminole County Cyber Security Procedures

Global Risks Report

North America

The risks of greatest concern for doing business

	rank
Cyber attacks	1
Terrorist attacks	2
Asset bubble	3
Fiscal crises	4
Failure of climate change adaptation	5

Source: Executive Opinion Survey 2017, World Economic Forum

Source: Executive Opinion Survey 2017, World Economic Forum

Source: 2015 IBM Cyber Security Intelligence Index

Hazard: Disease and Pandemic Outbreak

Probability of Occurrence	1-5 Years
Risk	57%
Relative Risk	Medium
Description	The Department of Health is the lead agency if an outbreak occurs. The Florida Department of Health- Seminole County (ESF-8 Health / Medical) has been training employees on their duties to include epidemiology surveillance, public outreach, distribution of pharmaceuticals, and tracking the trends of possible outbreaks throughout the country and world. The Department of Health has plans in place, including: the use of the Strategic National Stockpile, how to identify the outbreak, and how to determine the particular diseases. A Memorandum of Understanding (MOU) has been signed with Seminole County Government and the School Board on the use of the schools as Points of Dispensing. These facilities would be used if a major distribution of pharmaceuticals was required to prevent the spread of a disease or assist persons if an outbreak has already occurred. Previous events in Seminole County have caused the activation of specific operational plans to respond to outbreaks of various diseases and bacteria.
Location	All of Seminole County
Significant Occurrences	Hepatitis C: yearly cases averaging 300 patients. Influenza: Reported every other year averaging 40 cases. Salmonellosis: averaging over 100 reported cases per year. (2009): H5N1 and H7N9 Avian flu reported 141 cases. (2015): Seminole County experienced significant occurrences of diseases such as H3N2, Influenza, Hepatitis A, Measles, and Zika. (2019): 2,034 cases of Hepatitis A virus as of June 2019. Florida Surgeon General declared a public health emergency in August 2019. Spatial Extent - Depending on the severity, a disease outbreak could affect more than 50%, and most likely the entire county.

Impacts/ Consequences

Human	High impact – Hepatitis A – Stomach pain, nausea and vomiting, jaundice, diarrhea, pale or clay colored stool, and can stay on surfaces up to 30 days. Hepatitis C - Long term effects of cirrhosis of the liver and death. Influenza - Airborne viral spread contamination. Insignificant rate of death, although possible for people with associated health risks, elderly and children.

	Salmonellosis - Sickness with symptoms vomiting, diarrhea and fever. If not treated may lead to death. Zika- fever, rash, joint pain, red eyes.
Property	Low Impact - Temporarily or permanently closing down restaurants, grocery stores and other small businesses/food related industries if disease is harmful enough.
Environment	Likely low impact, unless the disease affected certain animal populations.
Economic	High Impact – May slow down business and economic activity in an area affected by the disease due to workers missing work (sickness), temporary business closures, hospital resources/space usage and limited interaction between people due to quarantine and fear of exposure.
Program Operations	The Department of Health is the lead agency in an event. The County would make use of the Strategic National Stockpile, and use the County's schools as a point of dispensing of pharmaceuticals. A hospital's capacity may be impacted depending on size and severity of event.
Responders	Heightened stress on medical personnel and may require higher level of personal protective equipment (PPE).
COOP	Low impact to COOP Plan, unless disease spread and affected individuals involved in the response operations.
Property/ Facilities/ Infrastructure	Increased stress on local hospitals with increasing patients related to disease, however there would likely be minimal impact to physical structures.
Public Confidence in the Jurisdiction's Governance	Seminole County's response to a disease outbreak would determine the public's confidence in the medical and emergency management capabilities.

Risk Reduction Through

Mitigation	Types of Disease and Pandemic mitigation projects in the county include: Vaccinations Public outreach from the Health Department
Plans	Pandemic Response Plan Epidemiology Plan

Hazard: Drought and Water Shortage

Probability of Occurrence	1-5 Years
Risk	62%
Relative Risk	High
Description	A drought is noted as a period of unusually dry weather that persists long enough to cause serious problems such as crop damage and/or water supply shortages. There are four basic approaches to measuring drought (Wilhite, 1985): Meteorological- defined usually on the basis of the degree of dryness (in comparison to some "normal" or average amount) and the duration of the dry period. Agricultural- drought to agricultural impacts, focusing on precipitation shortages, differences between actual and potential evapotranspiration, soil water deficits, reduced groundwater or reservoir levels. Hydrological- associated with the effects of periods of precipitation (including snowfall) shortfalls on surface or subsurface water supply (i.e., streamflow, reservoir and lake levels, groundwater). Socioeconomic- associated with the supply and demand of some economic good with elements of meteorological, hydrological, and agricultural drought. The severity of the drought depends upon the degree of moisture deficiency, the duration, and the size of the affected area. In the past, most of Central Florida has suffered from droughts to the extent that unnecessary water usage has been curtailed by legislation. This curtailment, imposed by local governments and the St. Johns Water Management District was accomplished by water use restriction during designated hours and alternate days. Many natural hazards can arise from the effects of drought. Historically, drought in Florida has been known to contribute to wildfires, sinkholes, and major water shortages between the months of November-April. One of the major bodies of water providing a water source for much of our crops and agriculture territory in Seminole County is the St. Johns River. During long periods of drought, a disruption in the watering cycle can have potentially damaging effects, including substantial crop loss in the northwestern portion of the County. In addition to the crop loss and livestock reductions, drought in Seminole County is associated with an increase in wildfire threat which in turn, places both human and wildlife

	populations at a higher risk.
Extent	Between D0 – Abnormally Dry and D4 – Exceptional Drought (Drought Severity Classification)
Location	All of Seminole County could be affected by drought
Significant Occurrences	(2012): The 2 month period of April and May of 2012, reached highest level of drought with portions of the state under a D-4 Drought Exceptional condition. (2015): During early July through September 2015, D-3 conditions were reported. (2017): May 2017, a major portion of the state displayed D-3 conditions. (2018): March 2018, Seminole County was under a burn ban due to dry conditions. (2019): June 2019, Seminole was under a burn ban for one week due to dry conditions and increased fire risk. Spatial Extent - A drought would affect more than 50%, and most likely the entire county.

Impacts/ Consequences

Human	Moderate Impact- may require water use restrictions, which could cause stress to agricultural production. Increase in heat-related illness including dehydration. Vulnerable populations (infants, children, elderly, and pets) may require more attention.
Property	Low Impact- Heat-sensitive components may be compromised.
Environment	Low Impact- A reduction in ground water supplies creates a situation conducive to sinkholes. Non-domesticated animals will be directly impacted, flora may die off, increased fire risk as well as likelihood of soil quality degradation. The Local Mitigation Strategy recognizes that with a changing climate, there is the potential for an increasing risk of environmental impacts from drought and water shortages and that future mitigation and adaptation strategies related to this hazard should be considered.
Economic	Moderate Impact- Agribusiness, public utilities, and other industries reliant upon water for production or services.
Program Operations	Prolonged drought periods may require suspension of services.

Responders	Prolonged exposure to severe conditions, overexertion required by job will increase risk of heat-related illness.
COOP	Low impact to COOP Plan from a drought or water shortage incident because no major disruptions are associated with it.
Property/ Facilities/ Infrastructure	Low impact -Heat-sensitive components may be compromised.
Public Confidence in the Jurisdiction's Governance	The response of various utilities, water resource managers, and emergency management would be subject to the public's approval.

Risk Reduction Through

Mitigation	Types of Drought and Water Shortage mitigation efforts include: Increasing soil water retention and its availability for plants Modification of the technology of water use on farms, in fields, in catchments Improvement in the social awareness of droughts, their effects and countermeasures
Plans	Environmental Water Usage Procedures Community Wildfire Protection Plan Prescribed Burn Standard Operating Procedures

Figure below shows scale of severity for Droughts:

Scale	Severity
D0	Abnormally Dry
D1	Drought- Moderate
D2	Drought- Severe
D3	Drought- Extreme
D4	Drought- Exceptional

Hazard: Earthquakes

Probability of Occurrence	10+ Years
Risk	16%
Relative Risk	Low
Description	An earthquake is a sudden movement of the Earth's lithosphere (its crust and upper mantle). Earthquakes are caused by the release of built-up stress within rocks along geologic faults or by the movement of magma in volcanic areas. They are usually followed by aftershocks. There are no fault lines in Seminole County, but effects of off-shore impacts could be felt if the earthquake was strong enough.
Extent	0.0 Not Felt to 5.9 Moderate (Richter Scale)
Location	Not specific to any geographic areas of Seminole County
Significant Occurrences	Earthquakes have not had a major impact in Florida. Notable occurrences include: (1879): January – St. Augustine (1880): January – Cuba and Key West (2006): September 10, 2006 – rare 5.9 magnitude earthquake occurred in the eastern Gulf of Mexico, and produced weak to light shaking across much of Florida, including Seminole County. There were no reported damages in Seminole County. (2014): January – Cuba and Key West Other minor occurrences are recorded with very limited damage. Spatial Extent - An earthquake would be localized and affect less than 25% of the county.

Impacts/ Consequences

Human	Low Impact- Risk to health and safety from falling debris, stress and fatigue are also possible if incident is severe enough.
Property	Low Impact - earthquakes can cause damage to property, facilities, and infrastructure but are historically rare in Seminole County.
Environment	Low Impact - localized consequences, but earthquakes are historically rare in Seminole County.

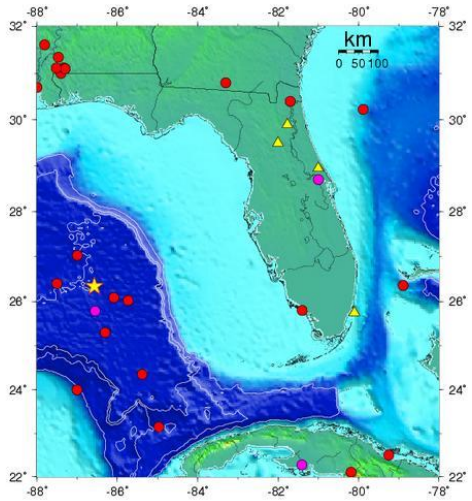
Economic	Low Impact to the overall economy of Seminole County. Businesses would be able to reopen once a building inspection was complete.
Program Operations	If severe enough, a moderate impact to critical facilities could occur, but earthquakes are historically rare in Seminole County.
Responders	There would be a risk of falling debris and impacted transportation routes.
COOP	Low likelihood, but moderate impact to COOP Plan in an event, and resources to continue operations may be limited (i.e. phones, Internet).
Property/ Facilities/ Infrastructure	Potentially high impact, but seismic events are historically rare in Seminole County.
Public Confidence in the Jurisdiction's Governance	Public confidence in this hazard will be directly related to the County's overall response by local leaders and public safety officials.

Risk Reduction Through

Mitigation	Types of Earthquake mitigation strategies in the county include: Structural mitigation measures to improve the capacity of a building to resist seismic forces
Plans	No Plans

The figure below shows the locations of all known earthquakes which occurred in the Florida region since 1875. The red and purple circles lie at the epicenters (e.g., on the surface) above predominantly very shallow (0-35 km) seismic foci. The yellow triangles are reported and/or located earthquakes that occurred on land in Florida prior to 1975.

Source: University of Florida Department of Geological Sciences – Earthquakes in the Gulf of Mexico



Hazard: Extreme Heat

Probability of Occurrence	1-5 Years
Risk	48%
Relative Risk	Medium
Description	Heat-related deaths and illness are preventable, yet annually, many people succumb to extreme heat. According to NOAA's National Weather Service, heat is the number one weather-related killer in the United States. During 2017, 107 people died nationwide as a result of extreme heat, up from 94 fatalities in 2016. This number is also above the 10-year average for heat related fatalities, 97 (2007-2016). The National Weather Service statistical data shows that heat causes more fatalities per year than floods, hurricanes, tornadoes and lightning (individually) nationwide most years and within short-term (10-year) and long-term (30-year) averages. In 2017, nationwide mortality data revealed that most heat related fatalities occurred to people outdoors, where 48 deaths (45%) were reported. The next most dangerous place was indoors with a permanent or mobile home, likely with little or no air conditioning, where 37 deaths (35%) were reported. Extreme heat most strongly affected adults aged 50-59, 26 (24%), and 70-79 years old, 18 deaths (17%), as well as those aged 40-49, 13 deaths (12%). Typically, seniors are the group most affected by heat. As is often the case, many more males, 73 (68%), than females, 31 (29%), were killed by heat nationwide during 2017. Temperatures that hover 9 degrees or more above the average high temperature of 90°F for the region and last for 3 or more consecutive days are defined as extreme heat. A major impact to these extreme heat events includes the monitoring of heat and drought indices for the implantation of county-wide burn bans. Public information activities are also put in place during extreme heat events that remind people of the risk of heat exhaustion. Humid or muggy conditions, which add to the discomfort of high temperatures, occur when a "dome" of high atmospheric pressure traps hazy, damp air near the ground. Excessively dry and hot conditions can provoke dust storms and low visibility. Droughts occur when a long period passes without substantial rainfall. A heat wave combined with a drought is a very dangerous situation. The highest recorded temperature for Seminole County was on June 1, 2004 at 101°F.

Extent	3 -10 consecutive days of 99°F or higher
Location	Extreme Heat would affect all of Seminole County
Significant Occurrences	Summer heat indices can exceed 100 degrees. Two of the top ten warmest temperatures recorded: (2004): June – Reaching 101 degrees. (2016): July – Reaching 100 degrees. The Natural Resources Defense Council expects for the county to have 13.8 summer days per year of extreme heat. Spatial Extent - Extreme heat would affect more than 50%, if not the entire county.

Impacts/ Consequences

Human	Moderate Impact- Inside a home with little or no air conditioning is the most dangerous place to be during extreme heat. Heat related illness (exhaustion, stroke, and dehydration) are more likely especially among vulnerable populations (children, elderly, and pets).
Property	Negligible impact to property as most infrastructure is built to withstand high temperatures seen with Central Florida's climate.
Environment	Low impact- A reduction in ground water supplies create a situation conducive to sinkholes, non-domesticated animals will be directly impacted, and flora may die off. The Local Mitigation Strategy recognizes that with a changing climate, there is the potential for an increasing risk of environmental impacts from extreme heat and that future mitigation and adaptation strategies related to this hazard should be considered.
Economic	Low impact- may stress local water supply demands.
Program Operations	There would likely be minimal impacts to operations from an extreme heat event as long as working conditions remain normal (proper A/C, etc.).
Responders	Prolonged exposure to severe conditions and overexertion required by job will increase heat-related illness.
COOP	There would likely be minimal impacts to COOP Plan and to local government as long as working conditions remain normal (proper A/C, etc.).

Property/ Facilities/ Infrastructure	Negligible impact to property, facilities, and infrastructure as most are built to withstand high temperatures.
Public Confidence in the Jurisdiction's Governance	The public confidence would be related to any response actions the county takes to alleviate effects from extreme heat.

Risk Reduction Through

Mitigation	Types of mitigation efforts that can be adopted include: Cooling centers Cool pavements Cool roofs
Plans	Extreme Weather Plan Operations Annex to CEMP

Figure below shows the recorded hottest days in Seminole County:

Seminole County's Hottest Days		
Rank	Temperature	Date
1	101	6-01-2004
2	100	7-09-2016
3	100	6-14-2010
4	100	6-19-2004
5	100	5-24-1953
6	100	6-25-1952
7	100	7-06-1952

Hazard: Financial Collapse

Probability of Occurrence	10+ Years
Risk	27%
Relative Risk	Low
Description	A financial collapse is a devastating breakdown of the national, regional, or territorial economy. The span of time these events last could range anywhere from months to decades while the lasting effects can be seen for a long time after. In our country, there were two notable financial collapses known as the Great Depression lasting from 1929 to the early 1940s and the Great Recession lasting from December 2007 to June 2009.
Location	Any geographic area of Seminole County could be affected.
Significant Occurrences	(1929-1940s): The Great Depression (2007-2009): Great Recession - December 2007 - June 2009 Spatial Extent- Would affect more than 50% of area - a financial collapse would impact virtually the entire county's population.

Impacts/ Consequences

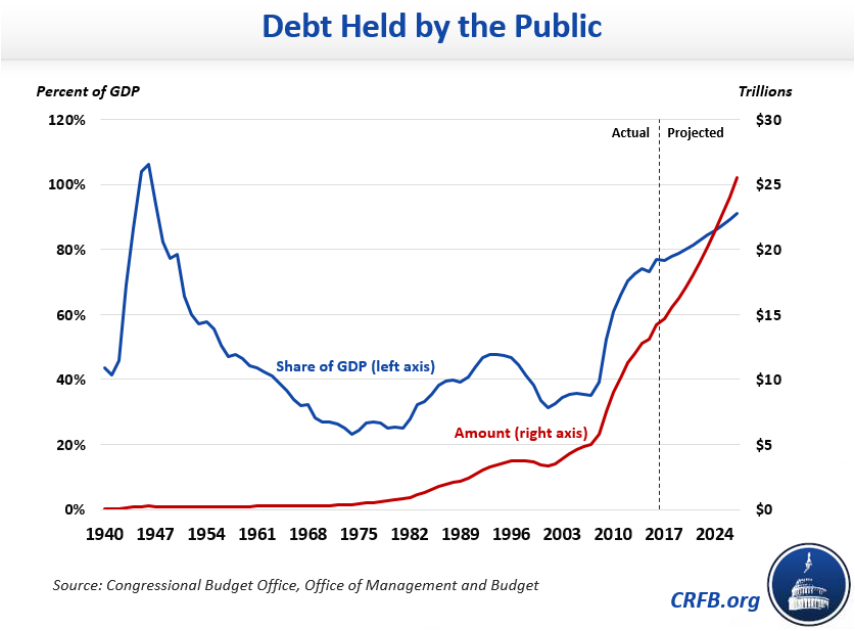
Human	Moderate impact on human lifestyle and living conditions due to financial collapse.
Property	Low Impact- potential loss of houses, vehicles, etc. due to individuals' inability to afford costs however, no physical loss to property is noted.
Environment	There would be no direct impact to the environment, however economic effects could indirectly affect environmental protection projects, initiatives, etc.
Economic	High Impact- subject to the nature of the collapse, many, if not all economic properties would be affected. Stocks, unemployment, and the ability to loan and borrow would all be impacted.
Program Operations	Certain operations may be slowed by an economic crisis.
Responders	There would likely be some minimal impacts to those dealing with financial collapse; high stress, anxiety, etc.
COOP	May be some impact to COOP Plan- employees needed to help in the recovery may lose their jobs as a result of a financial collapse.
Property/ Facilities/ Infrastructure	Physical damage not applicable, but any repairs or new construction needed may be impacted by a struggling economy.

Public Confidence in the Jurisdiction's Governance	Public's confidence would be dependent on the ability of the economy to recover in a timely manner.

Risk Reduction Through

Mitigation	Types of mitigation measures in the county include: County reserves
Plans	No Plans

Figure below shows the debt held by the Public 1940-2024 (projected):



Hazard: Fires/Wildfires

Probability of Occurrence	1-5 Years
Risk	48%
Relative Risk	Medium
Description	A wildfire is an uncontrolled fire that begins in areas of combustible vegetation, usually the countryside or a wilderness area. Seminole County is susceptible to wildfires throughout the year, particularly during the months with minimal rainfall amounts. The major cause of brush fires and forest fires is due to residents not conforming to burning regulations in effect and not considering the conditions as they exist (dry or windy conditions). The Spring is the highest period for lightning-caused fires fueled by strong spring winds and lack of rainfall during the same period. In recent years, homes and businesses have been threatened by encroaching wildfires.
Extent	41,636 high risk acres
Location	East and West geographic areas of Seminole County are at highest risk for wildfires.
Significant Occurrences	(1998): Summer – 2,000 acres burned in Geneva, 12 residences destroyed, no fatalities or injuries, about $1.1 million in losses. (2013): February – wildfire in Wekiva State Preserve consumed 50 acres near Markham Woods, closing of nearby roadways. (2017): March – Geneva Brush Fire surrounding 338 single family homes and 14 mobile homes, shelter opened. (2017): April – Level 3 activation for brush fire at Live Oak Reserve, 150 mandatory evacuees, shelter opened. Spatial Extent - Impact less than 25% of the area within Seminole County, though the effects of smoke could cover a slightly larger area.

Impacts/ Consequences

Human	Moderate Impact- has potential to kill or injure people trapped in burning buildings. For immediate area, smoke that decreases air quality may exacerbate respiratory problems, and those with special needs may require more attention.
Property	Moderate Impact- Can damage or destroy buildings including homes and businesses.
Environment	Extensive impact to wildlife and vegetation. The Local Mitigation Strategy recognizes that with a changing

	climate, there is the potential for an increasing risk of environmental impacts from fires/wildfires and that future mitigation and adaptation strategies related to this hazard should be considered.
Economic	Moderate Impact- potential impact on agricultural industry and insurance industry.
Program Operations	If affected, operations may be relocated or suspended.
Responders	Increased exposure to smoke inhalation and high risk to health and safety of responders.
COOP	To continue the COOP Plan, operations may be relocated or suspended.
Property/ Facilities/ Infrastructure	Moderate impact to transportation and utilities infrastructure, potential damage to properties.
Public Confidence in the Jurisdiction's Governance	The public confidence level may depend upon the ability of the county to contain and respond to the fire threat.

	Risk Reduction Through
Mitigation	Types of wild fire mitigation projects in the county include: Hazardous wildfire fuel reduction Fire shelter for safety of firefighters Public education (Fire Wise)
Plans	Community Wildfire Protection Plan
	Prescribed Burning Standard Operating Guideline

Hazard: Flooding

Probability of Occurrence	1-5 Years
Risk	62%
Relative Risk	High
Description	Flooding is the covering of land by water that is not normally covered by water. It occurs when an area is inundated beyond its natural or designed ability to drain and absorb this water. Flooding is measured through a percent annual chance, or the frequency at which a certain flood level is likely to occur. The elevation at which a base flood would take place has a 1% annual chance of occurring, also known as a 100-year flood. .2% annual chance would be a 500-year flood, and areas identified as minimal flooding have less than .2% annual chance of flooding, or need further study. Locations in the minimal flooding areas can still experience flooding due to heavy rainfall.
Extent	Flood gages along the St. John's River and at the Little Wekiva River indicate flood levels between Action, Minor, Moderate, and Major flood stages. Minor flood impacts can start to occur at Action Stage with minimal flooding to low lying areas and parks, all the way to historic flooding in Major Stage with water covering major roads and standing water in homes.
Location	The areas most affected by heavy rains are located in the northeastern and eastern parts of the County along the St. John's River, Econlockhatchee River, Lake Monroe, Lake Jessup and Lake Harney. Flood impacts are also seen in the western part of the County from the Wekiva River and Little Wekiva River. Localized flooding can also occur anywhere in the county due to heavy rainfall.
Significant Occurrences	(1924): Historic flooding event (2004): Hurricanes – Charley, Frances, and Jeanne (2008): Tropical Storm Fay – Localized flooding, roadway washouts, affected over 150 homes, prompted Presidential Disaster Declaration. (2017): Hurricane Irma – major flooding event (2018): St. John's River action stage in summer of 2018 – sandbag operations in localized areas Spatial Extent - Flooding could impact between 25%-50% of the county's area, potentially greater in rare events.

Impacts/ Consequences

Human	Moderate Impact- risk of loss of life and injury, displacement,

	and increased distress. May affect drinking water; can increase risks to health.
Property	High Impact- Utility outages, transportation infrastructure closures, and varying levels of damage to structures in low-lying areas.
Environment	Increased risk of exposure to hazardous materials. Displacement of wildlife may increase public health and safety issues, and potential increased arboviral vectors. The Local Mitigation Strategy recognizes that with a changing climate, there is the potential for an increasing risk of environmental impacts from flooding and that future mitigation and adaptation strategies related to this hazard should be considered.
Economic	Moderate Impact- dependent on severity of flooding, and high impact on insurance industry.
Program Operations	Operations may be affected or interrupted by flooding.
Responders	Risk to life and safety while responding to populations affected by flooding.
COOP	Potential impact to COOP Plan - staffing difficulties are possible (personnel unable to drive to work or attending to own family).
Property/ Facilities/ Infrastructure	High Impact- Utility outages, transportation infrastructure closures, and varying levels of damage to structures in low-lying areas.
Public Confidence in the Jurisdiction's Governance	Confidence will be shaped by the response of emergency management in mitigating, preparing, and responding to a flooding event.
	Risk Reduction Through
Mitigation	Types of flooding mitigation projects in the county include Storm water system for bodies of water Road drainage Design and reconstruction of improved drainage system Structure modifications to commercial buildings Installation of storm water flood control measures to prevent flooding and related damage
Plans	Storm Water Clearing Operations Plan Flood Response Plan Floodplain Management Plan

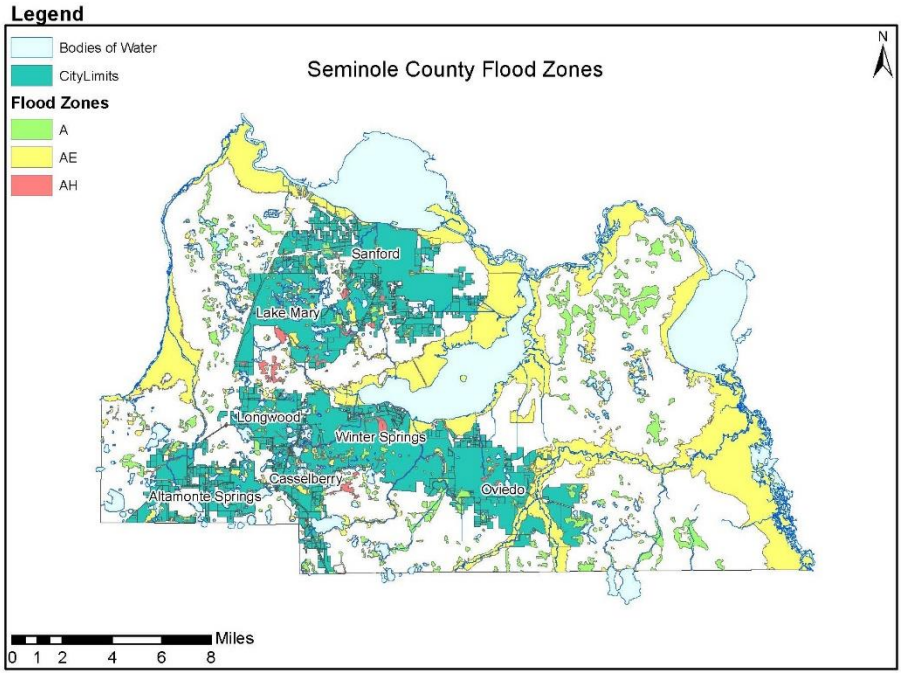


Figure below shows the highest crest at Lake Harney, the mouth of the St. Johns River:

Height (ft)	Date
11.09	08/28/2008
10.62	10/13/1953
10.57	09/19/2017
10.10	10/01/1924
10.07	10/02/2004
9.50	09/12/2004
9.45	11/21/1994
8.83	03/01/1998
8.71	10/24/1995
8.61	09/21/2001

Hazard: Hazardous Materials (Fixed Site and Transportation)

Probability of Occurrence	1-5 Years
Risk	43%
Relative Risk	Medium
Description	There are numerous hazardous materials facilities and plants throughout Seminole County. A majority of these facilities are water treatment facilities and some construction and building facilities. In addition, there are hazardous materials located in minor quantities at schools, hospitals, and some of the telecommunication facilities throughout Seminole County. Seminole County has an aggressive hazardous materials inspection and cataloging program. The information collected from the facilities is placed into a State-wide system for easy access by emergency responders. The Emergency Operations Center monitors planning and training activities, spills, chemical releases, and hazardous materials events. Seminole County would not be directly affected by a coastal oil spill; therefore, an assessment is excluded. However, the County could feel the effects from a spill during an incident affecting the Florida Power and Light facility on the St. John's River in Volusia County at Highway 17-92 near the bridge.
Location	North, Central and West geographic areas of Seminole County
Significant Occurrences	No major incidents to report, though potential exists with CSX railroads, as well as Interstate 4 and SR 417 which are used to transport hazardous materials. Spatial Extent – Any hazardous material accident would have very localized impacts, and would account for less than 25% of the county's geographic area.

Impacts/ Consequences

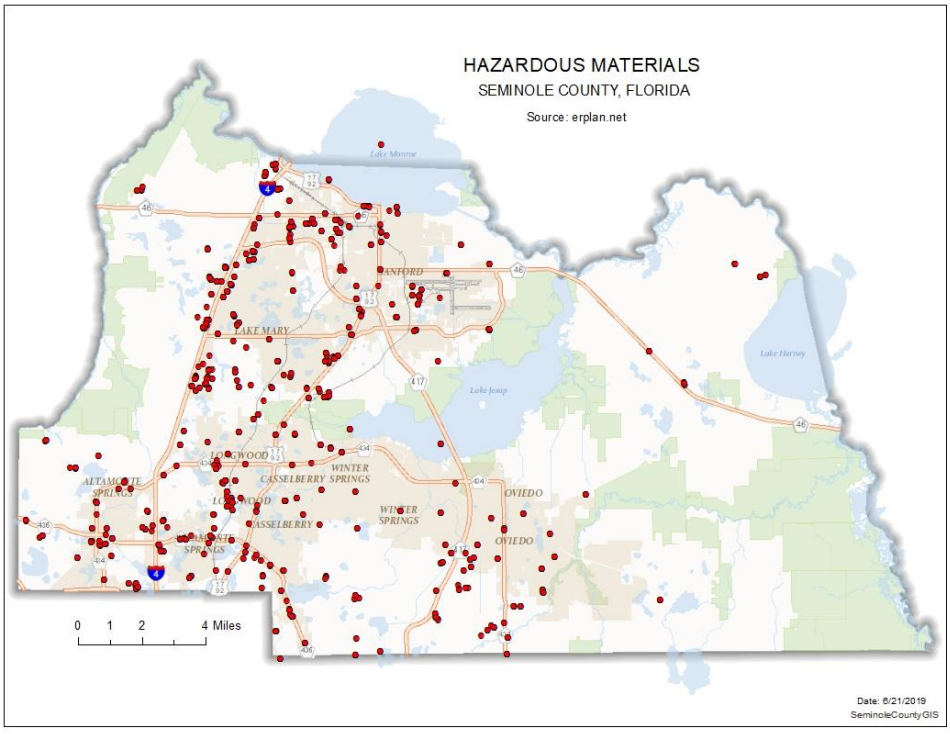
Human	High Impact- depending on the hazardous material, there may be ranging impacts to human health and safety; may require shelter-in-place.
Property	Low Impact- the property affected by a spill could have varying impacts depending on the type and scale of the disaster.
Environment	High impact to areas of highest concentration; may require specialized clean up.
Economic	Low Impact to financial community of impacted area.
Program Operations	Low impact to operations, unless rare event requiring relocation of program operations.

Responders	Protective actions required for responders such as proper PPE, depending on the hazardous materials.
COOP	Low impact- Unless directly impacted operations center, this hazard poses very little threat to COOP Plan.
Property/ Facilities/ Infrastructure	Most likely low impact, but depending on nature and severity of event, there could be a larger risk to infrastructure, etc.
Public Confidence in the Jurisdiction's Governance	The public's confidence would be related to the ability of the county to respond appropriately and contain the situation.

Risk Reduction Through

Mitigation	Mitigation projects for hazardous materials include: Convert gas chlorination system to liquid chlorine system
Plans	Hazardous Materials Standard Operating Guidelines

Figure below shows the Hazardous Materials Sites in Seminole County (June, 2019 Source: GIS Division):



Hazard: Mass Gatherings/ Planned Events

Probability of Occurrence	1-5 Years
Risk	38%
Relative Risk	Medium
Description	There are numerous special events in Seminole County that bring over 10,000 persons together in one venue. Of these, the largest event is the annual “Red Hot and Boom” celebration in the City of Altamonte Springs. This event draws more than 150,000 people to enjoy the Independence Day celebration. In addition to “Red Hot and Boom”, the City of Sanford’s Fort Mellon Independence Day Celebration, Winter Springs, and Oviedo events have significant numbers of people on July 4th. Other special events are normally located in the various parks and recreational centers throughout Seminole County. The largest of the non-government sponsored events is the Scottish Highland Games Festival. Thousands of people come to Seminole County to visit the parks during these events.
Location	No particular geographic area of Seminole County
Significant Occurrences	"Red, Hot, and Boom" 4th of July Celebration in Altamonte Springs brings over 150,000 people. City of Sanford's Fort Mellon, Winter Springs and Oviedo fireworks together equal roughly 150,000. The Scottish Highland Games is the second largest event in Seminole County with over 20,000 attending each of the three days. The ECNL Boys and Girls Soccer League Tournament in December brings in over 100 teams from around the Nation. Spatial Extent - These events are localized and would affect less than 25% of the county

Impacts/ Consequences

Human	Moderate Impact- With large amounts of people, general injuries are more likely, civil disturbances more likely, increased traffic and accident risk.
Property	Negligible impact- Influx of people may overtax local resources if not prepared however, no impact to the physical property is expected.
Environment	Negligible impact- this human-caused hazard would likely not have an impact on local environment.
Economic	Low Impact- increased demand of local resources, food, water, etc.

Program Operations	If gathering near center of operations, large gatherings could lead to disruption in operations in affected areas.
Responders	May experience increased calls of service, potentially dealing with heavy traffic and slowing response time.
COOP	If gathering near center of operations, large gatherings could lead to disruption to the COOP in affected areas.
Property/ Facilities/ Infrastructure	Influx of people may overtax local facilities, roads, and resources, if not prepared.
Public Confidence in the Jurisdiction's Governance	How the County responds with security and response to any emergency may determine the public's confidence.

Risk Reduction Through	
Mitigation	Mitigation projects for mass gatherings include: Vehicle barricades for high populated areas Metal detector/check points for events
Plans	Permitting Procedures
	Fusion Center Threat Assessment Bulletin
	Incident Action Plans

Hazard: Mass Migration/ Repatriation

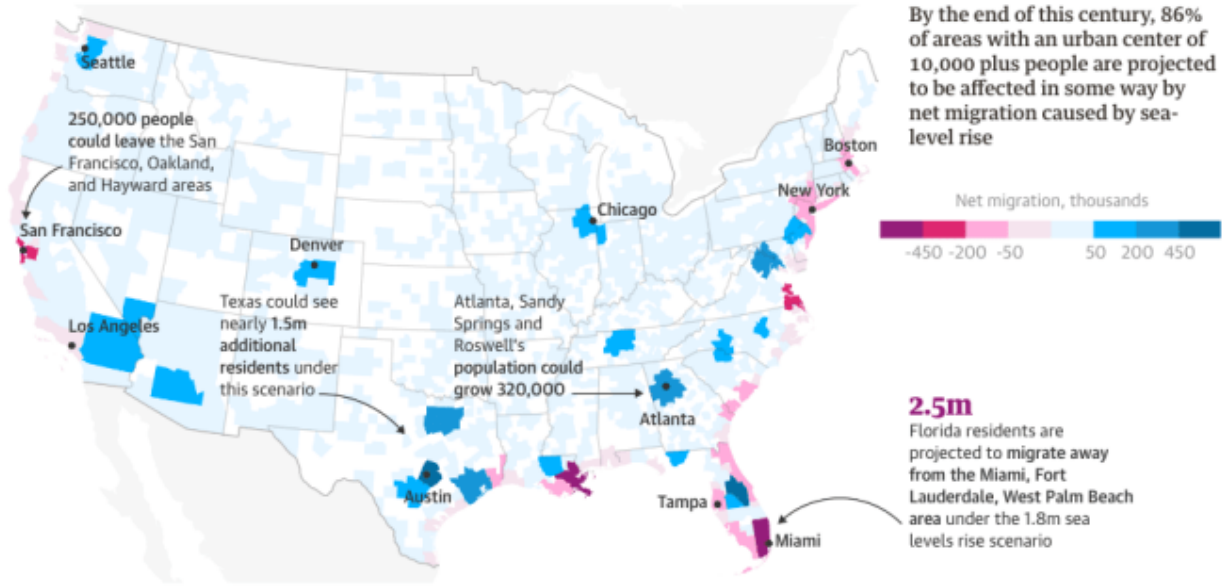
Probability of Occurrence	10+ Years
Risk	10%
Relative Risk	Low
Description	Pockets of migrant workers in Seminole County remain very low. These workers are drawn from the local work force and migrants, if any, are transported into the area on a daily basis to work in the farmlands of Seminole County.
Location	No particular geographic areas in Seminole County.
Significant Occurrences	(2010): January – Operation Haiti Relief after an earthquake brought displaced and some injured people through Orlando Sanford International Airport. (2017): Hurricane Maria – mass migration of evacuees from the island of Puerto Rico to the Central Florida area after the hurricane. Over 250 families resettled in Seminole County and over 6,500 in Central Florida. Spatial Extent - this hazard would affect less than 25% of the geographical area

Impacts/ Consequences

Human	Low Impact- Possible increases in crime rate, civil disturbances may increase.
Property	Negligible Impact- mass migration would have little to no impact on physical property.
Environment	Low Impact- Massive increase in population could strain the environment.
Economic	Low impact- increase demands of deliverable goods and increased crime in affected areas could affect local economy.
Program Operations	Increased population could lead to civil unrest which may affect operations.
Responders	Could be increased calls to service and need for additional personnel to handle influx of population.
COOP	Civil unrest could lead to disruption to COOP Plan in affected areas.
Property/ Facilities/ Infrastructure	Depending on type and scale of event, some local facilities and infrastructure could be stressed or overtaxed.
Public Confidence in the Jurisdiction's Governance	The coordination of services provided and assimilation of migrants may affect confidence of the public.

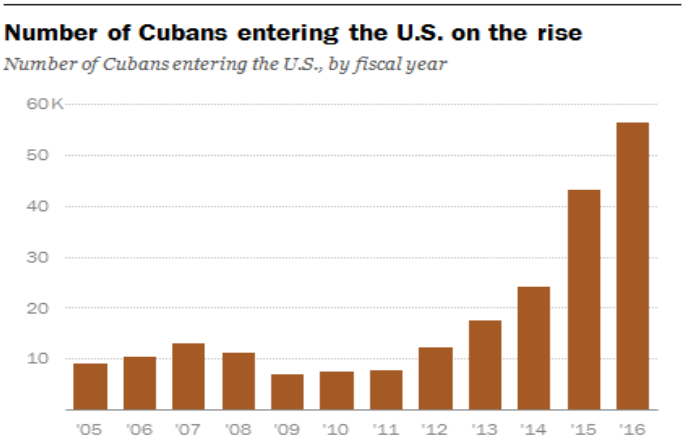
	Risk Reduction Through
Mitigation	No mitigation efforts for this type of hazard have been implemented at this time.
Plans	Repatriation Annex to CEMP

Figure below shows migration estimates inside the United States:



Guardian graphic. Source: Nature climate change, Mathew E. Hauer

Figure below shows the increase in Cuban migration, primarily to Florida:



Hazard: Severe Weather
(Hail, Lightning, Micro-Bursts, Thunderstorms)

Probability of Occurrence	1-5 Years
Risk	57%
Relative Risk	Medium
Description	Severe weather is defined as any meteorological event that poses a risk to life, property, social disruption, and/or requires the intervention of authorities. Hail: Hail is a form of solid precipitation consisting of balls or irregular lumps of ice .5 millimeters or larger that form during certain thunderstorm conditions. Hail Extent: 2.5in - tennis ball (NOAA Hail Conversions) (National Oceanic and Atmospheric Administration) Lightning: Lightning is the electrostatic discharge of atmospheric electricity, characterized by flashes that can travel within a thundercloud, between clouds, or from a cloud to the surface of the earth; lightning is usually accompanied by audible thunder. Lightning Extent: 17+ flashes/sq km/yr (Cloud to Ground flash Density) (NWS, 2019) Micro-burst: A micro-burst is a violent, short-lived, localized column of sinking air caused by an intense downdraft, creating extreme wind shears at lower altitudes; usually associated with thunderstorms. A micro-burst can present wind gust/bursts between 50-70mph but can reach as high at 115mph. Micro-burst Extent: 90mph wind gusts Thunderstorms: Thunderstorms are formed by the convection behavior of unstable air mass layers, which result in the meteorological effects of wind, heavy rainfall, lightning and thunder, and sometimes hail.
Extent	Hail: Small hail up to 2.5” – Tennis ball (NOAA Hail Conversions) Lightning: Direct strike, 2 fatalities, 25 injuries Micro-burst: Up to 90mph wind gusts Thunderstorms: Tornadoes (EF1- EF3), Flooding Rain (15” in 24hrs, 18.5” in 48hrs, 20.2” in 72hrs)
Location	Severe weather may take place in any geographic region of Seminole County.
Significant Occurrences	(1992): March 6 – A severe thunderstorm moved southeast across southwestern Seminole County producing hail the size of golf balls, damages around $300,000.

(2011): March 30-31 – Winter Park storms caused widespread power outages, fallen trees, road flooding, and damage to homes.

(2013): July 27 – Micro-burst near Sanford Airport- one slightly damaged building, carts blown across property.

(2018): October 8 – Severe wind and thunderstorms caused boat to capsize on Lake Monroe carrying two men, one deceased and the other sent to hospital.

Spatial Extent – This hazard could impact greater than 50% of the county and in extreme cases cause county-wide effects.

Impacts/ Consequences

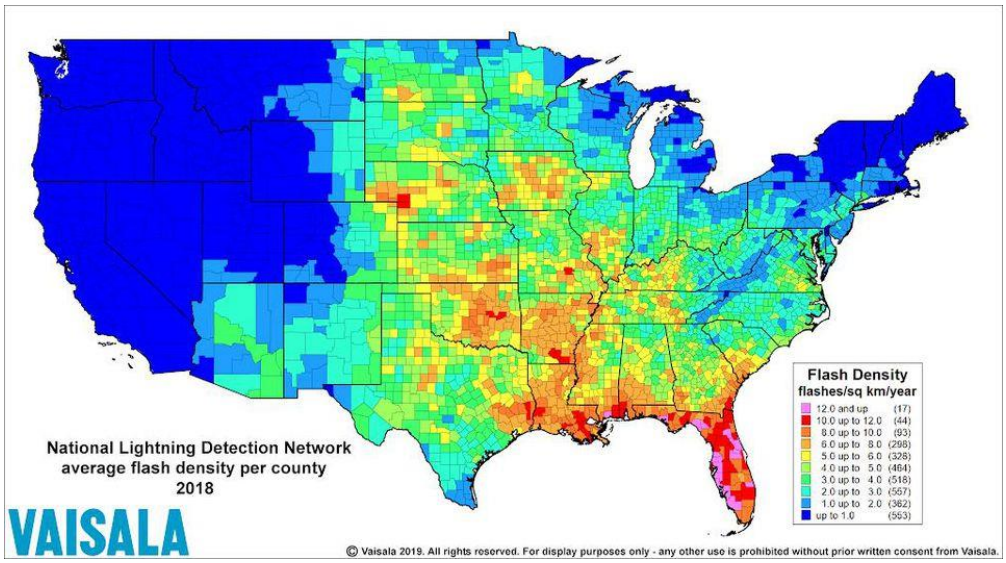
Human	Moderate Impact- Potential for minimal loss of life and injuries. May require shelter operations, potential impact on mental and physical health.
Property	Moderate Impact- can cause utility outages and potentially major damage to buildings from wind, fires caused by lightning, and potential threat to aviation property.
Environment	Low Impact- environmental tolerances can be overwhelmed by hazards associated with severe weather. Debris and hazardous materials could be released into the environment. The Local Mitigation Strategy recognizes that with a changing climate, there is the potential for an increasing risk of environmental impacts from severe weather and that future mitigation and adaptation strategies related to this hazard should be considered.
Economic	Low Impact- depending on type of hazard and specific event, there could be damage to certain buildings, etc.
Program Operations	Dangerous weather conditions may cause difficulty in responders' ability to travel. Loss of power may impact system operations and or communications.
Responders	Protective actions required, PPE required for safety in addressing downed utility lines, hazardous materials, and debris. Status of responder's family may affect responder's ability to perform his/her duties.
COOP	Some impact to COOP- Only in extreme situations of damage would relocation be necessary; communication and utilities may be impacted.
Property/ Facilities/ Infrastructure	Possible utility outages and transportation infrastructure closures; damage to property and buildings in general is possible.

Public Confidence in the Jurisdiction's Governance	Residents affected by severe weather can look to local first responders and insurance companies to assist with damages. OEM responds to all reported severe weather events and coordinates messaging with the National Weather Service to alert residents of pending severe weather.

Risk Reduction Through

Mitigation	Mitigation projects for severe weather include: Installation of Lightning Detection Warning System Warning system installation for severe storms and hail Replacement of critical infrastructure with concrete buildings
Plans	Emergency Alert and Warning Systems Operations Annex to the CEMP Comprehensive Emergency Management Plan (CEMP)

Figure below shows number of lightning strikes in United States (by County):



Source: Vaisala 2018 Annual Lightning Report

Hazard: Sinkholes/ Land Subsidence

Probability of Occurrence	1-5 Years
Risk	43%
Relative Risk	Medium
Description	A sinkhole is a depression or hole in the ground brought about by one of the various forms of erosion beneath the earth, causing a collapse of the surface layer. Seminole County is susceptible to sinkhole and subsidence conditions because it is underlain by thick carbonate deposits that are susceptible to dissolution by circulating ground water. Florida's principal source of freshwater, ground water, moves into and out of storage in the carbonate aquifers – some of the most productive in the nation. Development of these ground water resources for municipal, industrial and agricultural water supplies creates regional ground water level declines that play a role in accelerating sinkhole formation, thereby increasing susceptibility of the aquifers to contamination from surface water drainage. Such interactions between surface-water and ground-water resources in Florida play a critical and complex role in the long-term management of water resources and ecosystems of Florida's wetlands. These conditions are monitored, but if the occurrence occurs on private property, it is the citizen's responsibility to repair the damage. If the condition exists on public property, the designated public works department will take control of the situation.
Extent	Average size: 3-4 ft. wide and 4-5 ft. deep. Could be up to 30 ft. deep in extreme cases.
Location	Sinkholes could occur in any area of Seminole County, but would be small in impact area.
Significant Occurrences	130 sinkholes/land subsidence in the county since 1962. They are a common, naturally occurring geological phenomenon. (2002): 50 foot wide and 30 foot deep sinkhole opened up in Sanford destroying a barn and swallowing two horses. Much of the damaged was caused by ground water filling the hole rapidly. No damage was reported to the residential structure of the home. (2012): In December, a 25 foot deep sinkhole in Lake Mary threatened a home causing the homeowners to evacuate. The City of Lake Mary deemed the home unsafe, however, the repairs to the home were covered by the homeowner's insurance with the claim totaling over $300,000. Major repairs noted were to major cracks in the structure.

(2014): In February, a 6 foot deep, and 5 foot wide hole on the Rock Lake Middle School in Longwood opened up causing no structural damage. Physical education classes were cancelled due to its location but the school operations were not impacted. Since then, the hole was filled with dirt and a fence erected around it to prevent further damage.

(2015): In January, a land subsidence event occurred in Geneva in which firefighters rescued a dog who was 75% trapped in the hole. There was no official confirmation if the depression was actually a sinkhole, however, the dog was rescued and administered oxygen. The dog was transported to a local animal hospital and made a full recovery.

(2016): In July, a sinkhole was reported by the Department of Environmental Protection in the City of Oviedo. The sinkhole was 4 feet deep and 7 feet in length. The location consists mainly of in cohesive and permeable sand.

(2017): In mid-January of 2017, Seminole County Fire Department responded to a sink hole in Longwood. The sink hole was 3 feet deep with a 4 inch width and a circular shape.

Spatial Extent- localized incidents that affect less than 25% of the total land mass of the county.

Impacts/ Consequences

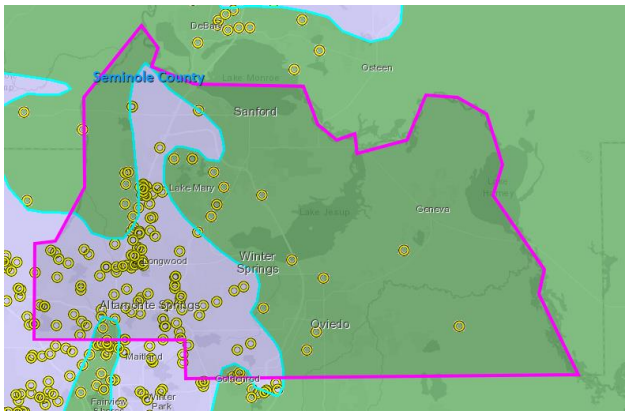
Human	Low impact to the public outside of the immediate area. Risk to contaminated drinking water is possible when sinkhole encroaches on aquifer.
Property	Low impact overall, isolated to home or businesses affected; could be costly to repair.
Environment	Moderate impact to the environment; sinkholes can affect the environment by threatening water supplies by draining water from streams, lakes, and wetlands directly into the aquifer; this could affect wildlife habitats. The Local Mitigation Strategy recognizes that with a changing climate, there is the potential for an increasing risk of environmental impacts from sinkholes/land subsidence and that future mitigation and adaptation strategies related to this hazard should be considered.
Economic	Low impact to the overall local economy; a localized sinkhole or land subsidence event would have a very limited impact on services.
Program Operations	There would be minimal impact to program operations due to the isolated nature of sinkholes.
Responders	Low impact to responders due isolated nature of sinkholes.

COOP	There would be minimal impact to COOP due to the isolated nature of sinkholes.
Property/ Facilities/ Infrastructure	Isolated sinkholes could impact critical facilities, transportation infrastructure, and private property. Sinkholes/ land subsidence events can affect the infrastructure by draining unfiltered water from streams, lakes and protected wetlands into the aquifer.
Public Confidence in the Jurisdiction's Governance	Residents affected by sinkholes may look to first responders and insurance companies for assistance. OEM may respond to reported sinkholes/land subsidence events to perform a site survey and take photos for documentation.

Risk Reduction Through

Mitigation	Mitigation projects for sinkholes include: Promote insurance to include sinkhole coverage Subsidence-proof construction design
Plans	Sinkhole Land Subsidence Response Operations Annex to CEMP

Figure below from Florida Department of Environmental Protection – Subsidence Incident Report Map, 2018:



Hazard: Terrorism
(Chemical, Biological, Radiological, Nuclear, Explosive)

Probability of Occurrence	6-10 Years
Risk	41%
Relative Risk	Medium
Description	State and local governments have primary responsibility in planning for and managing the consequences of a terrorist incident using available resources in the critical hours before Federal assistance can arrive. The terrorist threat may represent Chemical, Biological, Radiological, Nuclear, Explosive (CBRNE) hazards, and/or other threats or a combination of several hazards. The initial detection of a Weapons of Mass Destruction (WMD) attack will likely occur at the local level by either first responders or private entities (e.g., hospitals, corporations, etc.). The detection of a terrorist incident involving covert biological agents will most likely occur through the recognition of similar symptoms or syndromes by clinical in-hospital or clinical settings. It is incumbent upon all county and municipal responders to be as well trained as possible in WMD response. The intricacies of an effective response demand the utmost cooperation among all responders, Federal, State, County and municipalities. Terrorism is a serious issue in Florida. Terrorism increases the likelihood of mass casualty and mass evacuation from a target area. For threats of armed violence, it is likely that joint jurisdictional management of the operation will take effect and will be coordinated at the county level between the Sheriff, fire/rescue, the Department of Health and FDLE. There are seven regional coordination teams throughout the State of Florida, called Regional Domestic Security Task Force (RDSTF). These consortiums evaluate vulnerabilities to the community and provide strategic plans for strengthening the homeland. In addition to the RDSTF, the Central Florida area is listed as an Urban Area Security Initiative (UASI). In 2003, the U.S. Department of Homeland Security (DHS) created the Urban Areas Security Initiative (UASI) Grant Program to support the planning, equipment, training and exercise needs of high-threat, and high-density urban areas around the country.
Location	No particular geographic area in Seminole County.
Significant Occurrences	(2016): June 12, Pulse Nightclub – The City of Orlando experienced the worst mass shooting event in the United States' history up to that date. 49 victims were killed, 53 additional were injured, and the shooter was killed.

	A terrorist attack would most likely be very localized and isolated and impact less than 25% of the geographic area of the County, however effects could be county-wide.

Impacts/ Consequences

Human	High Impact – great potential for threat to health and safety depending on type of attack. Localized impact if explosive, but potentially wide spread effects if CBRN.
Property	High Impact – depending on type of attack and property targeted, there could be major, if not catastrophic localized damage.
Environment	Potentially high impact if CBRNE is dispersed. Aquifer system is vulnerable to intentional spill of hazardous materials.
Economic	High Impact – if target is financial or major commercial building or institution, impacts can be greater and more widespread; other cases could shut down industries, infrastructure, and/or the delivery of services.
Program Operations	If attack is in vicinity of program operations, there could be major impacts and disruption; potential relocation.
Responders	Potentially very dangerous and hazardous conditions. Requires proper personal protective equipment for various threats; potential for increased stress and fatigue.
COOP	Depending on type, scale, and specific location of event, the COOP Plan could be disrupted.
Property/ Facilities/ Infrastructure	Potentially high impact to critical facilities and infrastructure depending on target of attack and type of threats.
Public Confidence in the Jurisdiction's Governance	Public's confidence could be severely impacted by terrorist attack depending on nature and scale of threat. Prevention and response are key to maintaining confidence.

Risk Reduction Through

Mitigation	Mitigation projects for terrorism include: Replacing buildings with concrete construction Improve security and surveillance for critical facilities
Plans	Terrorism Annex to CEMP

Hazard: Tornadoes

Probability of Occurrence	1-5 Years
Risk	62%
Relative Risk	High
Description	A tornado is a mobile vortex of violently rotating winds, extending downward from the cloud base and advancing in front of a storm front; they are made visible by vaporized moisture and debris. Florida is the state that experiences the most number of tornadoes per square mile. Florida had an average of 55 tornadoes per year since 1961, with an average of four fatalities per year. Florida tornadoes are generally short in duration and have a narrower path. Because of the unpredictable pattern of storms and tornadoes and the relatively high reoccurrence frequency, all of the state, including Seminole County is vulnerable to damage. As the number of structures and people increase, the potential damage and injury rates increase. Mobile and modular homes, poorly constructed and substandard housing apartment complexes, and low rent housing projects are extremely susceptible to damage and destruction.
Extent	EF1 – EF5 (Enhanced Fujita Scale)
Location	Tornadoes may affect any area of Seminole County.
Significant Occurrences	(1966): April 4 – Central Florida experienced its largest tornado on record. An EF4 tornado hit Seminole County killing 11 and injuring 530 people. (1998): February 22 – EF 3 tornado struck Seminole County and caused $31 million dollars in damages. This is the deadliest in recorded history through the State of Florida. (2006): November 7 – Election Day tornado damaged over 30 homes and destroyed two. This tornado was in the Aloma/State Road 417 area just outside the Oviedo city limits. (2009): February 2 – Ground Hog Day Tornado. While most of the damage from this event was in Lake and Volusia counties, the tornadoes sparked the discussion of tornado sirens. The City of Oviedo elected to purchase these outdoor warning devices. Seminole County elected to provide an electronic text, voice, e-mail notification system which would be called “Alert Seminole”. (2009): May 19 – Casselberry Tornado. An EF0 tornado touched down briefly (0.8 mile track) and removed the roofs from a single family home and mobile home. Portions of the roofs and other debris were carried downstream, with large metal pieces deposited in trees. Another 8 homes sustained minor damage.

(2019): January 24 – EF0 tornado hit Sanford peaking at 85 MPH winds, property damage estimated $1.38 M

Since 1966, Seminole County has been affected by a total of 28 tornado events that have caused significant damage across the county. Due to the impact to physical property, the possibility of death or injury, and the likelihood of interruption of economic services to the community, a tornado event is rated high on a threat level when compared to other hazards.

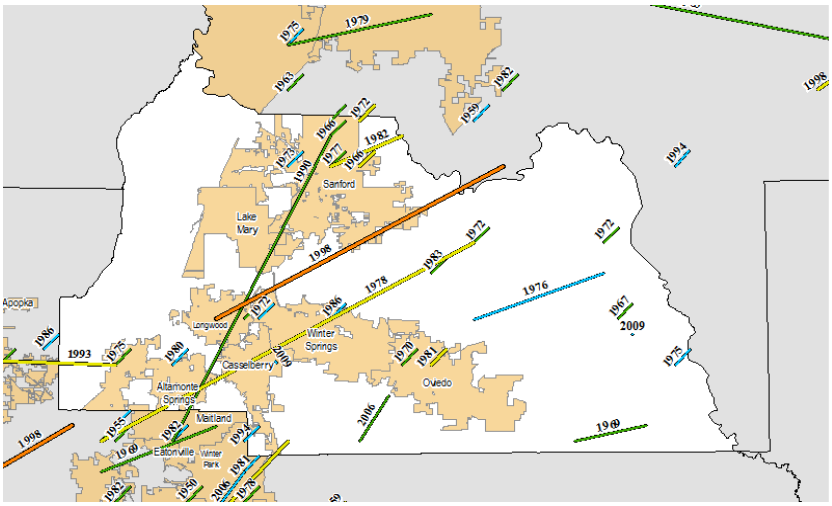
Spatial Extent - Tornadoes are usually very isolated and would impact less than 25% of the geographically area of the county

Impacts/ Consequences

Human	High impact in the immediate path of the tornado. Florida has an average of 4 tornado-caused deaths per year.
Property	High Impact -tornadoes have historically been known to cause a large amount of property damage. In 1998, and EF 3 tornado in Seminole County caused $31 million in damages.
Environment	Moderate Impact- mainly isolated in nature, but can harm or kill various plant and animals and debris and hazardous materials could be released into the environment. The Local Mitigation Strategy recognizes that with a changing climate, there is the potential for an increasing risk of environmental impacts from tornadoes and that future mitigation and adaptation strategies related to this hazard should be considered.
Economic	Moderate Impact- A tornado can have a large economic impact to the community. Tornado events are typically very costly to recover from and can impact the ability for the community to reopen businesses.
Program Operations	Agencies may be forced to relocate if tornado is threatening the area. Operations could be stalled by transportation and communication barriers.
Responders	Immediate response can be stalled because of dangerous weather conditions; proper personal protective equipment may be needed as well.
COOP	Possible impact to COOP Plan. Agencies may be forced to relocate to continue essential operations as a result of the impact from tornadoes.
Property/ Facilities/ Infrastructure	Tornadoes can cause massive failures in electrical, communications, and other critical infrastructures.
Public Confidence in the Jurisdiction's Governance	Timely warning provided by local forecasters and emergency management will be critical along with response and recovery efforts taken by county agencies.

	Risk Reduction Through
Mitigation	Mitigation projects for tornadoes include: Protection of windows and doors with stainless steel wire mesh Retrofitting county buildings with wind screens to provide a safe working environment during disaster events to continue operations Construction of county emergency tornado shelters
Plans	Emergency Alert and Warning Systems Operations Annex to the CEMP

Figure below shows NWS tornado tracks from 1950-2017 in Seminole County:



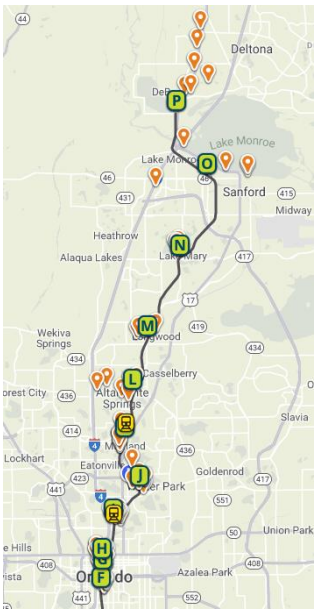
Hazard: Transportation Accident (Aircraft, Rail, Mass Casualty Incident)

Probability of Occurrence	1-5 Years
Risk	43%
Relative Risk	Medium
Description	Seminole County has three (3) small air strips on the east side of Seminole County in Geneva, Lake Harney area, and Chuluota capable of landing a small aircraft (i.e. Cessna). In addition, many small planes use lakes as landing and take-off locations, including Prairie Lake (Altamonte Springs), Lake Jessup (Winter Springs), and various other large bodies of water. The largest airport in Seminole County is an international airport inside the City of Sanford. The Orlando Sanford International Airport (SFB) is situated on approximately 2,000 acres in the boundaries of the City of Sanford in the northwestern section of Seminole County. The Sanford Airport Authority is responsible for the operation, maintenance, and development of the SFB airstrips. In the year 2017, the SFB statistics included 307,064 landings and takeoffs; 196 imports and 136 exports of cargo; and 2,922,446 passenger arrivals and departures. Rail systems are another major transportation method within Seminole County. The addition of the Central Florida Rail Corridor (CFRC) Transit System provides new vulnerabilities for major transportation of persons through the community. SunRail began operations in 2014 with stations in DeBary, Sanford, Lake Mary, Longwood, Altamonte Springs, Maitland, Winter Park, Florida Hospital, LYNX Central Station, Church Street, Orlando Health/Amtrak and Sand Lake Road. The SunRail became fully operational in 2016 and there are now seventeen train stations along the 61 mile CRFC Corridor. The Amtrak Auto Train takes passengers and their vehicles nonstop from Sanford, Florida to the Washington, DC area. In addition to SunRail and the Amtrak Auto Train, Amtrak provides major transportation of customers through the center portions of Seminole County.
Location	No particular geographic area in Seminole County.
Significant Occurrences	(2003): April 5 - Students and chaperones were thrown from their seats as buses slammed into one another on Interstate 4 in the City of Sanford. Of the 118 people on the three buses -- 94 students, 21 chaperones and 3 drivers -- half were injured. They suffered an assortment of cuts and bruises.

	Spatial Extent - accidents are very isolated in nature and would affect less than 25% of the geographical area of the county
	Impacts/ Consequences
Human	High Impact- depending on type of accident, major injuries and mass casualties are possible, especially with aircraft and trains.
Property	Low Impact- depending on nature and scale of accident, isolated property damage could occur.
Environment	Low Impact- any impact would be isolated in nature, unless in the extreme case a fire is started in a vulnerable wildfire area.
Economic	Low Impact- isolated accidents do not pose major threats to the economy, though depending on the type and scale of the accident and areas impacted, the cost to repair and recover could be expensive.
Program Operations	A transportation accident would have little or no impact on program operations.
Responders	Responders would require appropriate personal protective equipment; personnel may need support if a mass casualty incident occurs.
COOP	Impacts to COOP Plan would likely be minimal because the isolated nature of a transportation accident.
Property/ Facilities/ Infrastructure	Isolated property and critical facilities and transportation infrastructure could be shut down or impacted depending on nature, scale and location of event.
Public Confidence in the Jurisdiction's Governance	Public confidence is related to the overall response to a major traffic accident on the part of the County's responders.
	Risk Reduction Through
Mitigation	Mitigation projects for transportations accidents include: Use of autonomous vehicles in state of FL Promote car insurance to residents Installation of train track safety signage
Plans	Comprehensive Emergency Management Plan

The figure below depicts the completion of the beltway around the Orlando Metropolitan area. The Wekiva Parkway will link to State Road 429 (west beltway) and State Road 417 (east beltway) in Heathrow/Lake Mary.

Figure below shows the SunRail stations (the metro-train through the center of the Metropolitan area):



Hazard: Tropical Cyclones (Hurricanes and Tropical Storms)

Probability of Occurrence	1-5 Years
Risk	76%
Relative Risk	High
Description	A tropical cyclone is a rapidly rotating storm system characterized by a low-pressure center, strong winds, and a spiral arrangement of thunderstorms that produce heavy rain. Depending on their size, sustained wind speeds, and location they can be referred to as: Tropical Storms: A tropical storm is a tropical cyclone with an organized system of strong thunderstorms, defined surface circulation, and maximum sustained winds of 39-73 miles per hour. Storms with wind speeds below 39 mph are considered tropical depressions. Hurricanes: A hurricane is a tropical cyclone with sustained wind of forces equal to or exceeding or 74 mph, most often occurring in the Western Atlantic and usually accompanied by rain, thunder, and lightning. Hurricanes are categorized using Saffir-Simpson scale, which measures sustained wind speeds over a 1 minute average and at 33ft above the surface. The categories are: Category 1: Sustained wind speeds of 74-95 mph Category 2: Sustained wind speeds of 96-110 mph Category 3: Sustained wind speeds of 111-129 mph Category 4: Sustained wind speeds of 130-156 mph Category 5: Sustained wind speeds of 157 mph or higher Note: Categories three and above are considered major hurricanes.
Extent	Ranging from a Tropical Storm to the effects of a Category 5 Hurricane (Saffir-Simpson Scale)
Location	Because of the nature and size of these storms, they could affect any part of Seminole County and would likely impact the whole county.
Significant Occurrences	(2004): Hurricanes Charley, Frances, and Jeanne - Local State of

Emergency declared, County offices and schools closed.

(2005): Wilma - flooding rains, etc.

(2008): Tropical Storm Fay - major flooding from torrential rains.

(2016): Hurricane Matthew - tropical storm force winds and heavy rain.

(2017): Hurricane Irma - damages recorded include infrastructure damage, debris, hazardous materials, flooded areas and road damage.

Spatial Extent - Tropical cyclones can have far reaching effects and would impact the entire county.

Impacts/ Consequences

Human	High Impact- depending on the strength of the storm, evacuation may be necessary of low lying areas. Food and water issues may arise if residents are unprepared and injuries and fatalities possible, most likely due to flooding.
Property	High Impact- depending on strength of the storm, structural damage to residential, commercial, industrial, and governmental buildings could be major.
Environment	Varied Impacts- depending on strength of the storm, trees and shrubbery could sustain major damage. Transportation of foreign debris and flooding can disrupt ecosystem services. The Local Mitigation Strategy recognizes that with a changing climate, there is the potential for an increasing risk of environmental impacts from tropical cyclones and that future mitigation and adaptation strategies related to this hazard should be considered.
Economic	High Impact- Depending on strength of the storm, low to high impacts could be felt within the path of the storm on all business sectors. Regional impacts could be greater with a catastrophic storm.
Program Operations	If damage to government offices occurs, relocation may be needed.
Responders	Difficulty responding during event due to dangerous weather conditions; staff may experience fatigue and stress during hazardous conditions, and status of responders' family may affect the responders' ability to perform his/her duties.
COOP	The COOP Plan may be disrupted depending on strength of storm.
Property/ Facilities/ Infrastructure	High Impact- depending on strength of the storm, structural damage to residential, commercial, industrial, and governmental buildings could be major.

Public Confidence in the Jurisdiction's Governance	The public's confidence is related to how well services are kept online, proper warning information, and ability to respond to various hazards associated with tropical cyclones.

Risk Reduction Through

Mitigation	Mitigation projects for tropical cyclones include: Elimination of flooding of commercial buildings by structure modifications Reconstruction and raising elevation of streets Wind and screen protection at shelters Providing wind protection for county fire stations
Plans	Comprehensive Emergency Management Plan Emergency Alert and Warning Systems Operations Annex to the CEMP

Hazard: Violent Acts (Non-Terrorism)

Probability of Occurrence	1-5 Years
Risk	43%
Relative Risk	Medium
Description	Acts of violence in America are a legitimate hazard to communities and municipalities across America. Since the 1990s shootings in public schools, recreational parks, movie theatres, and college campuses have increased in both frequency of incidents and number of fatalities. Violent act hazards are not concentrated to a particular region or locale. Shootings, stabbings and other violent acts can take place anywhere in the country and are highly unpredictable. Perpetrators of violent acts do not have an agenda, do not have a target group in mind and do not have a purpose or mission to be accomplished. Unlike terrorist groups, perpetrators of violent acts are not organized and are very difficult to spot because perpetrators are largely ignored or go unnoticed. Violent acts negatively impact neighborhoods and communities because shootings and fatalities occur to members of younger population demographics (ages 5 to 30).
Location	All of Seminole County
Significant Occurrences	There have been no major recent acts of violence in Seminole County, although one of the deadliest mass shooting occurred in Orlando in 2016, Pulse Night Club - 49 killed, 53 wounded. Spatial Extent - Event would be highly isolated in nature and would impact less than 25% of the geographic area of the county.

Impacts/ Consequences

Human	High Impact- Violent acts can cause mass injuries/casualties depending on nature and scale of act. Mental and emotional stress can also be heightened.
Property	Low Impact- Non-terrorist violent acts typically do not target or impact property specifically, and if so, damage would likely be minimal.
Environment	Low impact- There is low probability that the environment would be impacted from a violent act unless it is an intentional fire.
Economic	Low Impact- any violent act would have minimal effects on local economy.
Program Operations	Unless an act directly impacts government personnel or

	buildings, the impacts would be minimal.
Responders	Would require necessary personal protective equipment depending on nature and scale of situation. Status of responders' family may affect the responders' ability to perform his/her duties.
COOP	The COOP Plan would largely be unaffected by a non-terrorist violent act, depending on the act.
Property/ Facilities/ Infrastructure	Impacts would be isolated to facilities directly related to a violent act and some transportation infrastructure could be disrupted during response to a security threat.
Public Confidence in the Jurisdiction's Governance	Public's confidence would be dependent upon the ability of the County to thwart threat, respond to situation, and protect victims.

Risk Reduction Through

Mitigation	Mitigation projects for violent acts include: Stop the Bleed Training Active Shooter Training Active Shooter Drills School Resource Officers at all public schools
Plans	Active Shooter Response Plan Operations Annex to the CEMP Family Reunification Center Plan

Hazard: Winter Storms/ Freezes

Probability of Occurrence	6-10 Years
Risk	29%
Relative Risk	Low
Description	A freeze is when the surface air temperature is expected to be 32°F or below over a widespread area for at least 3 or more consecutive days. Use of the term is usually restricted to aversive situations or occasions when wind or other conditions prevent frost. "Killing" may be used during the growing season when the temperature is expected to be low enough for a sufficient duration to kill all but the hardiest herbaceous crops. Extreme cold can immobilize an entire region. Even areas, such as Seminole County, that normally experience mild winters can be hit with an extreme cold winter event. Winter storms can result in ice, localized flooding, closed highways, blocked roads, downed power lines, and hypothermia.
Extent	3 - 10 consecutive days of 32°F or lower
Location	Winter Storms/ freezes would impact all of Seminole County.
Significant Occurrences	(1989): December- cold outbreak and hard freeze, temperatures in the 20s, extensive damage to citrus crop, power blackouts, in the entire state of Florida, 26 deaths were the result of hypothermia. (2018): January- NWS declares Hard Freeze in Seminole County causing shelters to be opened for relief from the elements. Spatial Extent- Would likely have county-wide consequences impacting greater than 50% of the geographic area of the county.

Impacts/ Consequences

Human	Low impact- Risk of hypothermia and extreme loss of heat if residents are not prepared for conditions (especially with wind chill factored in). Special needs population, infants, children, and elderly may require more attention.
Property	Low impact- historically, no major problems for properties in Seminole County, but in extreme situations electrical outages and dangerous road conditions are possible.
Environment	Moderate Impact- Damage or loss of susceptible plants and animals. The Local Mitigation Strategy recognizes that with a changing climate, there is the potential for an increasing risk of

	environmental impacts from winter storms/freezes and that future mitigation and adaptation strategies related to this hazard should be considered.
Economic	Low impact- possible impact to agriculture, especially plant and animal industries within the county.
Program Operations	Relatively low impact to operations; prolonged severe cold weather periods may strain utility companies.
Responders	Low impact to responders; extended periods of cold weather increases risk for hypothermia, fatigue, etc.
COOP	Very little to no impact on COOP from a winter storm or freeze except in the case of power outages.
Property/ Facilities/ Infrastructure	Low impact- historically, no major problems for properties in Seminole County, but in extreme situations electrical outages and dangerous road conditions are possible. Major disruption could occur with transportation infrastructure or damage to critical facilities.
Public Confidence in the Jurisdiction's Governance	The public's confidence is dependent upon the ability of responders to provide proper warning, respond to utility outages, and protect vulnerable populations and infrastructure.

Risk Reduction Through

Mitigation	Mitigation projects for winter storms include: Warming centers Public messaging
Plans	Extreme Weather Plan Operations Annex to the CEMP

HAZARD AND VULNERABILITY ASSESSMENT TOOL

RISK = PROBABILITY x (VULNERABILITY - MITIGATION)

INCIDENT	PROBABILITY	VULNERABILITY				MITIGATION			RISK
		HUMAN IMPACT	PROPERTY IMPACT	SPATIAL	ECONOMIC IMPACT	PREPAREDNESS	TRAINING EXERCISE	LOGISTICS	
	Likelihood this will occur	*Possibility of death or injury*	*Physical losses and damages*	*Amount of Geographic Area Affected*	*Interruption of services*	*Specialized Plans*	*Multi-year Training and Exercise Planning*	*Equipment Teams Support*	*Relative threat**
SCORE	1 = 10+ 2 = 6-10 yrs 3 = 1-5 yrs	0 = N/A 1 = Low 2 = Moderate 3 = High	0 = N/A 1 = Low 2 = Moderate 3 = High	1 = Up to 25% 2 = 25-50% 3 = 50 or more	0 = N/A 1 = Low 2 = Moderate 3 = High	1 = Specific Haz Plan /Test 2 = Addressed in other plans 3 = No spec plan for haz	1 = Yearly TEP 2 = TEP every other yr 3 = Rarely trained/exercised	1 = Highly Spec Teams/Equip 2 = Minimal Equip/Teams 3 = Low or none	*0 - 100%*
Agriculture	1	2	1	1	1	2	2	2	**17%**
Civil Disorder	2	2	2	1	2	1	1	1	**32%**
Critical Infrastructure Disruption	3	2	2	2	2	2	3	2	**71%**
Cyber Security	3	3	2	1	3	2	1	3	**71%**
Disease Pandemic	3	3	0	3	3	1	1	1	**57%**
Drought / Water Shortage	3	1	1	3	2	2	3	1	**62%**
Earthquakes	1	1	1	1	1	2	3	1	**16%**
Extreme Heat	3	2	0	3	1	1	2	1	**48%**
Financial Collapse	1	2	1	3	3	2	3	3	**27%**
Fires / Wildfires	3	2	2	1	2	1	1	1	**48%**
Floods	3	2	3	2	2	1	2	1	**62%**
Haz Mat	3	3	1	1	1	1	1	1	**43%**
Mass / Planned Events	3	2	1	1	1	1	1	1	**38%**
Mass Migration / Repat	1	1	0	1	1	1	1	1	**10%**
Severe Weather	3	2	2	3	1	2	1	1	**57%**
Sinkholes	3	1	1	1	1	1	3	1	**43%**
Terrorism	2	3	3	1	3	1	1	1	**41%**
Tornadoes	3	3	3	1	2	2	1	1	**62%**
Transportation	3	3	1	1	1	1	1	1	**43%**
Tropical Cyclones	3	3	3	3	3	1	1	2	**76%**
Violent Acts (Non-Terror)	3	3	1	1	1	1	1	1	**43%**
Winter Storms	2	1	1	3	1	1	1	1	**29%**

**Threat increases with percentage.*

LOW	0%-30%	MEDIUM	31%-60%	HIGH	61% +

Vulnerability

The LMS Working Group has included a multi-layered approach to assessing the vulnerability of the participating jurisdictions to future disasters. The various vulnerability assessments build on the identification of hazards in the community and the risk that the hazards pose to the community.

Local planners can use the hazard identification and risk estimation process to prioritize the facilities and neighborhoods that most need to be assessed for their specific vulnerability, for example by beginning with the jurisdictions exhibiting the highest overall relative risk. Then, for these jurisdictions, the individual facilities, systems and neighborhoods of Seminole County are assessed specifically for the extent of their vulnerability to damage or disruption by the hazard events identified for the corresponding jurisdiction, and the specific impact to the community if this occurred.

Assessing Vulnerabilities

Repetitive Loss Properties

The Flood Mitigation Assistance (FMA) Grant Program was created as part of the National Flood Insurance Reform Act (NFIRA) of 1994 with the goal of reducing or eliminating claims under the National Flood Insurance Program.

Consistent with Biggert-Waters Flood Insurance Reform Act of 2012 (Public Law 112-141), the FMA Grant Program changed in FY 2013 to allow more federal funds for properties with repetitive flood claims and severe repetitive loss properties, and the Repetitive Flood Claims and Severe Repetitive Loss Grant Programs were eliminated.

The primary objective of the Repetitive Loss Properties Strategy is to eliminate or reduce the damage to property and the disruption of life caused by repeated flooding of the same properties. A specific target group of repetitive loss properties is identified and serviced separately from other NFIP policies by the Special Direct Facility (SDF). The target group includes every NFIP-insured property that, since 1978 and regardless of any change(s) of ownership during that period, has experienced:

- Insured property with at least 2 flood claims where the repairs equaled or exceeded 25% of the market value of the structure at the time of the flood event.
- Insured property with flood history of 4 or more separate claims of $5,000 each with cumulative total exceeding $20,000 or at least 2 claim payments where the cumulative amount of 2 claims exceeds the market value of the structure.

Although the Flood Mitigation Assistance Grant Program is federally funded, the program is administered through a partnership with the Florida Division of Emergency Management (FDEM), Native American Tribal governments, and the Federal Emergency Management Agency. FDEM has the authority and responsibility for developing and maintaining a State Mitigation Plan, assisting local jurisdictions and Native American Tribal governments in developing and maintaining Flood Mitigation Plans, reviewing Flood Mitigation Assistance Program sub-applications, recommending

cost effective sub-applications to FEMA and providing pass-through grant funds to awarded Flood Mitigation Assistance Program projects from eligible sub-applicants.

FDEM is also responsible for ensuring that projects funded by the Flood Mitigation Assistance Program are completed and that all performance and financial reporting requirements are met.

	Seminole County	Altamonte Springs	Casselberry	Lake Mary	Longwood	Oviedo	Sanford	Winter Springs
# of Properties by Type								
Residential	38	2	0	0	0	1	7	3
Commercial	2	4	0	0	0	0	3	0
Institutional	0	0	0	0	0	0	0	0
Total # of Repetitive Loss Properties	40	6	0	0	0	1	10	3
# of repetitive Loss Properties in a Special Flood Hazard Area	33	5	0	0	0	0	4	1

The actual database of repetitive loss properties will not be provided in this LMS plan because of the specific address and personal information associated with the information. However, specific requests for information may be requested from any of the appropriate jurisdictions directly, or through the NFIP at FEMA.

Through the various outreach methods in each jurisdiction that has repetitive loss properties, an effort is being made to eliminate or reduce the risks of future flooding to those properties through various mitigation techniques. Each jurisdiction sends a notice to each owner of a property in a repetitive loss area, soliciting interest and participation in various potential mitigation grant programs, and to keep them informed of flood risk and insurance information.

A Floodplain Management Plan is also maintained by the Office of Emergency Management to further plan for the mitigation and reduction of flood risks in Seminole County and its municipalities.

Land Use Trends and Potential Loss

The LMS Working Group recognizes that the way in which land is utilized, especially land within known hazard-prone areas, is a key measure of community vulnerability because some land uses, such as for residential or industrial development, can be more susceptible to disaster-related damages than others. For the Seminole County mitigation strategy, this analysis is done on a jurisdiction-specific basis because individual jurisdictions have the most significant planning and legal control over land use policy.

Within the jurisdictions that have completed this analysis, two reports contain information on land use trends within the jurisdiction:

- Current Land Uses and the Potential for New Development, which identifies the estimated amount of land still available for new development, as well as summarizing the relative extent of current land uses.

- Future Land Uses and General Development Trends, which summarizes the jurisdiction's rate of development of vacant lands or redevelopment of existing properties, and, if the jurisdiction has an adopted land use plan, the desired relative extent of planned land uses.

All jurisdictions in Seminole County continue to grow either slightly or rapidly, and all are participants in the National Flood Insurance Program. Pressure for development into wetland areas continues to be an ongoing issue in the county. The LMS Working Group recognizes that its efforts, particularly to identify the areas of the participating jurisdictions at risk from various hazards, is a key factor in guiding the careful use of land to minimize future vulnerabilities to disaster. When needed and desired by a specific jurisdiction, modifications to the plans, ordinances, codes and similar policies can be proposed as mitigation initiatives for incorporation into this plan.

Critical Facilities and Infrastructure

Seminole County has conducted an inventory of existing buildings, infrastructure, and critical facilities located within the hazard areas boundaries. For purpose of this LMS these include emergency service facilities, medical facilities, government facilities, schools, emergency/ evacuation shelters, fire and police stations, emergency operation center, facilities used by special needs populations, and any other facilities identified by the Office of Emergency Management. This critical facilities list aligns with the critical infrastructure sectors outlines by the Department of Homeland Security and is updated annually.

The identified potentially at-risk critical facilities and structures for Seminole County are listed in the Critical Facility and Structure List maintained by Seminole County's Office of Emergency Management. The Seminole County Comprehensive Emergency Management Plan contains additional information in regard to vulnerable existing buildings, infrastructure, and critical facilities. All listed critical facilities will remain open during disaster operations of all hazards, and prioritization of power restoration is identified on the list. The Critical Facility and Structure List contains confidential information so therefore is not published with this plan.

Mitigation Goals

The LMS Working Group has established a number of goals and objectives to guide its work in the development of this plan. The goals and objectives help to focus the efforts of the group in the mitigation planning effort to achieve an end result that matches the unique needs, capabilities and desires of the participating jurisdictions.

The goals are established for both the entire planning area and all of the participating jurisdictions. During the planning process, a list of suggested goals and objectives selected from the previous LMS document was circulated to members of the LMS Working Group. The goals selected by the LMS Working Group are related to the broad mitigation needs and capabilities of the communities involved, rather than addressing a specific hazard type or category. Therefore, the Seminole County mitigation goals and objectives, by definition, are multi-hazard in scope and can be described as statements of the desired mitigation-related capabilities which will be present in each participating jurisdiction in the future, as the goals are achieved.

Mitigation Actions

The goals established by the LMS Working Group are considered to be broad, general guidance that define the long-term direction of the planning. Each goal statement has one or more objectives that provide a specific framework for actions to be taken by the LMS Working Group and its participants. The objectives define actions or results to be accomplished by the LMS Working Group, participating jurisdictions, or associated agency partners.

The goals selected by the LMS Working Group are intended to create a specific framework for guiding the development of proposed mitigation initiatives for incorporation into the plan. Whenever feasible, the planning participants have associated each proposed mitigation initiative with the goal the initiative is intended to achieve. Proposing mitigation initiatives consistent with the overarching goals is a principal mechanism for the LMS Working Group participants to achieve the stated goals of the mitigation planning program.

Seminole County Local Mitigation Strategy Goals and Objectives

Goal 1 – Local government shall make every reasonable effort to identify, develop, implement, and reduce hazard vulnerability through effective mitigation programs.
1.1 – Annually use historic and scientific data to identify hazards, risk areas and vulnerabilities in the community and make necessary updates to the Local Mitigation Strategy and/ or annexes of the LMS.
1.2 – Proposed mitigation policy changes will be reviewed with the Local Mitigation Strategy Working Group on an as needed basis using historic and scientific data provided by the Seminole County Office of Emergency Management.
1.3 – Effectiveness of completed mitigation initiatives will be measured through the review of after action/ improvement items and public comments gathered during and immediately after a disaster within 90 days of the After Action Report completion.

Goal 2 – All sectors of the community will work together to create a disaster resilient community.
2.1 – Annually review and implement interagency agreements, as needed, to improve multi-jurisdictional/ multi-agency coordination.
2.2 – Quarterly invite public and private sector organizations to LMS Working Group meetings to promote hazard mitigation programming throughout the community.
2.3 – Conduct outreach programs including mitigation at least once annually with businesses, institutions, and community groups.
2.4 – Encourage local elected governing bodies to promulgate the local mitigation plan and support community mitigation programming through annual presentations to all jurisdictions' governing bodies.
2.5 – Ensure participation of each jurisdiction in training and exercise through an annual review of training and exercise documentation.
2.6 – Quarterly review and provide at least one comment on any relevant open statewide or national mitigation planning efforts.
2.7 – Review Disaster Housing Plan during even years and provide mitigation initiatives to the Local Mitigation Strategy Working Group to affect short-term and long-term housing after a disaster.

Goal 3 – Reduce the vulnerability of critical infrastructures and public facilities from the effects of all hazards.

3.1 – Annually identify possible critical infrastructure or facilities which could be retrofitted or relocated using mitigation funding.

3.2 – Evaluate utility, telecommunications, and information technology systems through annual meetings with agency partners to determine potential mitigation opportunities. Retrofit and relocation projects may be submitted to strengthen systems.

3.3 – Annually assess evacuation and access routes to identify potential relocation, retrofit or modification opportunities to ensure safe passage before, during and after disaster events.

3.4 – Annually assess opportunity for shelter retrofit funding for current or future evacuation shelters and apply for funding as applicable.

3.5 – Conduct annual assessment of health and safety needs in the community and propose mitigation or other initiatives based on assessment findings.

3.6 – Annually look for opportunities to construct or retrofit transportation facilities to minimize the potential for disruption during a disaster.

3.7 – Annually invite private sector organizations who own or operate key community resources to LMS Working Group meetings to encourage hazard mitigation programs.

3.8 – Include schools, libraries, museums and other community institutions in vulnerability assessment during 5 year LMS plan update.

Goal 4 – Strengthen continuity planning for local government, businesses and community partners to avoid significant disruptions of services.

4.1 – All jurisdictions will develop and maintain a Continuity of Operations Plan (COOP), within 5 years of LMS plan approval, which includes physical and cyber protective measures for vital local government records and documents from the impacts of disasters.

4.2 – Include continuity of operations planning guidance in a minimum of one presentation annually given to businesses and community partners.

4.3 – Assess buildings and facilities used for the routine operations of government on an annual basis to identify opportunities for relocation or retrofit to withstand the impacts of disasters.

Goal 5 - Develop policies and regulation to support effective hazard mitigation programming throughout the community.

5.1 – Develop and enforce land use policies, plans and regulations to discourage or prohibit inappropriate location of structures or infrastructure components in the special flood hazard area or wildland urban interface. A review of the enforcement of these policies will be conducted annually during the Floodplain Management Plan annual review.

5.2 – Address identified vulnerabilities in building and land development codes on an annual basis through development of new codes and enforcement of current ordinances for new development in participating jurisdictions.

5.3 – All jurisdictions should participate fully in the Building Code Effectiveness Rating Schedule, Fire Suppression Rating Schedule, National Flood Insurance Program, and the associated Community Rating System within a year of plan adoption.

5.4 – Update current ordinances within five years of plan adoption to include rule for the building of new local government facilities to be outside of designated special flood hazard areas and wildland urban interface to withstand impact of natural hazards.

5.5 – Conduct an assessment of potential mitigation or improvement measures during post-disaster reconstruction of local government facilities to reduce the vulnerability to all hazards.

5.6 – Annually conduct outreach to include encouraging the development and enforcement of energy conservation, green development, and resource sustainability best practices.

5.7 – Local Mitigation Strategy goals and objectives should be added to Comprehensive Plans of all participating jurisdictions within two years of plan adoption.

5.8 – Annually maintain, monitor and enhance mitigation tactics to ensure medical facilities (assisted living facilities, nursing homes, and similar) have proper power and HVAC plans in place, and those plans can be implemented after a disaster.

Goal 6 – Encourage economic vitality of the community by promoting business continuity education, disaster planning, and diversifying employment opportunities.

6.1 – Review needs of key employers in the community through annual business liaison meetings.

6.2 – Establish programs, facilities or resources to support business resumption activities within a year of plan adoption.

6.3 – Develop and implement economic development programs within two years of LMS plan approval to encourage diversification of employment base in the community to reduce the losses from the decline of a specific industry.

6.4 – Implement programs within a year of plan adoption to address public awareness and expectations of community condition and functioning in the aftermath of a disaster.

Addressing Known Risks and Vulnerabilities

In addition to developing proposed mitigation initiatives to achieve the established goals and objectives, an important emphasis of the LMS Working Group is to also include proposed mitigation initiatives in its plan that will address known vulnerabilities of important facilities and neighborhoods to the impacts of future natural, technological or human-caused disasters. By reducing known vulnerabilities to future disasters, it is important in the plan to document those initiatives that are intended to address identified vulnerabilities of facilities, systems and neighborhoods, as well as to strengthen the mitigation-related policy framework for the entire county.

There are a number of initiatives that are not directly associated with specific facilities or neighborhoods that have been assessed for their vulnerabilities, but address other mitigation-related concerns, such as storm water drainage —trouble spots in the county. While they may not affect an entire neighborhood or critical roadway, they can create unsafe conditions or damage properties.

National Flood Insurance Program (NFIP) Compliance

All jurisdictions are active participants in the NFIP. In an effort to ensure continued compliance with the NFIP, each participating community will:

- Continue to enforce their 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.
- Continue their Community Rating System outreach programs.

Community Name	Policies In-Force	Insurance In-Force	Written Premium In- Force
Altamonte Springs	601	$138,525,900	$331,623
Casselberry	326	$76,302,100	$250,238
Lake Mary	248	$74,139,800	$109,838
Longwood	199	$56,197,800	$152,644
Oviedo	706	$209,343,900	$282,866
Sanford	603	$151,759,300	$325,322
Winter Springs	690	$197,143,400	$307,835
Seminole County	4,160	$1,191,179,200	$2,066,599

As of 08/07/2018, FEMA NFIP Insurance Report

Community Rating System

The Community Rating System (CRS) is a voluntary program for NFIP-participating communities. The goals of the CRS are to reduce flood losses, to facilitate accurate insurance rating, and to promote

the awareness of flood insurance. The CRS has been developed to provide incentives for communities to go beyond the minimum floodplain management requirements to reduce the losses from flooding. The incentives are in the form of premium discounts.

Community Number	Community Name	CRS Entry Date	Current Effective Date	Current Class	% Discount for SFHA	% Discount for Non-SFHA	Status
120290	Altamonte Springs	10/1/1994	5/1/2014	7	15	5	C
120416	Lake Mary	10/1/2009	10/1/2018	6	20	10	C
120292	Longwood	10/1/1996	10/1/2010	10	0	0	R
120293	Oviedo	10/1/2008	10/1/2013	6	20	10	C
120294	Sanford	10/1/2016	10/1/2016	7	15	5	C
120289	Seminole County	10/1/1991	5/1/2011	6	20	10	C
120295	Winter Springs	10/1/1993	5/1/2013	6	20	10	C

April 2019 NFIP Flood Insurance Manual Status: C= Current, R= Rescinded

It must be emphasized that in many cases, detailed information regarding the areas potentially impacted by a specific hazard, as well as its potential health and safety, property, environmental and economic impacts of that hazard may not have been available. Further, it has not been the intent of the LMS Working Group, nor have funding resources been available, to conduct extensive new studies to obtain such information solely for the purposes of the development of this mitigation plan. Therefore, it has often been necessary to rely on the informed judgment of knowledgeable local officials to identify hazards and derive estimates of the risk each poses to the community.

Implementation

Prioritization of Actions

The LMS Working Group is responsible for identifying projects and activities that the Seminole County and its municipalities want to implement that will support the tasks identified in the Goals and Objectives section. Projects will be submitted to the LMS by eligible applicants. Project submissions must complete a CBA and HMGP scoring form in order to be added to the priority list (see Project List Appendix). To accomplish this responsibility, the LMS Working Group will do the following:

- Establish a schedule for the participants to submit proposed mitigation initiatives to be considered for incorporation into the next edition of the Seminole County Local Mitigation Strategy.
- Ensure the use of risk assessment methodology by all participating agencies and organizations in Seminole County for the identification, characterization and prioritization of proposed mitigation initiatives.
- Distribute the guidance, training or information incorporated into LMS as needed to facilitate complete and accurate submittals by the participants.
- Review each proposed mitigation initiative received for completeness, adherence to the

prescribed methodology, the validity of the characterization information and data used by the participant, and the likelihood that the proposal will actually mitigate the hazard(s) or vulnerability(ies) of concern.

- Prepare a cost/benefit analysis of the proposed mitigation initiatives.
- Compare proposed mitigation initiatives with others already incorporated into the plan or being submitted during the current planning period to ensure an absence of conflict or redundancy in purpose.
- If needed, return the proposed mitigation initiatives to the submitting agency or organization for additional information or analysis to be resubmitted.
- Prepare a recommendation for action by the LMS Working Group to incorporate the proposed mitigation initiative into the Seminole County Local Mitigation Strategy and to consent to listing the proposed initiative on the project list.
- On request of the agency or organization attempting to implement an approved mitigation initiative, the LMS Working Group will certify to any identified party that the proposed mitigation initiative has been approved for incorporation into the strategy.
- The priority of implementation is based on the score given to the project by analysis from the LMS Working Group.

Changes in prioritization of the project rankings could change for several reasons. Environmental conditions, such as a pending drought, would warrant more aggressive or rapid implementation of proposed mitigation initiatives associated with this hazard, even if their overall priority score was less than those addressing flood. In this way, adjustments in the implementation of the plan can be made. Conditions that could warrant a change in the implementation schedule of the mitigation initiatives could include but are not limited to:

- Declared Disasters
- Funding Availability
- New or Revised Policy Development
- Plan Revision Cycles
- Legal or Fiscal Restraints
- Life Safety Priorities

Mitigation Project Priority List

The detailed project priority list can be found in LMS Project Priority List Appendix of this plan. This Appendix (Excel Spreadsheet) also includes the completed and deleted project lists.

Responsible for Mitigation Actions

Once incorporated into the Seminole County Local Mitigation Strategy, the agency or organization proposing the initiative becomes responsible for its implementation. This may mean developing a budget for the effort, or making application to state and federal agencies for financial support for implementation. This is the approach utilized by the LMS Working Group because only the jurisdiction or organization itself has the authority or responsibility to implement its proposed

mitigation initiatives. The current status of implementation of mitigation initiatives incorporated into the plan is discussed in the next section.

In this plan implementation process, the LMS Working Group continues to monitor the implementation status of initiatives, to assign priorities for implementation, and to take other such actions to support and coordinate implementation of initiatives by the involved organizations. In reality, it is the implementation of proposed initiatives, along with other actions by the organizations participating in the planning to maintain, refine and expand the technical analyses used in the planning, that constitutes the process to implement the mitigation plan.

Cost-Benefit Analysis

When a project is submitted for the LMS for inclusion in the Project List with the intention of seeking funds from various grant programs, a cost/benefit analysis worksheet will be submitted with the proposed project for consideration by the LMS Working Group. This worksheet can be found in the Project List Appendix of this plan.

Actions Completed

A mitigation project that has been funded and completed will be added to the Completed Project List. The LMS Completed Project List is maintained and housed within the Office of Emergency Management. This list can be found in the LMS Project Priority List Appendix, Completed List Tab. The LMS project list can change frequently as funding, various local, state and federal requirements, etc. change and/or are updated. For deleted or deferred mitigation projects a list is maintained with each project listed including an explanation as to why the project was deleted or deferred. This list can be found in the LMS Project Priority List Appendix, Deleted List Tab.

Strategy Maintenance

LMS Monitoring and Evaluation

The LMS Plan will be housed in the Seminole County Office of Emergency Management. The LMS Working Group meets on a quarterly basis at a minimum, as well as after times of natural disaster events, and any other time deemed appropriate by the Working Group Chairperson, to update and revise the LMS. The criteria used to evaluate the LMS document and activities should include, but not be limited to the following:

- Federal and/or State Requirements
- Changes in development trends and land use that could affect infrastructure
- Storms or other natural events that have altered Seminole County's hazard areas
- Completion of existing mitigation projects and introduction of new goals
- Changes in policy, procedure or code
- Changes in building codes and practices
- Review of legislative actions that could affect funding of mitigation efforts
- Changes in Flood Insurance Rate Maps, National Flood Insurance Program, etc.

On an annual basis, the LMS Working Group will review the objectives for their completion status.

The plan is periodically reviewed and adopted by the participating jurisdictions' governing bodies to ensure that the mitigation actions taken by their organizations are consistent with each community's larger vision and goals, as well as their overall unique needs and circumstances. The adoption process includes instructing the jurisdictions' agencies and organizations to continue to refine, expand and implement the plan.

LMS Updates

Every five years, the LMS plan applies for formal review to FEMA. A FEMA approved local mitigation plan is what allows participating communities to be eligible for various Federal and state grant programs.

Data collected during the implementation of the plan's objectives will be used to make updates every year, as needed. Damage assessment reports will be collected from disasters to determine what types of mitigation efforts may be necessary. Lessons learned from previous disasters and Improvement Items found from After Action Reports (AAR) may also contribute to the LMS update.

Citizen input will be requested at various times throughout the year. These activities include the annual Severe Weather Awareness Week, Prepare Seminole! campaign, and at various community outreach activities. The Local Mitigation Strategy Basic Plan is posted to the Seminole County Office of Emergency Management mitigation webpage. Any citizen input will be brought up at quarterly LMS meetings to be held at the Seminole County Emergency Operations Center. Each year, a list of meetings times and dates will be posted to the website.

All notes and mitigation efforts will be put together to develop a draft LMS for update. The Seminole County LMS Working Group will establish a more aggressive meeting schedule in preparation for the updated/revised LMS to be resubmitted for approval for each 5-year FEMA formal review. Once the document is ready for review, LMS committee members will conduct a

public meeting to solicit additional input before the LMS plan, any supporting documentation, and the criteria checklist will be first submitted to the Florida Division of Emergency Management for review, and then forwarded to FEMA for review and approval. It will be anticipated the review process could take several months.

Following adoption or approval of the plan by all parties involved, the respective agencies and organizations will continue to implement the plan, to expand its scope, continue its analyses, and take other such continuing action to maintain the planning process. This includes action by the LMS Working Group to routinely incorporate proposed mitigation initiatives into the plan, without the necessity to also continuously solicit the formal approval of the plan by the jurisdictions' governing bodies. This process is administered by the Office of Emergency Management.

Implementation through Existing Plans and Programs

One of the methods to most effectively implement the LMS is to propose and implement initiatives that will further the goals and objectives in the LMS. Implemented initiatives will serve to mitigate existing issues. Other current plans, when reviewed and updated will be compared to the initiatives and objectives of the LMS to ensure that all planning activities work toward the common goal. Some identified planning mechanisms that have been utilized in the past include (but have not been limited to) floodplain ordinances, county and municipal comprehensive plans, land development codes, and the Comprehensive Emergency Management Plan.

Seminole County's Office of Emergency Management has oversight of the process for incorporating the LMS into other local government planning mechanisms. Some plans, such as the Comprehensive Emergency Management Plan (CEMP) and Continuity of Operations Plan (COOP), have prescribed processes that provide the opportunity for integration of LMS goals and objectives at scheduled intervals. During these planning cycles, Emergency Management reviews the LMS for consistency and identifies opportunities to link the LMS to the revised plans. As an example, information collected for the LMS risk assessment will be used to update the CEMP.

As part of the planning integration process, Emergency Management staff also continuously seeks plan-development opportunities that are not part of existing planning cycles, but are relevant to the goals and objectives of the LMS. The process for linking the LMS to planning projects includes identifying mitigation-related elements in the plans under development, and ensuring policies and initiatives in the LMS are considered and addressed. Strategic planning is an example of this, as the process includes looking at both short and long-term needs, and addressing gaps and initiatives through policy and budget.

Public education and outreach is a large portion of the Local Mitigation Strategy. The LMS is incorporated in the Prepare Seminole! Campaign which is a community action program to help all citizens, businesses, and other organizations prepare and mitigate damages. This campaign was launched in 2005 after tornadoes affected the Central Florida area. The public outreach initiative uses LMS goals and objectives to encourage mitigation efforts.

The LMS goals are used to help strengthen vulnerable critical facilities by using other grants, funding opportunities, and policy. The State Homeland Security Grant has been used to strengthen interoperable communication systems that are used during disasters. In addition, these grants have

strengthened capabilities of the Emergency Operations Center to provide redundant communications with other EOCs in the region and the State of Florida EOC in Tallahassee, Florida.

The Development Services Department uses strict building codes to prevent loss from fires, natural disasters, as well as man-made events. In the City of Altamonte Springs, fire sprinkler codes were adopted to prevent the loss of homes and buildings from fires. Strict planning and building codes are used to minimize the vulnerability of newly constructed buildings throughout Seminole County.

Particular highlights of the LMS Working Group efforts to implement the mitigation plan through other plans and programs include updates to the Comprehensive Emergency Management Plan (using the hazards/risk assessment), comprehensive future land use plans of Seminole County and municipalities. One of the Objectives of this Local Mitigation Strategy is to add the LMS Goals and Objectives to each jurisdiction's Comprehensive Plan. These examples demonstrate that each participating jurisdiction is committed to incorporating mitigation principles and concepts into their normal operations and activities via their existing planning and programming processes.

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