

July 2012 and July 2017. Academic publications indicate that the July 2012 storm could have rivaled the Carrington Event.

Solar Radiation Storms

Solar Radiation Storms can occur at any time during the solar cycle, but are most common around solar maximum.

Radio Blackouts

Radio Blackouts are caused by Solar Flares, which are quite common. In fact, minor events or R1 events, occur about 2000 times each solar cycle.

5. Space Weather Impact Analysis

- **Public**
 - Traffic accidents caused by power outages.
 - Power outages.
 - Lost wages.
 - Perishable food and medications.
- **Responders**
 - N/A
- **Continuity of Operations (including continued delivery of services)**
 - Power outages may interrupt operations or delivery of services in government, private businesses, etc.
- **Property, Facilities, Infrastructure**
 - Damage to electrical lines, transformers, etc. may take several days or weeks to repair.
 - Damage to lines may cause fires.
 - Disruptions to computer systems, telephone systems, and other communications systems.
 - Water and wastewater distribution systems.
 - Public transportation systems.
 - All electrical systems that do not have back up power.
 - Heating/air conditioning and electrical lighting systems.
 - Fuel distribution systems and fuel pipelines.
- **Environment**
 - N/A
- **Economic Condition**
 - Extensive power outages would close businesses, causing them to lose revenue and employees to lose wages.
 - High cost of repairing damage to utilities may put a burden on utility companies and they may have to raise rates.
- **Public Confidence in the Jurisdiction's Governance**
 - May lose confidence in jurisdiction if communications or utilities are disrupted for an extended period of time.

6. 2018 LMS Integration

The following counties profile Space Weather Incidents:

- Miami-Dade
- Osceola

7. Vulnerability Analysis and Estimated Losses by Jurisdiction

In 2013, the SHMPAT identified Space Weather as an emerging threat. As of the 2018 update, there is no way to accurately assess risk and vulnerability of jurisdictions to Space Weather. This is because no one county or area in Florida is more vulnerable to Space Weather than another. Additionally, Space Weather impacts are not distributed geographically like natural hazard often are, but instead are based on the power grid. Because of this, there may be impacts in Florida from damage in another state caused by Space Weather.

8. Vulnerability Analysis and Estimated Losses of State Facilities

As explained above, the SHMPAT identified solar storms as a potential emerging threat in 2013. According to current data, there is no way to assess risk and vulnerability of State Facilities to Space Weather. This is because no one area in Florida is more vulnerable than another to this hazard. Additionally, no state facilities are particularly more vulnerable than others to be affected by Space Weather because the geographic distribution of impacts would be based on the power grid.

9. Overall Vulnerability

Each category was given a number and when all 5 categories are added together, the overall vulnerability is a number between 5 and 15.

Based on the Frequency, Probability, and Magnitude summary, the Overall Vulnerability of this hazard was determined to be Medium, with a score of 9.

SPACE WEATHER EVENTS					Overall Vulnerability
Overview					
<p>Space Weather is a broad term used to describe atmospheric events that have the potential to adversely affect conditions on Earth. Space Weather events are caused by the interaction of Earth with emissions from the Sun. There are two causes of space weather events, coronal mass ejections (CMEs) and solar flares, which are different incidents that occur on the Sun. CMEs and solar flares can cause three different types of space weather events on Earth, Geomagnetic Storms, Solar Radiation Storms, and Radio Blackouts.</p>					MEDIUM
Frequency	Probability	Magnitude			
		Injuries/Deaths	Infrastructure	Environment	
Likely	Likely	Medium	Medium	Low	

Radiological Incidents Hazard Profile

1. Radiological Incidents Description

Radioactive material is a substance that gives off radiation. Radiation is a form of energy that is naturally present in our everyday lives. Humans along with all forms of animals are exposed to radiation every day from naturally occurring sources like ground soil or from manufactured sources such as older television sets. Radiation is not bad and actually has many beneficial uses. However, radioactive material can be harmful if it is not used properly. There are two types of radiation, ionizing and non-ionizing. Non-ionizing radiation is used in lasers, microwaves, infrared lamps, and radio waves. This type of radiation is not strong enough to break molecular bonds and is therefore not damaging to living cells. Ionizing radiation has more energy than non-ionizing radiation. When ionizing radiation moves through a material, it leaves enough energy to break molecular bonds and remove electrons from atoms. Ionizing radiation, or particle radiation, is used to generate electric power, treat cancer and it's used in x-rays. Over time, radioactive particles lose their potency in a process called radioactive decay, also known as "half-life". This decay is measured in half-lives, which refers to the time it takes a half of an atom of a radioisotope to decay by emitting radiation. This time can range from fractions of a second, to millions of years.

Radiation is also used in certain industries, such as health care facilities, research institutions, and some manufacturing facilities. While these amounts are typically smaller than the levels found in a power plant, the materials must still be handled properly to avoid contamination or exposure.²⁹⁰ The US Nuclear Regulatory Commission exists to regulate the use of radioactive materials.²⁹¹

Types of Incidents

There are many types of emergencies that may involve radiation or radioactive materials. These incidents may be intentional or unintentional. According to the CDC, the incidents involving radiation that are most likely to occur are a release from a radiological dispersal device, a radiological exposure device, a nuclear power plant accident, a transportation accident, and an occupational accident.

A nuclear emergency would involve the detonation of a nuclear weapon, which includes an intense pulse of heat, light, air pressure, and radiation. A nuclear detonation would produce radioactive fallout, which when given the right conditions, could be carried long distances.

A Radiological Dispersal Device (RDD), also known as a dirty bomb, mixes explosives with radioactive materials. These bombs do not create an atomic blast, but they can spread the radioactive material to the surrounding area when detonated.

A Radiological Exposure Device (RED) contains radioactive material and is hidden so that people are exposed to the radiation without their knowledge. An explosion would be involved with this type of incident.

The transportation and disposal of radioactive materials and waste creates problems because of the long life of radioactive materials. The launch of spacecraft from the Kennedy Space Center also represents a

²⁹⁰ <https://emergency.cdc.gov/radiation/typesofemergencies.asp>

²⁹¹ <https://www.nrc.gov/about-nrc/radiation/health-effects/radiation-basics.html>

significant threat to the state for launch vehicles carrying Radioisotope Thermoelectric Generators (RTG). The primary threat is an in-flight explosion within the first two minutes of vehicle lift-off. The Space Coast of Florida uses nuclear material as a fuel source for some launches. Because of this, the EPA and other agencies are involved with the launches.

A Nuclear Power Plant Incident could involve the release of a large amount of radiation from the plant. This type of release would likely be in the form of a plume, or a large cloud of radiation, which could move from plant facility grounds to the surrounding areas and possibly contaminate people, buildings, food, water, and livestock. In this plume form, radioactive material could enter the body via inhalation or by ingesting contaminated food or water.

Incidents at a nuclear power plant are classified using specific classification levels and criteria.

Table 63: Nuclear Power Plant Incident Classifications

Classification	Description
Unusual Event	An off-normal incident or condition at the plant for which no significant degradation of safety has occurred or is expected. Any releases of radioactive material which may have occurred or are expected to occur are minor and constitute no appreciable health hazard. An unusual event is a minor incident, often non-nuclear, such as a plant worker injury or severe weather. No public action is required.
Alert	An event that involves an actual or potential substantial degradation of safety, combined with a potential for limited uncontrolled releases of radioactivity from the plant. This is still a relatively minor incident, and no public action is required.
Site Area Emergency	An event that involves actual or likely major failures of plant functions needed for protection of the public, combined with a potential for significant uncontrolled releases of radioactivity. Sirens within the 10-mile emergency planning zone around the plant would sound, alerting the public to tune to local radio and television stations for official information. Non-essential plant personnel would evacuate. This category involves a serious incident, such as a reactor coolant leak or fire in a safety system.
General Emergency	An event involving actual or imminent substantial core degradation and potential loss of containment integrity combined with a likelihood of significant uncontrolled releases of radioactivity. This is the most severe emergency. Sirens within the 10-mile zone would sound, alerting people to tune to local radio and television stations for official information. Some public protection measures would be likely.

Effects of Radiation

There are three radiation exposure pathways; direct or external exposure, inhalation, and ingestion. After contamination, the contaminated person or property must be decontaminated properly. However, being exposed to radiation does not necessarily mean that contamination has occurred.

According to Radiation Ready, low frequency sources of non-ionizing radiation are not known to cause health risks. However, high frequency sources of non-ionizing, like ultraviolet radiation, can cause burns and tissue damage with overexposure.

Ionizing radiation can damage living tissue by changing the cell structure and damaging DNA. The level of damage depends on many things, including the type of radiation, the exposure pathway, and the amount of radiation absorbed. The greatest risk from ionizing radiation is developing cancer.²⁹²

Other risks of radiation contamination include Acute Radiation Syndrome, which involves nausea, vomiting, headache, and diarrhea. Additionally, radiation emergencies may also cause emotional and psychological distress or mass panic.

A developing fetus is very susceptible to negative health effects from radiation exposure and radioactive material can also be passed from mothers to babies via breast milk. Infants, children, the elderly, pregnant women, and those with compromised immune systems are more susceptible to health effects of radiation exposure.²⁹³

There are some medical treatments available after radiation exposure or contamination; however, the effectiveness of these treatments depends upon the type of radioactive material. For example, Potassium Iodide (KI) is safe and effective in blocking the uptake of radioactive iodide into the thyroid. Calcium-DTPA and Zinc-DTPA are effective treatments for contamination of plutonium, americium, or curium. Radiogardase, also known as Prussian Blue, is an effective treatment for contamination from cesium-137 or thallium. It is important to note that KI is only effective against radioactive iodine and only prevents thyroid cancer later in life by decreasing the amount of radioactive material that the thyroid absorbs.²⁹⁴

There is also a risk for radioactive materials contaminating crops or livestock. For example, an incident at a nuclear power plant could spread radioactive materials many miles from the plant. In this scenario, crops may need to be de-contaminated or left alone until the radiation dissipates. Additionally, livestock may need to be sheltered from the radioactive plume and fed uncontaminated stored feed, until the radiation dissipates from the grazing fields. This is of particular concern for dairy animals because of the quick turnaround from the time milk is gathered to the time the consumer buys it. Because of this, milk may need to be tested and quarantined until the radiation dissipates.

Security & Authority

The Nuclear Regulatory Commission (NRC) is responsible for licensing and regulating the civilian uses of certain radioactive materials, including uranium, thorium, enriched uranium and plutonium, and byproduct materials. The Code of Federal Regulations requires protections like dose limits for workers, monitoring of materials, and labeling and signage.

The NRC is also responsible for the nuclear security in the U.S. Because of security requirements, nuclear power plants are well protected. Additionally, the NRC is responsible for the security of radioactive materials. The NRC also works with the International Atomic Energy Agency (IAEA), which works to ensure peaceful use of nuclear materials and prevent the spread of nuclear explosive capabilities.²⁹⁵

²⁹² <http://www.radiationready.org/wp/wp-content/uploads/2017/04/Radiation-Exposure-Handout.pdf>

²⁹³ <https://emergency.cdc.gov/radiation/healthandsafety.asp>

²⁹⁴ <https://www.fda.gov/Drugs/EmergencyPreparedness/BioterrorismandDrugPreparedness/ucm063807.htm>

²⁹⁵ <https://www.nrc.gov/about-nrc/radiation/protects-you/reg-matls.html>

The Environmental Protection Agency (EPA) has the ability and authority to respond to many types of radiological incidents in a coordinating role.²⁹⁶

Frequency

This hazard was determined to occur about every 50-100 years, giving it a Frequency ranking of Not Likely.

Magnitude

This hazard's Injuries and Deaths Magnitude was determined to be High, meaning any deaths are recorded.

This hazard's Infrastructure Magnitude was determined to be Medium, meaning significant damage to property occurs.

This hazard's Environment Magnitude was determined to be Medium, meaning some damage to the environment occurs.

2. Geographic Areas Affected by Radiological Incidents

There are active two nuclear power plants in the State of Florida which each house two working reactors, one decommissioned plant, and another active plant on the Alabama-Florida border.

An incident at the St. Lucie Nuclear Power Plant, on Hutchinson Island in Jensen Beach, Florida, would affect residents within a 10-mile radius of the plant, which includes portions of St. Lucie County and Martin County. The ingestion pathway zone is about a 50-mile radius and could potentially affect Brevard, Glades, Highlands, Indian River, Martin, Okeechobee, Osceola, Palm Beach, and St. Lucie counties.

An incident at the Turkey Point Nuclear Power Plant in Homestead, Florida in southeast Miami-Dade County, would affect residents within a 10-mile radius of the plant, which includes portions of Miami-Dade County and Monroe County. The ingestion pathway zone is a 50-mile radius and potentially affected counties are Collier, Bay, Miami-Dade, and Monroe counties.

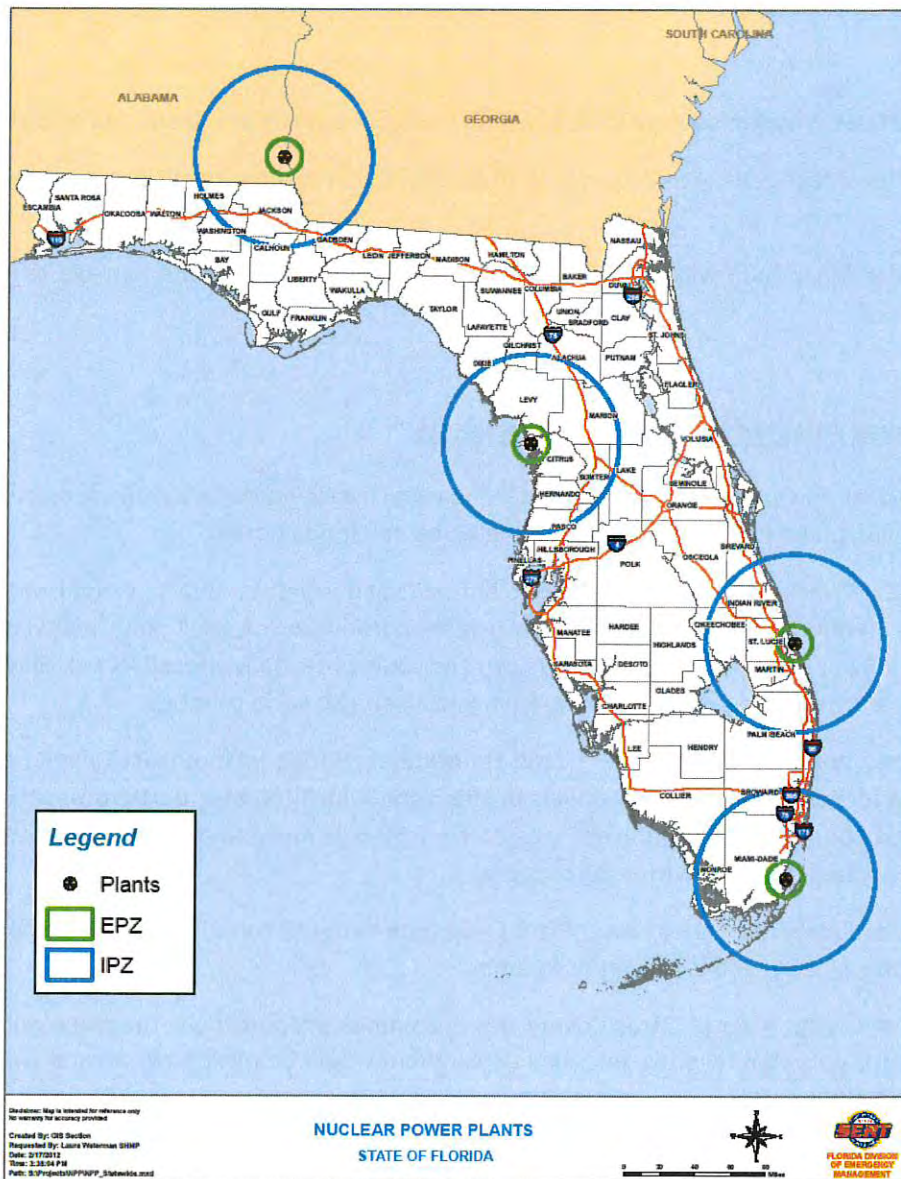
Plant Farley is near Dothan, Alabama. Farley Power Plant's Ingestion Pathway counties are Bay, Calhoun, Gadsden, Holmes, Jackson, Liberty, and Washington counties.

A Nuclear Power Plant at Crystal River in Citrus County was decommissioned in 2013. The plant will be monitored for 60 years for potential releases, but any release there would be nuclear waste and would not contaminate the surrounding area.

Below is a map showing the portions of the counties that are at risk for a radiological incident to impact the county.

²⁹⁶ <https://www.epa.gov/radiation/radiological-emergency-response-authorities>

Figure 103: Florida Emergency Planning Zones and Ingestion Pathway Zones



The University of Florida has a nuclear reactor for scientific research. An incident with the nuclear reactor could affect Alachua County.

King’s Bay Naval Base in southern Georgia is in close proximity to the Florida border. The base has some radioactive materials on site so Florida participates in the King’s Bay exercises. An incident at the base could affect northeastern Florida counties.

All ports in Florida have radiation monitoring equipment to monitor incoming materials from cargo ships and other vessels that could be carrying radioactive materials.

3. Historical Occurrences of Radiological Incidents

Table 64: Florida Historical Occurrences, Radiological Incidents²⁹⁷

Date	Description
November 17, 1976	China tested two nuclear weapons in 1976. The two detonations resulted in radioactive material being injected into the atmosphere. The EPA noticed low, but measurable, quantities of radioactive material in the U.S.
March 28, 1979	Three Mile Island, Pennsylvania had a series of mechanical, electrical and human failures that led to the accidental release of a small amount of radioactive material to the environment. The area was monitored for 10 years to ensure public health and the environment were protected.
April 26, 1986	In Chernobyl, Ukraine a reactor at a nuclear power station exploded and caused a release of large quantities of radioactive material. It became one of the most disastrous nuclear power plant accidents in history, both in terms of cost and casualties.
1989, 1990, 2011	NASA Launch Support in Florida has many spacecraft that are launched carrying a radioactive source on board. Many agencies were involved in developing a plan for possible accidents and radiological releases.
September 30, 1999	In Tokaimura, Japan a release occurred from a nuclear material processing facility, however most of the release was contained to the building and did not cause any exposure or contamination to the U.S.
2000, 2011	The Los Alamos and Los Conchas Fires threatened communities with radiological release. Radioactive waste located on Los Alamos National Laboratory property was threatened by wildfires on numerous occasions. The fire never reached the contaminated areas and no radioactive material was released or spread.
March 11, 2011	The Fukushima, Japan earthquake led to a tsunami which struck and damaged the plant causing explosions which allowed radioactive elements to escape into the environment
February 14, 2014	A Waste Isolation Pilot Plant Radioactive Release in New Mexico did not pose a threat to public health or the environment.

4. Probability of Future Radiological Incidents

While it is unlikely that a radiological incident will occur, the consequences could be devastating. Radiological incidents can range from a minor emergency with no offsite effects to a major emergency that may result in an offsite release of radioactive materials. The probability of a radiological incident is impossible to predict with certainty, and even threats that can be anticipated, require a large and concentrated effort to mitigate the potential damage.

This hazard was determined to occur about every 50-100 years, giving it a Probability ranking of Not Likely.

²⁹⁷ <https://www.epa.gov/radiation/radiological-emergency-response-planning-and-past-responses#tab-3>

5. Radiological Incident Impact Analysis

- Public
 - Contamination or radiation poisoning.
- Responders
 - Contamination or radiation poisoning.
 - Special equipment will be needed to handle radioactive materials.
- Continuity of Operations (including continued delivery of services)
 - Disruption of nuclear power plant.
 - Disruption of production of crops and milk.
- Property, Facilities, Infrastructure
 - Require de-contamination of facility.
 - Could damage surrounding properties.
- Environment
 - Require de-contamination or closing of areas until the radiation dissipates on its own.
 - Could affect animal species and habitats leading to decreased numbers.
- Economic Condition
 - Disruption of a nuclear power plant would be costly to owners and consumers. There would be lost wages, lost revenue, and cost of recovery and remediation.
 - Disruption of food and milk production or delivery would be costly to farmers, distributors, grocery stores, consumers. There would be lost wages, lost revenue, and cost of recovery, remediation, and replacement.
- Public Confidence in Jurisdiction's Governance
 - Incident at a nuclear power plant would cause significant loss of public confidence in the jurisdiction, as panic would likely ensue.
 - Public would take their own protective measures, such as evacuations, even if authorities told them they were safe.

6. 2018 LMS Integration

The following counties profile Radiological Incidents:

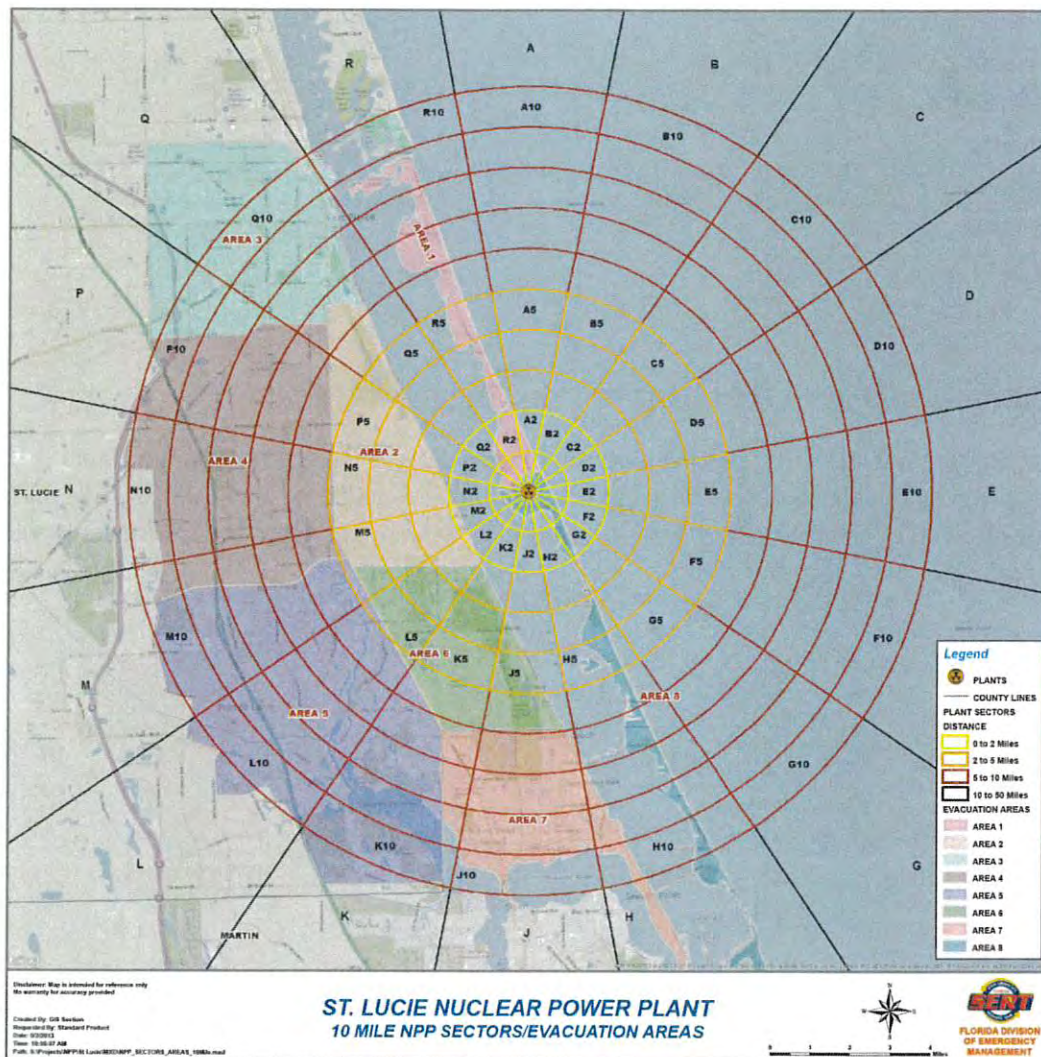
- Brevard
- Citrus
- Dixie
- Escambia
- Gulf
- Hillsborough
- Indian River
- Jackson
- Lee

-
- Levy
 - Martin
 - Miami-Dade
 - Osceola
 - Palm Beach
 - Pinellas
 - Seminole
 - St. Lucie
 - Walton

7. Vulnerability Analysis and Estimated Losses by Jurisdiction

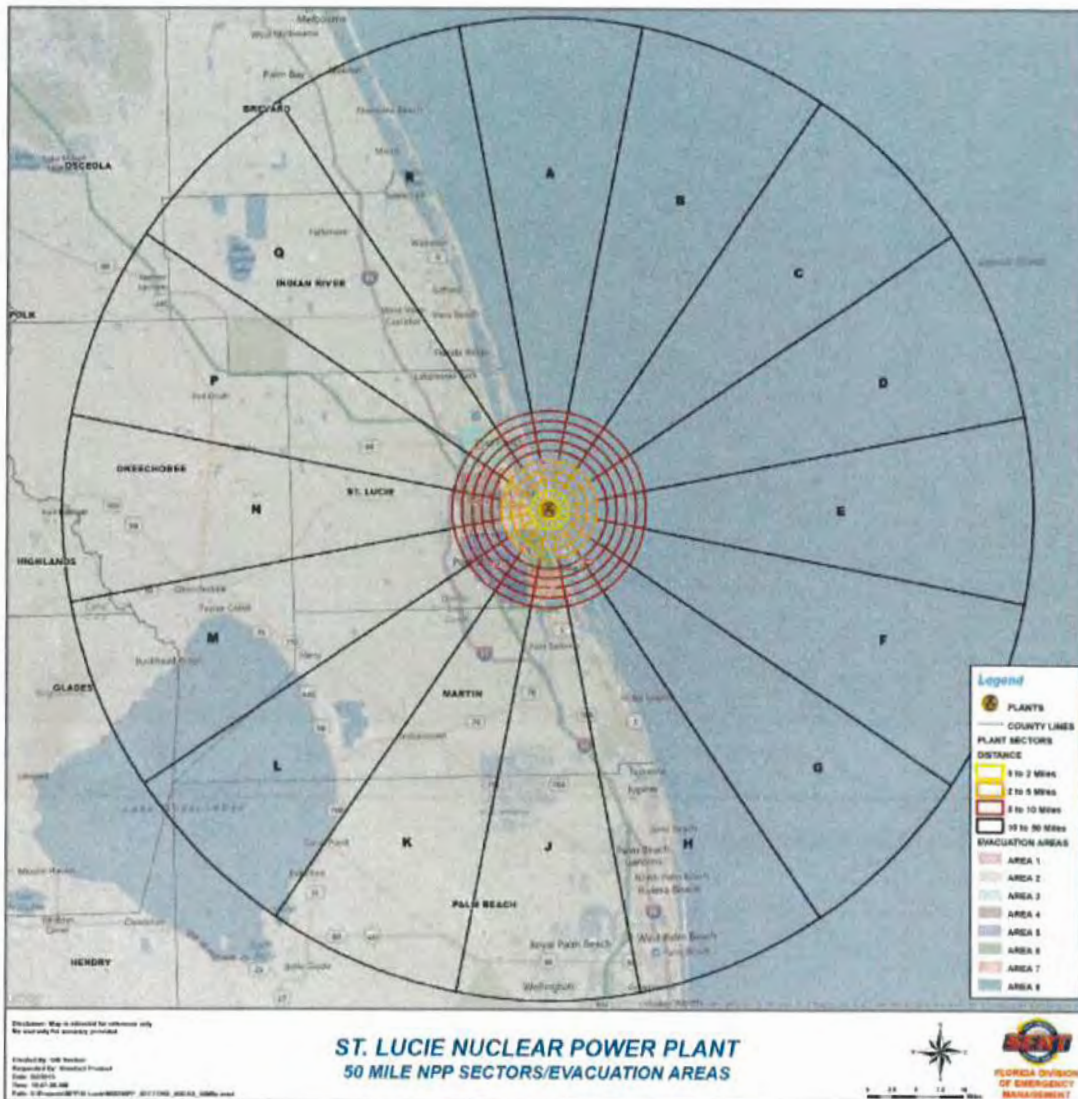
For nuclear power plant incidents, areas at risk are normally designated as (1) within the plume emergency planning zone (EPZ) of such facilities (i.e., jurisdiction located within a 10-mile radius of a nuclear power plant) or (2) within the ingestion emergency planning zone (IPZ) (i.e., jurisdictions within a 50-mile radius of a nuclear power plant).

Figure 104: St. Lucie Nuclear Power Plant 10 Mile Emergency Planning Zone



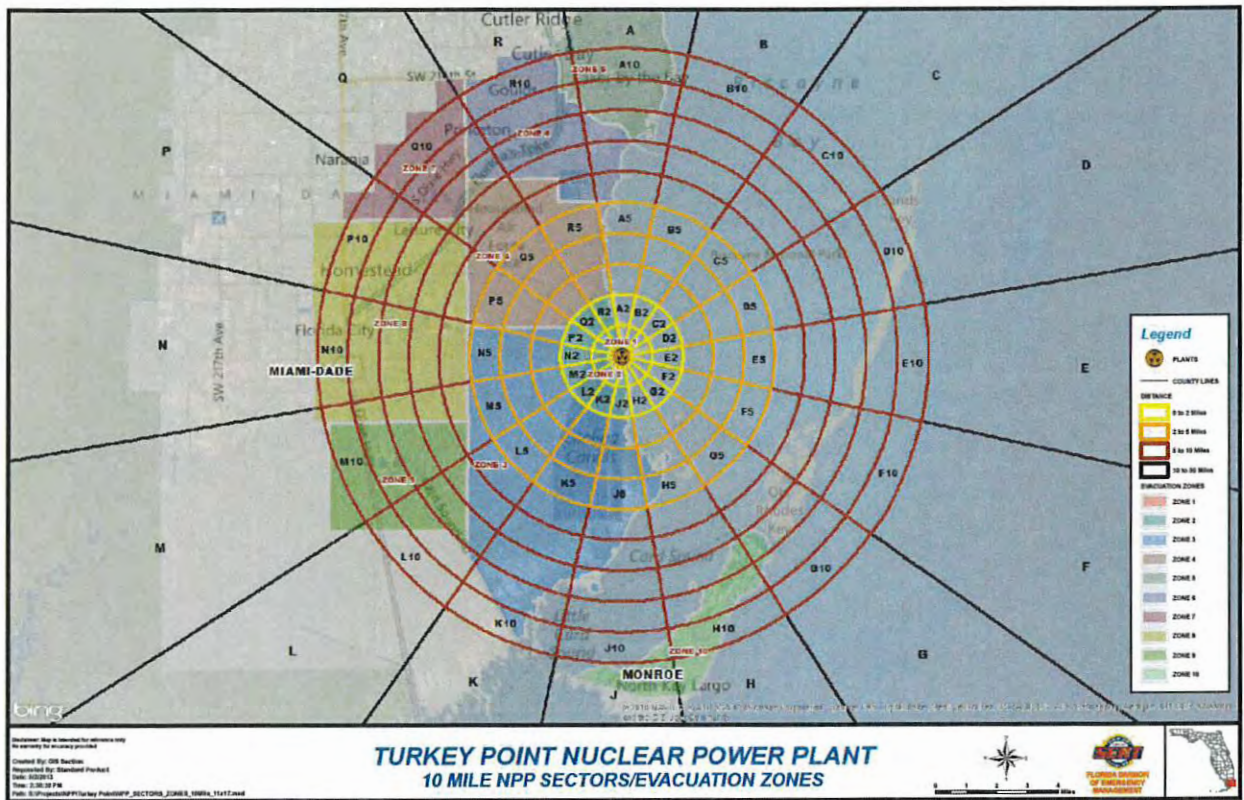
Vulnerable counties include St. Lucie and Martin.

Figure 105: St. Lucie Nuclear Power Plant 50 Mile Ingestion Pathway Zone



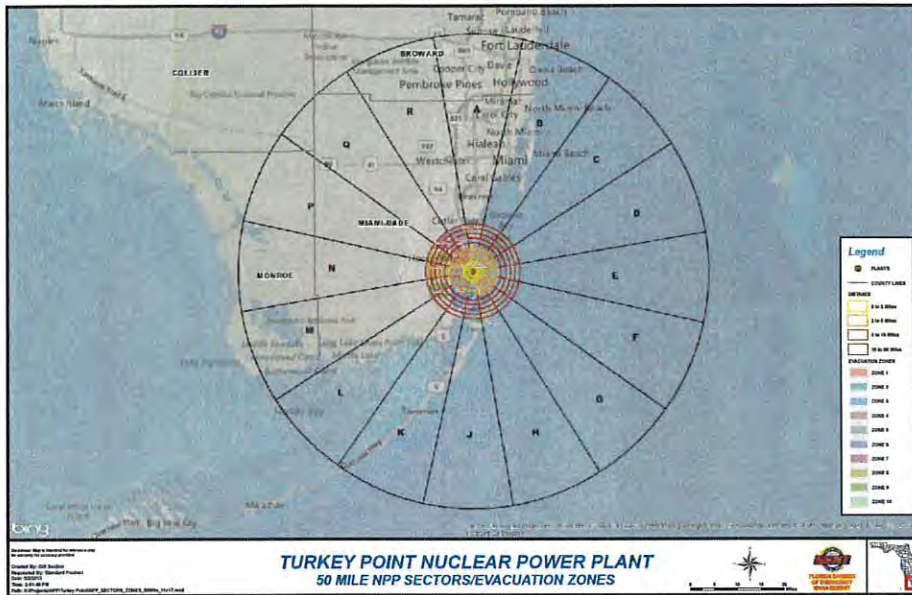
Vulnerable counties include St. Lucie, Okeechobee, Highlands, Glades, Hendry, Martin, and Palm Beach.

Figure 106: Turkey Point Nuclear Power Plant 10 Mile Emergency Planning Zone



Vulnerable counties include Miami-Dade and Monroe.

Figure 107: Turkey Point Nuclear Power Plant 50 Mile Ingestion Pathway Zone



Vulnerable counties include Miami-Dade, Monroe, Broward, and Collier.

8. Vulnerability Analysis and Estimated Losses of State Facilities

State facilities are not vulnerable to radiological incidents involving the nuclear power plants in the state. Any individuals within state facilities that are within the EPZ or IPZ areas may be required to take protective actions. If a facility were to become contaminated, it may need to be closed and decontaminated, which may interrupt normal state operations.

9. Overall Vulnerability

Each category was given a number and when all 5 categories are added together, the overall vulnerability is a number between 5 and 15.

Based on the Frequency, Probability, and Magnitude summary, the Overall Vulnerability of this hazard was determined to be Medium, with a score of 9.

RADIOLOGICAL INCIDENTS					Overall Vulnerability
Overview					
<p>Radiation is a form of energy that is naturally present in our everyday lives, and radioactive material is a substance that gives off radiation. There are many types of emergencies that may involve radiation or radioactive materials and may be intentional or unintentional. According to the CDC, the incidents involving radiation that are most likely to occur are a nuclear emergency, a release from a radiological dispersal device, a radiological exposure device, a nuclear power plant accident, a transportation accident, and an occupational accident.</p>					MEDIUM
Frequency	Probability	Magnitude			
		Injuries/Deaths	Infrastructure	Environment	
Not Likely	Not Likely	High	Medium	Medium	

Terrorism Hazard Profile

1. Terrorism Description

The population, property, and environmental resources of the State of Florida are vulnerable to a threatened or actual terrorist attack. While there are multiple definitions and political connotations that accompany the term terrorism, for the purpose of this document the following definition will be used;

"Terrorism is defined in the Code of Federal Regulations as "the unlawful use of force and violence against persons or property to intimidate or coerce a government, the civilian population, or any segment thereof, in furtherance of political or social objectives. It is the use of force or violence against persons or property in violation of the criminal laws of the United States for purposes of intimidation, coercion, or ransom".

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. If a terrorist incident occurs in a city or county, communities may receive assistance from federal agencies under the existing Integrated Emergency Management System. The Department of Homeland Security is the lead federal agency for supporting state and local response to the consequences of terrorist attacks.²⁹⁸

Terrorism is often categorized as either domestic, international, or lone wolf.

Domestic

The U.S. Patriot Act defines domestic terrorism as an attempt to "intimidate or coerce a civilian population; to influence the policy of a government by intimidation or coercion; or to affect the conduct of a government by mass destruction, assassination, or kidnapping".

Domestic terrorism involves groups or individuals whose terrorist activities are directed at elements of the U.S. government or population without foreign direction. It is the unlawful use, or threatened use, of violence by a group or individual based and operating entirely within the United States, or its territories, without foreign direction, committed against persons or property to intimidate or coerce a government, the civilian population, or any group, in furtherance of political or social objectives. This can also include single issue groups looking to further specific social ideas or practices.²⁹⁹

International

International terrorism involves groups or individuals whose terrorist activities are foreign-based and/or directed by countries or groups outside the United States or whose activities transcend national boundaries. This distinction refers not to where the terrorist act takes place but rather to the origin of the individuals or groups responsible for it.

For example, the 1995 bombing of the Murrah Federal Building in Oklahoma City was an act of domestic terrorism, but the attacks of September 11, 2001 were international in nature. For the purposes of

²⁹⁸ <https://www.fema.gov/pdf/plan/managingemerconseq.pdf>

²⁹⁹ <https://archives.fbi.gov/archives/news/testimony/the-terrorist-threat-confronting-the-united-states>

consequence management, the origin of the perpetrator(s) is of less importance than the impacts of the attack on life and property; thus, the distinction between domestic and international terrorism is less relevant for the purposes of mitigation, preparedness, response, and recovery than for understanding the capabilities of terrorist groups and how to respond to the impacts they can generate.

Lone Wolf

Lone wolf terrorism is used to describe violent acts committed by a single perpetrator. The person acts independently and without the help of outside organizations. A lone wolf terrorist may, however, follow the ideology of a particular organization or group and may commit acts of terror to show their support of said group. Many of these individuals exclude themselves, or feel excluded, from normal social interactions and day to day relationships. In their social exclusion, lone individuals feel deprived of what they perceive as values to which they are entitled, and form grievances against the government or people who they feel are responsible for their problems, such as unemployment, discrimination, and injustices. Their violence is a means to achieve their goals and to punish those responsible.³⁰⁰

Effects

The effects of terrorism can vary significantly—from loss of life and injuries to property damage and disruptions in services such as electricity, water supply, public transportation, and communications. One way that governments attempt to reduce vulnerability to terrorist incidents is by increasing security at airports and other public facilities that could be considered as targets.

While one can never predict what target a terrorist will choose, the following are some of the factors many use when selecting a target:

- Produce a large number of victims.
- Cause mass panic.
- Target locations that have symbolic or cultural value, and areas where large groups congregate.
- Garner the greatest possible media attention.

Terrorists are likely to target heavily populated, enclosed areas like stadiums, government buildings, sporting events, airport terminals, subways, shopping malls, and industrial manufacturing facilities.

A terrorist attack can take several forms, depending on the technological means available to the terrorist, the nature of the political issue motivating the attack, and the points of weakness of the terrorist's target. Other possibilities include an attack at transportation facilities, an attack against utilities or other public services, an incident involving chemical or biological agents, an active shooter, or a cyber-attack.

In 2011, the U.S. Department of Homeland Security (DHS) replaced the color-coded alerts of the Homeland Security Advisory System (HSAS) with the National Terrorism Advisory System (NTAS), designed to more effectively communicate information about terrorist threats by providing timely, detailed information to the public. The system uses the following three alerts:

³⁰⁰ <https://www.ncjrs.gov/pdffiles1/nij/grants/248691.pdf>

- **Bulletin:** describes current developments or general trends regarding threats of terrorism.
- **Elevated Alert:** warns of a credible terrorism threat against the United States.
- **Imminent Alert:** warns of a credible, specific and impending terrorism threat against the United States.

In an effort to include and prepare the entire community, DHS created the “If You See Something, Say Something” campaign. It is a national campaign that raises public awareness of the indicators of terrorism and terrorism-related crime, as well as the importance of reporting suspicious activity to state and local law enforcement. Suspicious activity could include, but isn’t limited to, unusual items or situations, eliciting information, and observation or surveillance.

Terrorism in Florida

Florida is considered to be vulnerable because the chief objective of a terrorist is to spread fear and create economic damage. Florida is a major tourist attraction with large theme parks, beaches, cruise lines, and military bases.

The open availability of basic shelf-type chemicals and mail-order biological research materials, coupled with access to even the crudest laboratory facilities, could enable the individual extremist or an organized terrorist faction to manufacture highly lethal substances or to fashion less sophisticated weapons of mass destruction (WMD). The use of such weapons could result in mass casualties and long-term contamination, wreaking havoc on both the state and national economies.

Unlike natural disasters, there are relatively few methods to predict the time or place of a terrorist incident. This fact negates the “watch” and “warning” time phases. The action phases for a terrorist incident are Prevention, Protection, Mitigation, Response, and Recovery. Activities associated with each action are detailed below.

- ***Prevention Phase***
 - The actions during this phase are those taken by local, state, and federal agencies to monitor and coordinate intelligence and other potential indicators to prevent, defend against, prepare for, and mitigate the impacts of terrorist attacks against the nation.
 - Florida uses intelligence provided by Fusion Centers, Joint Terrorism Taskforces, and Regional Domestic Security Taskforces.
- ***Protection Phase***
 - The actions during this phase are those taken by local, state, and federal agencies to limit the impacts of a potential event on a specific area.
- ***Mitigation Phase***
 - The actions during this phase are those that require time to carry out. They include training, planning, public awareness, and any activities that require long-term programs to accomplish their objectives.

- **Response Phase**

- These actions are those taken immediately after an incident to 72 hours after the incident, with the major goal of saving lives, alleviating suffering, and preventing further disaster.
- When responding to disaster events, the National Incident Management System (NIMS) is used by qualified staff to manage the response actions.

- **Recovery Phase**

- The actions during this phase are those taken during the first one to two months after the incident.
- These actions, which begin immediately after the emergency response operations, have the goal of returning the state and citizens to normal conditions.
- The emphasis will transition from saving lives to cleanup of the affected areas and returning people to normal activities.

Florida realizes that there is appropriate concern that a terrorist event is possible due to the state's highly visible and popular tourist destinations. The state also has nuclear power plant locations, numerous international shipping ports, cruise ship destinations, and large-capacity arenas.

Mitigation and preparedness planning grants are one way that Florida works to mitigate the risks of terrorist attacks. The Florida Division of Emergency Management (FDEM) is the State Administrative Agency (SAA) for the Department of Homeland Security Grant Program (HSGP). HSGP is comprised of three grant programs. The Domestic Security Unit is responsible for the administration of these programs for the State of Florida. The three programs include:

- **State Homeland Security Grant Program (SHGP):** The SHGP assists state, tribal, territorial, and local preparedness activities that address high-priority preparedness gaps across all core capabilities that support terrorism preparedness.
- **Urban Area Security Initiative (UASI):** The UASI program assists high-threat, high-density Urban Areas in efforts to build, sustain, and deliver the capabilities necessary to prevent, protect against, mitigate, respond to, and recover from acts of terrorism.
- **Operation Stonegarden (OPSG):** The OPSG Program supports enhanced cooperation and coordination between Customs and Border Protection, United States Border Patrol, and federal, state, local, tribal, and territorial law enforcement agencies. The OPSG Program provides funding to support joint efforts to secure the United States' borders along routes of ingress from international borders to include travel corridors in states bordering Mexico and Canada, as well as states and territories with international water borders.

With the vast majority of America's critical infrastructure owned and/or operated by state, local, and private sector partners, critical infrastructure and key resource (CI/KR) locations within the state that are determined to be credible targets of a terrorist event can be documented and monitored. Structures

selected for inclusion in the CI/KR list are eligible for additional government grant funding to increase their security against a terrorist event.

One example of funding for which CI/KR sites qualify is the Buffer Zone Protection Program (BZPP). The purpose of the BZPP is to make it more difficult for terrorists to conduct planning activities or successfully launch attacks from the immediate vicinity of likely targets. The program is based on the premise that local law enforcement agencies and first responders are on the front lines preventing, defending against, preparing for, and mitigating the impacts of terrorist attacks against our nation. The funds provided by the BZPP are provided to increase the preparedness capabilities of jurisdictions responsible for the safety and security of communities surrounding high-priority critical infrastructure and key resource (CIKR) assets through allowable planning and equipment acquisition.

Florida utilizes the Domestic Security Strategic Plan for terrorist attacks. Florida's Domestic Security Strategic Plan remains a working document, reviewed and prioritized each year. Seven Regional Domestic Security Task Forces (RDSTF's) co-chaired by a local sheriff or police chief and the local FDLE Special Agent in Charge, are the foundation of Florida's Domestic Security Strategy. These multi-jurisdictional and multidisciplinary task forces work together to strengthen Florida's domestic security preparedness, prevention, protection, mitigation, and response. In addition to law enforcement, task force members include first responders such as fire rescue, emergency management, public health, and hospitals. The task force also works with schools, businesses, and private industries.³⁰¹

Chemical

Chemical terrorism is the deliberate release of certain chemicals that could poison people, animals, plants, or the environment. Chemical agents can be delivered in various forms—vapors, aerosols, liquids and solids—and by a wide variety of methods, including sprays and explosives. Chemical warfare agents are substances specifically designed to kill, seriously injure, or disable people. In general, terrorists use chemical agents because they are relatively easy and cheap to make.

Most chemical agents, depending on their type, concentration, and length of exposure, can be deadly. These chemicals can be categorized by type or by their effect. The Center for Disease Control (CDC) categorizes the following types:

- Anticoagulants – cause uncontrolled bleeding
- Biotoxins – come from plants or animals
- Blister Agents – blister the eyes, skin, or throat and lungs
- Blood Agents – absorbed into the blood
- Caustics – burn on contact
- Choking, Lung and Pulmonary Agents
- Incapacitating Agents – alter consciousness or thinking
- Metallic Poisons
- Nerve Agents – prevent the nervous system from functioning properly
- Organic Solvents – damage living tissue by dissolving fats and oils
- Tear gas and riot control agents

³⁰¹ http://www.fdle.state.fl.us/Publications/Documents/Brochures/DomesticSecurity_Brochure_2017_02.aspx

- Toxic Alcohols
- Vomiting Agents

Chemical agents can produce effects quickly, sometimes within a few seconds, or slowly, sometimes as much as two days after exposure with some agents being odorless and tasteless.³⁰²

Biological

Bioterrorism refers to the intentional release of toxic biological agents to harm and terrorize civilians, in the name of a cause. Biological agents are living organisms, or the products of living organisms, that can be deadly. Biological agents can go undetected for hours to days. Signs and symptoms might initially look like a bad cold, flu, or other common illness. Some agents can be extremely lethal in very small quantities. Biological weapons fall into three categories: bacteria, viruses, and toxins with bacteria. All three types can potentially be deadly to people and animals. The CDC has classified the viruses, bacteria, and toxins that could be used in an attack. Category A Biological Diseases are those most likely to do the most damage. They include:

- Anthrax (*Bacillus anthracis*)
- Botulism (*Clostridium botulinum* toxin)
- The Plague (*Yersinia pestis*)
- Smallpox (*Variola major*)
- Tularemia (*Francisella tularensis*)
- Hemorrhagic Fever
- Ebola Virus

Bioweapons can also be spliced to create a super-virus that either has no cure or is resistant to already formulated antidotes. For more information on Biological Hazards please see the *Biological Incident Profile* on page 399.

Nuclear

Nuclear terrorism refers to a number of different ways nuclear materials might be exploited as a terrorist tactic. These include attacking nuclear facilities, purchasing nuclear weapons, building nuclear weapons or otherwise finding ways to disperse radioactive materials. There are low levels of radiation exposure present in the everyday environment, but the danger in a nuclear terrorist attack comes with the amount and type of radiation given off.

Given the number of capable groups with serious intent, the increasing accessibility of weapons or nuclear materials from which elementary weapons could be constructed, and the countless ways in which terrorists could smuggle a weapon across borders, nuclear terrorism has become a clear and present danger.

Nuclear terrorism can involve the use of Weapons of Mass Destruction (WMD's). Weapons of mass destruction are defined as (1) any destructive device as defined in 18 U.S.C., Section 2332a, which includes any explosive, incendiary, or poison gas, bomb, grenade, rocket having a propellant charge of more than

³⁰² http://www.acsim.army.mil/readymil/Chemical_Terrorism_Fact_Sheet.pdf

four ounces, missile having an explosive or incendiary charge of more than one quarter ounce, mine or device similar to the above; (2) poison gas; (3) any weapon involving a disease organism; or (4) any weapon that is designed to release radiation or radioactivity at a level dangerous to human life.

The effects of a nuclear attack depend on how much radiation is received, how long someone is exposed to the radiation, and how the radiation entered the body.

Environmental

Ecoterrorism, a recently coined term, describes violence in the interests of environmentalism. In general, environmental extremists sabotage property to inflict economic damage on industries or actors they see as harming animals or the natural environment. These have included fur companies, logging companies, and animal research laboratories. This can also be known as special interest terrorism.

Special interest terrorism differs from traditional right-wing and left-wing terrorism in that extremist special interest groups seek to resolve specific issues, rather than effect widespread political change. These groups continue to conduct acts of politically motivated violence to force segments of society, including the general public, to change attitudes about issues considered important to their causes. These groups occupy the extreme fringes of animal rights, pro-life, environmental, anti-nuclear, and other movements. Some special interest extremists, most notably within the animal rights and environmental movements, have turned increasingly toward vandalism and terrorist activity in attempts to further their causes. The Animal Liberation Front (ALF) and the Earth Liberation Front (ELF) have also become well known for their use of arson to destroy facilities and spread their message.

Bombing

The easiest to obtain and use of all weapons is still a conventional explosive device, or improvised bomb, which may be used to cause massive local destruction or to disperse chemical, biological, or radiological agents.

Many of the devices used by terrorists today are IED's.³⁰³ An improvised explosive device (IED) is a homemade bomb or destructive device used to destroy, incapacitate, harass, or distract. IED's are categorized as being explosive or incendiary, employing high or low filler explosive materials to explode or cause fires. IED's can come in many forms, ranging from small, easy to make pipe bombs to more sophisticated devices capable of mass damage and loss of life. These devices can be lightweight and easy to carry such as the backpacks of the Boston Marathon bombers; however, they can also be large enough that use of a vehicle to transport is necessary, such as the bombing of the Alfred P. Murrah Federal Building in Oklahoma City. IED's can also be made of numerous chemicals and hazardous materials and may include the use of shrapnel such as nails or ball bearings.

The components are readily available, as are detailed instructions to construct such a device. Large, powerful devices can be outfitted with timed or remotely triggered detonators and can be designed to be activated by light, pressure, movement, or radio transmission. The potential exists for single or multiple bombing incidents in single or multiple municipalities. Historically, less than five percent of actual or attempted bombings were preceded by a threat. Explosive materials can be employed covertly with little

³⁰³ https://www.dhs.gov/xlibrary/assets/prep_ied_fact_sheet.pdf

signature and are not readily detectable. Secondary explosive devices may also be used as weapons against responders and the public in coincident acts.³⁰⁴

Cyber Attack

Cyber terrorism is the premeditated use of disruptive activities, or the threat thereof, against computers and/or networks, with the intention to cause harm or further social, ideological, religious, political or similar objectives, or to intimidate any person in furtherance of such objectives. Cyberterrorists use information technology to attack civilians and draw attention to their cause. This form of terrorism could severely disrupt the U.S. financial sector and banking, communications, transportation systems, business operations, and all major government infrastructure that relies on computers and the Internet.

This may mean that they use information technology, such as computer systems or telecommunications, as a tool to orchestrate a traditional attack. More often, cyberterrorism refers to an attack on information technology itself in a way that would radically disrupt networked services. For example, cyber terrorists could disable networked emergency systems or hack into networks housing critical financial information.³⁰⁵ For more information on cyber-attacks please see the *Cyber Incident Profile* on page 314.

Active Shooter

An active shooter is an individual actively engaged in killing or attempting to kill people in a confined and populated area. Multiple active shooters is a group that participates in a random or systematic shooting spree demonstrating their intent to continuously harm or kill others. In most cases, active shooters use numerous types of firearms and there is no pattern or method to their selection of victims. Active shooter situations are unpredictable and evolve quickly, with most active shooter situations over within 10 to 15 minutes. Warning signs that someone may be planning an attack are:³⁰⁶

- Increasingly erratic, unsafe, or aggressive behaviors.
- Hostile feelings of injustice or perceived wrongdoing.
- Drug and alcohol abuse.
- Marginalization or distancing from friends and colleagues.
- Changes in performance at work.
- Sudden and dramatic changes in home life or in personality.
- Financial difficulties.
- Pending civil or criminal litigation.
- Observable grievances with threats and plans of retribution.

The Department of Homeland Security defines certain characteristics of an active shooter as the following:³⁰⁷

- Active shooters are likely to engage more than one target. They may target particular individuals or they may be intent on killing as many randomly chosen people as possible.

³⁰⁴ <https://www.fema.gov/pdf/plan/managingemerconseq.pdf>

³⁰⁵ <http://www.crime-research.org/library/Cyberterrorism.html>

³⁰⁶ <https://www.dhs.gov/sites/default/files/publications/dhs-pathway-to-violence-09-15-16-508.pdf>

³⁰⁷ <https://www.alicetraining.com/active-shooter/>

- Active Shooters often go to locations with high concentrations of people, such as schools, theaters, shopping centers, or other places of business.
- Active shooters often, but not always, are suicidal and may attempt suicide by police. Escape from the police is usually not a priority of an active shooter. Most active shooters do not attempt to hide their identity.

Frequency

This hazard was determined to occur about every 5-10 years, giving it a Frequency ranking of Likely.

Magnitude

This hazards Injuries and Deaths Magnitude was determined to be High, meaning any deaths are recorded.

This hazards Infrastructure Magnitude was determined to be High, meaning destruction of property occurs.

This hazards Environment Magnitude was determined to be Medium, meaning some damage to the environment occurs.

2. Geographic Areas Affected by Terrorism

It is almost impossible to predict where and when a terrorist attack could occur. Generally, terrorists target densely populated or high profile areas, making any of the state’s major urban areas a potential target. High profile infrastructure such as government and state buildings, amphitheaters, amusement parks, ports, and airports are also at risk of a potential attack. The specific motivations of terrorists dictate target selection; therefore, any location within the State of Florida has the potential to become a target of terrorism.

3. Historical Occurrences of Terrorism

Table 65 summarizes the major terrorism events in Florida since the attacks in New York City on September 11, 2001.

Table 65: Florida Historical Occurrences, Terrorism Events, 2001-2017

Date	Information
December 2001	Richard Reid unsuccessfully attempted to blow up an American Airlines Paris-to-Miami flight by placing explosives in his shoes.
November 2006	In Sanibel, Florida, a small bomb was found in a parking lot located among three restaurants. Authorities said the eight inch-by two inch-by three inch bomb was connected to a cell phone. It was rigged so that if the phone was called, the device would explode. The Lee County bomb squad responded to the scene and dismantled the device. Two other restaurants and a nearby road were closed for about four hours.

Date	Information
May 2010	The Federal Bureau of Investigation (FBI) investigated a pipe bomb found at the scene of the May 10, 2010 attack at the Islamic Center of Northeast Florida (ICNEF) in Jacksonville, Florida. There were 60 people in the building at the time of the attack. ³⁰⁸
May 2011	The FBI arrested three Pakistani-Americans, including father and son imams from South Florida mosques, charging them with providing financing and other material support to the Pakistani Taliban. ³⁰⁹
January 2012	Sami Osmakac, an American citizen born in the former Yugoslavia who is a Florida resident, was charged with plotting a terrorist spree around Tampa, including bombing nightclubs, destroying bridges, and shooting police officers in the name of radical Islam. ³¹⁰
June 12, 2016	Omar Mateen, an American citizen born in New York, killed 49 people and injured 53 others when he entered an Orlando, Florida nightclub and fired using multiple weapons. He had been previously investigated by the FBI in 2013 and 2014. It was the deadliest attack since September 11, 2001, and the worst mass shooting in modern U.S. history. ³¹¹
January 6, 2017	Estaban Santiago, an American citizen from Alaska, opened fire at the Ft. Lauderdale-Hollywood International Airport in Ft. Lauderdale, Florida. Santiago checked a bag with a gun inside on a flight from Alaska to Florida and after departing the flight took his bag to the bathroom and loaded the weapon. He opened fire in baggage claim, killing 5 people and wounding 6. Over 40 were injured in the chaos and shuffle to evacuate. ³¹²

4. Probability of Future Terrorism Incidents

There is no sure way to predict future terrorism events as most typically occur without warning. The probability of a major terrorist event in the State of Florida is perceived to be high, and planning must be done as part of the larger national DHS initiatives. The Florida Division of Law Enforcement (FDLE) plays a large part in providing the state with critical intelligence and serves as a prevention measure to the state.

³⁰⁸ Imm, J. (2010, May 13). Florida: FBI Investigating Mosque Pipe-Bombing as Possible Domestic Terrorism. Retrieved from R.E.A.L. website: <http://www.realcourage.org/2010/05/florida-fbi-investigation/>

³⁰⁹ Harris, G. (2011, May 14). Florida Men Accused of Aiding Pakistani Taliban. The New York Times. Retrieved from <http://www.nytimes.com/2011/05/15/world/15taliban.html>

³¹⁰ Brown, R. (2012, January 9). Florida Man Charged With Plotting Terror Campaign in Name of Islam. The New York Times. Retrieved from http://www.nytimes.com/2012/01/10/us/florida-man-charged-with-plotting-strikes-in-name-of-islam.html?_r=1

³¹¹ Zambelich, A., & Hurt, A. (2016, June 26). 3 Hours In Orlando: Piecing Together an Attack and Its Aftermath. Retrieved from NPR website: <https://www.npr.org/2016/06/16/482322488/orlando-shooting-what-happened-update>

³¹² Shoichet, C. E. (2017, January 7). Ft. Lauderdale Airport Suspect 'Came Here Specifically To Attack', FBI Says. Retrieved from CNN website: <http://www.cnn.com/2017/01/06/us/fort-lauderdale-airport-incident/>

FDLE is part of an ongoing assessment of the state's vulnerability and coordinates efforts to prepare for, prevent, mitigate, respond to, and recover from acts of terrorism that affect the state.³¹³

This hazard was determined to occur about every 5-10 years, giving it a Probability ranking of Likely.

5. Terrorism Impact Analysis

- Public
 - Witnesses are at risk of PTSD and survivor's guilt following a large scale attack.
 - Fear throughout the affected community, and the country, is high causing a hazardous environment.
 - Civilians are a target for attacks and are at risk.
 - Exposure to Hazardous Materials is a possibility and could affect the nearby population and first responders.
 - Lack of clean running water can cause unsanitary conditions and dehydration.
- Responders
 - First responders are at risk of PTSD and other health issues following a violent attack.
 - First Responders are a target for second wave attacks and are at risk during rescue operations.
 - Exposure to Hazardous Materials is a possibility and could affect the nearby population and first responders.
 - Lack of communications and disruption of critical services can delay emergency response times.
- Continuity of Operations (including continued delivery of services)
 - Tourism can decline following an attack and could cause lost revenue to a community and the economy.
 - Airports in surrounding areas may close causing delays, leaving travelers stranded.
 - Streets blocked with debris or closed due to proximity can cause street congestion and slow down response times and evacuation routes.
 - Bridges could be closed causing issues evacuating and responding.
 - Train disruptions can cause delays and stranded passengers.
 - Communication grid overload can cause the system to crash following a large attack.
 - Damage to phone lines can cause issues getting information and calling for emergency services.
 - Loss of Internet can affect numerous industries and emergency response.
- Property, Facilities, Infrastructure
 - Bridges could be destroyed or damaged causing issues evacuating a community.

³¹³ <http://www.fdle.state.fl.us/cms/Domestic-Security/Domestic-Security-Home.aspx>

- Train tracks could be damaged or destroyed causing further delay in passengers and cargo being transported.
- Cars in the vicinity could be damaged or destroyed.
- Roads can be damaged or destroyed causing prolonged delays and reduced access for evacuation.
- Damage to buildings can include:
 - Collapse (full/partial)
 - Windows blown out
 - Fire
- Damage or destruction of government buildings could delay necessary services for the community.
- Damage or destruction to critical infrastructure such as places of travel, banks, and utilities could cause stress and hardship within the community.
- Outages can be widespread.
- Damage to power grid can prolong outages.
- Environment
 - Exposure to Hazardous Materials is a possibility and could affect the environment and wildlife.
 - Could contaminate the food and water sources.
 - Damage to green spaces.
- Economic Condition
 - Prolonged loss of revenue could cause businesses to close and the economy to suffer.
 - Loss of wages could affect citizens' ability to buy necessities and could affect the economy.
 - The economy (business, personal, and government) could be affected if banks are closed or not able to access the Internet.
- Public Confidence in Jurisdiction's Governance
 - Lack of communication from leadership to the public.
 - Evacuation timeframe
 - Response timeframe
 - Recovery timeframe
 - Not stopping an attack could lead to a loss of respect or confidence.

6. 2018 LMS Integration

The following counties profile terrorism:

- Brevard
- Broward
- Calhoun

- Charlotte
- Collier
- Dixie
- Duval
- Escambia
- Flagler
- Glades
- Gulf
- Hendry
- Highlands
- Hillsborough
- Indian River
- Jackson
- Lee
- Leon
- Levy
- Madison
- Manatee
- Marion
- Martin
- Orange
- Osceola
- Palm Beach
- Pinellas
- Putnam
- Seminole
- St. Johns
- St. Lucie
- Sumter
- Wakulla
- Walton
- Washington

7. Vulnerability Analysis and Loss Estimation, by Jurisdiction

Though Florida recognizes that state facilities are vulnerable to terrorism, the abstract way in which terrorism occurs creates a vacuum of high-level detailed vulnerability and risk assessment. Counties with large populations, major transportation hubs, theme parks or cruise ships, and those with a large influx of tourism are the most at risk for a terrorist attack.

8. Vulnerability Analysis and Loss Estimation of State Facilities

Though Florida recognizes that state facilities are vulnerable to terrorism, the abstract way in which terrorism occurs creates a vacuum of high-level detailed vulnerability and risk assessment. As such, while it is prudent to recognize the threat, there is not a viable manner in which to quantitatively communicate the vulnerability or loss of facilities compared to other hazards.

9. Overall Vulnerability

Each category was given a number and when all 5 categories are added together, the overall vulnerability is a number between 5 and 15.

Based on the Frequency, Probability, and Magnitude summary, the Overall Vulnerability of this hazard was determined to be High, with a score of 12.

TERRORISM					Overall Vulnerability
Overview					
<p>In the Code of Regulations, terrorism is defined as “the unlawful use of force and violence against persons or property to intimidate or coerce a government, the civilian population, or any segment thereof, in furtherance of political or social objectives.” This is something that is difficult to mitigate against due to sheer unpredictability. Florida faces a particular threat from events involving terrorism due to the booming tourist industry, international ports, etc.</p>					
Frequency	Probability	Magnitude			HIGH
		Injuries/Deaths	Infrastructure	Environment	
Likely	Likely	High	High	Medium	

Agricultural Disruption Hazard Profile

1. Agricultural Disruption Description

Florida’s subtropical climate provides a conducive environment for near year-round production of a variety of plant and animal agricultural commodities. Florida farmers and ranchers produce hundreds of distinct commodities, all contributing to an agricultural industry which produced over \$8.4 billion in 2014. Its seaports, including deep draft ports, and its proximity to the markets of the Caribbean basin make an ideal trade center and regional hub. However, the tropical climate brings with it vulnerability to severe weather and increased disease and pest pressure. Its status as an international tourist and business destination increases the dangers that new plant and animal diseases or invasive species will be unintentionally introduced.

Figure 108: Florida Commodities



Florida’s 48,000 farms and ranches cover 9.5 million acres across the state, and produce a variety of products. The largest categories by value include, among others: citrus, vegetables, nursery and greenhouse products, berries, and livestock. In 2014 Florida ranked:

- 1st nationally in value of production of tomatoes, watermelons, snap peas, squash, sugarcane, oranges, and cucumbers.

- 2nd in greenhouse/nursery products, strawberries, sweet corn, bell peppers, spring potatoes, peanuts, tangerines, and avocados.
- 3rd in honey and cabbage.
- 7th nationally for fresh seafood production with 99.2 million pounds harvested and a dockside value of \$257.7 million.³¹⁴
- 7th in the U.S. for agricultural exports, with over \$4 billion of agricultural commodities shipped in 2015.
- 12th nationally in the number of egg layers on farms in 2014.

The livestock industry produced \$1.97 billion in cash receipts in 2013. As of January 1, 2015 there were 1.7 million head of cattle on farms and ranches in Florida, including 916,000 head of beef cows and 124,000 head of milk cows. Florida's poultry farmers maintained an average of 8.6 million layers in 2014, producing 2.39 billion eggs and 66.7 million broilers. Nursery and greenhouse products totaled just over \$1.62 billion in cash receipts in 2013.

With the risk of invasive pests, diseases, and severe weather, Florida's economy has a lot to lose when faced with hazards. As an example of how damaging an exotic pest can be, the detection of oriental fruit flies in Miami-Dade County in 2015 triggered a quarantine lasting several months, with economic losses that may have exceeded \$1 billion. In addition, the fact that Florida produces the majority of its fruit and vegetable crops during the winter means product is in the field and close to harvest during the coldest months of the year, rendering it vulnerable to freezes which can destroy a significant portion of a crop at the height of its production window.³¹⁵

The Florida Department of Agriculture and Consumer Services (FDACS), the Florida Department of Health (FDOH), and the Florida Department of Business and Professional Regulation (FDBPR) are the three primary state agencies that are tasked with preventing, preparing for, responding to, and ensuring recovery from food and feed emergencies and incidents in Florida. Currently, Florida has established the Food Emergency Response Plan, an annex to the Comprehensive Emergency Management Plan (CEMP)³¹⁶, to govern the operational concepts, policies, and plans required to achieve the broad objectives for a response of one or more agencies.³¹⁷

Citrus

Florida is a main producer of citrus within the United States, which includes oranges, grapefruits, tangerines, lemons, and limes. In 2014, Florida produced 59% of total U.S. citrus production with 60% of the total U.S. value for oranges, 58% of the total value for grapefruit and 9% of the total value for tangerines. In 2014 Florida's share of U.S. citrus production was 124 million boxes. The top five citrus producing counties in Florida in 2014 were Polk (19.9 million boxes), Hendry (16.3 million boxes), Highlands (14.9 million boxes), DeSoto (13.7 million boxes), and Hardee (10.5 million boxes). Oranges

³¹⁴ <http://www.freshfromflorida.com/Divisions-Offices/Marketing-and-Development/Education/For-Researchers/Florida-Seafood-and-Aquaculture-Overview-and-Statistics>

³¹⁵ [http://freshfromflorida.s3.amazonaws.com/Media%2FFiles%2FMarketing-Development-Files%2FFlorida Agriculture by the Numbers Brochure 2014.pdf](http://freshfromflorida.s3.amazonaws.com/Media%2FFiles%2FMarketing-Development-Files%2FFlorida%20Agriculture%20by%20the%20Numbers%20Brochure%202014.pdf)

³¹⁶ <http://www.floridadisaster.org/documents/CEMP/2012/FERP%2011-8-2011.pdf>

³¹⁷ Florida Agricultural Disaster Profile. Fresh from Florida, Florida Department of Consumer Services, Mar. 2017.

comprise the vast majority of citrus leaving the state and approximately 90% of the oranges produced in the state are squeezed for juice. Florida is second only to Brazil in global orange juice production and the state remains the world's leading producer of grapefruit. Florida produces a significant amount of the United States' supply of citrus, with major overseas export markets including Canada, Japan, France, and the United Kingdom. The citrus industry generates close to \$1 billion in tax revenues helping support schools, highways, and healthcare services.

Citrus also has a positive impact on Florida's environment. The modern grove design allows for large areas of undeveloped land which provides an excellent wildlife habitat and natural buffer between farmlands and urban development. University of Florida researchers recently observed more than 159 native species of wildlife within grove ecosystems. Research shows that for every acre of mature trees, 16.7 tons of oxygen is produced per year.³¹⁸

Pests and disease is a risk when dealing with citrus groves. The most common pests include mites, psyllids, scales, weevils, and leaf miners. Common diseases include citrus greening, canker, citrus black spot, and phytophthora. Severe weather such as tropical cyclone conditions, heavy rain, extreme heat or cold, and drought all pose risks to the Florida citrus industry. Below are the harvest months for some of Florida's citrus crops.

Table 66: Florida Citrus Crop Harvest Months

Crop	Sept	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug
Navel Orange	X	X	X	X	X							
Ambersweet	X	X	X	X	X							
Hamlin Orange	X	X	X	X	X	X	X					
Pineapple Orange				X	X	X	X					
Temple					X	X	X					
Valencia Orange					X	X	X	X	X	X		
White Grapefruit	X	X	X	X	X	X	X	X	X	X		
Colored Grapefruit	X	X	X	X	X	X	X	X	X	X		
Seedy Grapefruit				X	X	X	X					
Nova Tangelo		X	X									
Minneola Tangelo					X	X						
Robinson Tangerine	X	X	X									
Sunburst Tangerine		X	X	X	X							
Avocado	X	X	X	X	X	X				X	X	X

³¹⁸ <http://www.visitflorida.com/en-us/eat-drink/facts-about-florida-citrus-oranges.html>

Field Crops

Field crops are defined as crops that feed animals, such as corn, small grains, soybeans, and hay. The field crop definition could also include cover crops. On small farms, field crops can be a rotation crop with other high value crops, such as vegetables. For example, vegetable fields can be rotated with hay crops, such as orchard grass, to give the soil a rest from intensive cultivation.

Acreage harvested in 2014 for corn, cotton, hay, peanuts, soybeans, and wheat totaled 679 thousand acres, with harvested acres increasing for soybeans 37,000 acres, peanuts 167,000 acres, and hay 320,000 acres. Florida producers harvested 412,000 acres of sugarcane for sugar and seed in 2014, and production was up 10% from the previous year. The value of production for the 2013 crop was \$505 million. The 2014 total value of production of corn, cotton, cottonseed, hay, peanuts, pecans, soybeans, and wheat totaled \$385 million, an increase of 1% from the previous year’s total of \$380 million.³¹⁹

Pests and disease is also a risk when dealing with field crops. Some common pests include the sugarcane borer, white grubs, wireworms, yellow aphid, and lesser cornstalk borer. Signs of infestation can include, but are not limited to, pinholes in leaves and holes in stalks. Water management issues throughout South Florida, as well as occasional drought and the erosion or depletion of the muck soils in which the crops grow, are ongoing problems. As with all areas, severe weather such as tropical cyclone conditions, heavy rain, extreme heat or cold, and drought all pose risks to field crops. Below are the harvest months for some of Florida’s field crops.

Table 67: Florida Field Crop Harvest Months

Crop	Sept	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug
Corn for Grain	X											X
Corn for Silage											X	
Corn for Forage	X	X										
Cotton		X										
Peanuts	X	X										
Potatoes							X	X	X	X		
Soybeans		X	X									
Sugarcane			X	X	X	X						
Winter Wheat										X		
Hay	X	X	X							X	X	X

³¹⁹ [http://freshfromflorida.s3.amazonaws.com/Media%2FFiles%2FMarketing-Development-Files%2FFlorida Agriculture by the Numbers Brochure 2014.pdf](http://freshfromflorida.s3.amazonaws.com/Media%2FFiles%2FMarketing-Development-Files%2FFlorida%20Agriculture%20by%20the%20Numbers%20Brochure%202014.pdf)

Vegetables, Melons and Berries

In 2014 Florida accounted for 39% of the total U.S. value for tomatoes, 39% of cucumbers, 35% of snap beans, 27% of bell peppers, 21% of squash, 19% of watermelons, and 18% of sweet corn. Florida is also known for being the largest producer of strawberries during the winter. The 2014 value of production for the published major berries, Irish potatoes, vegetable, and watermelon crops totaled \$1.55 billion. The harvested acreage for 2014 for the published major berries, potatoes, vegetable crops, and watermelons totaled 200,600 acres, with acreage increasing 6% for cabbage and 3% for strawberries. Production in 2014 of the published major berries, potatoes, vegetable crops, and melons totaled 39.8 million hundredweight and production increased on sweet potatoes, cabbage, tomatoes, cucumbers, and bell peppers. Florida ranks second behind California in the total value of fresh market vegetable production. Below are the harvest months for vegetables, berries, and melons.³²⁰

The main pests that affect vegetables, berries, and melons are the twospotted spider mite, thrips, and butterfly and moth larvae. Other pests include birds, slugs, and snails. Bird predation used to be viewed as a sporadic threat, but has rapidly been growing to the point where losses are measured in millions of dollars. While irrigation can usually prevent drought damage to crops, excessive rain and flooding can increase pest and disease pressure. Freezes during any crops harvest window can likewise damage both plants and fruit.

Table 68: Florida Vegetable, Melon, and Berry Harvest Months

Crop	Jul	Aug	Sept	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun
Snap Beans					X	X	X	X	X	X		
Blueberries										X	X	
Cabbage							X	X	X	X		
Carrots						X	X	X	X	X		
Cantaloupes						X	X	X	X	X	X	
Celery							X	X	X	X		
Sweet Corn					X	X	X	X	X	X	X	
Cucumbers					X	X	X	X	X	X		
Eggplant					X	X	X	X	X	X	X	X
Romaine						X	X	X	X	X		
Peppers					X	X	X	X	X	X		
Potatoes								X				
Strawberries								X	X			
Tomatoes					X	X	X	X	X	X	X	

³²⁰https://www.nass.usda.gov/Statistics_by_State/Florida/Publications/Brochures/Florida_Agriculture_by_the_Numbers_Brochure_2014.pdf

Livestock

In January 2015 Florida ranches were home to 1.7 million head of cattle. Florida dairies produced 2.51 billion pounds of milk in 2014, up from 2.38 billion pounds in 2013. Florida ranks 19th in the nation in number of milk cows and cash receipts from Florida milk production in 2014 totaled \$705 million, up from \$560 million in 2013. Dairies aren't the only source of livestock production; beef cows in the state of Florida total over 900,000. Nationally, Florida ranked 10th in beef cows and 16th in total cattle. The primary cattle crop is calves which are shipped to other states to be finished and processed into beef. During 2014, 830,000 calves were born with an estimated value of \$400 million. Cash receipts from cattle and calf production were \$868 million in 2014 with Florida's beef cattle herd valued in excess of a billion dollars. Florida is home to five of the top ten largest cow/calf operations in the United States and nearly half of all Florida agricultural land is involved in cattle production.³²¹

Florida has had several regional winners and one national winner of the National Cattlemen's Environmental Stewardship Award for their conservation efforts. Lands that are used for cattle production are also important green space for wildlife and native plant habitat, aquifer recharge, and carbon recovery. Grass and forages used for cattle production are renewable resources occurring in a great variety of landscapes typically found on cattle ranches, including improved pastures, wetlands, and marsh, woodlands, and prairies. Florida's cattle industry was also a leader in the formulation and adoption of agricultural industry Water Quality Best Management Practices and other standards.

Florida has a large poultry production operation as well, with 9 million hens and pullets of laying age on farms in 2014. Florida's egg production was 2.39 million eggs, up from 2.2 million in 2013. In 2014 the total value of Florida egg production was \$219 million and the total value of broilers produced was \$246 million. Florida broiler production in 2014 totaled 387 million pounds.³²²

Diseases are a risk within the livestock population and non-endemic animal diseases can threaten the industry if introduced. For example, in 2016, a livestock quarantine was in effect in Monroe County due to an outbreak of New World Screwworm. Infested animals can die of infection in as little as seven days. Excessive rain and flooding can create conditions even more favorable to the spread of disease and infestations in livestock. Drought, extreme heat or cold, and severe weather can also affect the livestock industry.

Forestry and Horticulture

Of Florida's 17.3 million acres of forestland, 15.4 million acres of timberlands support economic activities. The total economic output of all wood, forestry, and paper products in 2013 was \$16.34 billion and it created 80,665 full and part-time jobs. The paper products industry supported 73% of income paid to the forestry labor force in 2013 and total forestry related jobs had an income impact of \$4.15 billion.

³²¹ <https://www.freshfromflorida.com/content/download/17161/272486/P-00044.pdf>

³²² https://www.nass.usda.gov/Statistics_by_State/Florida/Publications/Brochures/Florida_Agriculture_by_the_Numbers_Brochure_2014.pdf

Florida ranked second in the United States for the production of floriculture crops and provided 22.2% of the U.S. supply in 2014. Total greenhouse and nursery values in 2014 were \$1.62 billion and made up 19.2% of Florida's total cash receipts.³²³

Weather can severely impact both of these agricultural industries. Drought, flooding, extreme heat or cold, and wildfires are the highest natural threats to forestry and horticulture industries. Invasive species of plants and pests can also destroy various plants and trees.

Aquaculture and Seafood

Aquaculture is the process of farming or growing animals or plants in a controlled water environment. Florida's top farm-raised aquatic products are tropical fish, aquatic plants, fish, shellfish, and alligators. Aquaculture sales for human consumption in 2014 totaled \$24.1 million and included freshwater or marine fish, clams, oysters, shrimp, prawns, alligators, and turtles. Florida aquaculturists also produce plants or animals for ornamental markets with sales totaling \$35.5 million in 2014.³²⁴

Florida ranked seventh nationally in 2014 for fresh seafood production with 99.2 million pounds harvested and a dockside value of \$257 million. Florida ranked 1st in the United States by value of grouper, pompano, mullet, stone crab, pink shrimp, spiny lobsters, and Spanish mackerel. Florida anglers caught 92% of the nation's supply of grouper, pompano, mullet, stone crab, pink shrimp, spiny lobsters, and Spanish mackerel and accounted for almost 100% of spiny lobster (99.9%) and stone crab (99.5%) harvested in the United States. Florida's total value for commercial seafood estimated in 2014 is \$258 million, up 11.7% from \$231.1 million in 2013. This is equivalent to 92.5 million pounds.³²⁵

The largest threats to aquaculture and seafood are diseases, non-native or invasive species, and severe weather.

Pests and Diseases

Agriculture is one of the state's largest industries and the introduction of pests or a disease outbreak can severely impact the economic prosperity of the industry. Crops are grown in Florida year round and animals are raised and slaughtered, which provides a large percentage of U.S. food resources. Due to our convenient trade location, products are imported and exported rapidly which can introduce unknown diseases and pests to the area. Disease can spread and create an outbreak, killing untold numbers of plants and animals. Pests ranging from birds, rodents and insects such as beetles, caterpillars, and grasshoppers, can ruin a crop harvest and severely impact the economic community.

University of Florida Entomology and Nematology Department personnel identified a number of arthropod pests that can severely damage agricultural crops, ornamental plants, turf, fruiting plants, and trees. The ability to rapidly identify the pests or damage can help prevent costly or aesthetic losses to crops and landscaping.





³²³ https://www.nass.usda.gov/Statistics_by_State/Florida/Publications/Brochures/Florida_Agriculture_by_the_Numbers_Brochure_2014.pdf

³²⁴ <http://www.freshfromflorida.com/Divisions-Offices/Marketing-and-Development/Education/For-Researchers/Florida-Seafood-and-Aquaculture-Overview-and-Statistics>

³²⁵ <http://freshfromflorida.s3.amazonaws.com/P-01587.pdf>

The table below outlines some of the pests within the Florida agricultural industry.

Table 69: Florida Significant Pests³²⁶





Name	Description	Picture
<p><i>Drosophila melanogaster</i></p> <p>Also known as the Fruit Fly.</p>	<p>Fruit flies are one of the most potentially destructive pests in the world. Fruit flies have a wide host range of fruits, vegetables and nuts, and most of Florida's crops, including citrus, fall within the host range.</p>	
<p><i>Singhiella simplex</i></p> <p>Also known as the Fig Whitefly.</p>	<p>Generally, whitefly populations are kept in check by natural parasites and predators, but in agriculture crops or on ornamentals, where man has upset the natural balance, consistent high and often damaging populations may occur.</p>	
<p><i>Oxycarenus hyalinipennis</i></p> <p>Also known as the Cotton Seed Bug.</p>	<p>The Cotton Seed Bug is a serious pest of cotton and other plants in the cotton family. This pest can also feed on other fruits and seeds of unrelated plants, causing significant damage.</p>	
<p><i>Romalea microptera</i></p> <p>Also known as the Eastern Lubber Grasshopper.</p>	<p>Because of its size and coloration, even one individual in a garden is conspicuous, but occasionally local populations explode to such an extent that the grasshoppers can seriously damage ornamentals, row crops, and citrus groves.</p>	

Disease is prevalent in livestock and crops within Florida and can easily spread under certain conditions. Multiple factors can influence disease development in plants and animals including age, environment, weather, and genetics of the pathogen populations. Human involvement can also speed up the spread of unknown diseases. The introduction of disease may severely limit the ability to move, harvest, slaughter, and export plant or animals products. Widespread disease can cause significant losses to farmers and economic hardship on the community.

³²⁶ [http://ipm.ifas.ufl.edu/applying/Florida's Major Agricultural Pests.shtml](http://ipm.ifas.ufl.edu/applying/Florida's_Major_Agricultural_Pests.shtml)

The table below outlines some of the top plant and animal diseases within the Florida agricultural industry.

Table 70: Florida Significant Plant and Animal Diseases³²⁷

Name	Description	Picture
Citrus Black Spot	Citrus black spot is a fungal disease marked by dark necrotic spots or blotches on the rinds of fruit. It produces early fruit drop, reduces crop yields and, if not controlled, renders the highly blemished fruit unmarketable.	
Laurel Wilt Disease	The disease is caused by a fungus (<i>Raffaelea lauricola</i>) that is introduced into host trees by a nonnative insect, the redbay ambrosia beetle.	
Avian Influenza	Avian influenza is a serious disease concern for the poultry industry and animal health officials alike. While influenza virus strains in birds vary considerably in severity, some can be devastating to domestic poultry.	
New World Screwworm	New World screwworms are fly larvae (maggots) that can infest livestock and other warm-blooded animals, including people. They feed on the animal's living flesh and, if not treated, infestations can be fatal.	

One Method to Mitigate...

Currently, the United States Department of Agriculture (USDA) administers a biological control program³²⁸ (biocontrol) that involves the reduction of pest populations through the use of natural enemies such as parasitoids, predators, pathogens, antagonists, or competitors to suppress pest populations. The goal of this program is to safeguard America's agricultural production and natural areas from significant economic losses and negative impacts caused by insects, other arthropods, nematodes, weeds and diseases of regulatory significance to the federal government, state departments of agriculture, tribal governments

³²⁷ <http://www.freshfromflorida.com/Divisions-Offices/Plant-Industry/Pests-Diseases/Citrus-Diseases/Other-Pests-of-Citrus/Key-to-Whitefly-of-Citrus-in-Florida>

³²⁸ https://www.aphis.usda.gov/aphis/ourfocus/planthealth/sa_domestic_pests_and_diseases/sa_bio_control

and cooperators within the continental United States and on American territories through the use of biological control agents.

Invasive Species

An invasive species can be any kind of living organism such as an amphibian, plant, insect, fish, fungus, or bacteria that is not native to an ecosystem and which causes harm. Invasive species can harm the environment, the economy or even, human health. Species that grow and reproduce quickly, and spread aggressively, with potential to cause harm, are given the label of “invasive”.

Invasive species are primarily spread through human activities, often unintentionally. People, and the goods we use, travel around the world very quickly, and they often carry uninvited species with them. Ships can carry aquatic organisms in their ballast water, insects can get into wood shipping crates that are sent around the world, ornamental plants can escape into the wild and become invasive, or invasive species can be intentionally or accidentally released, such as pets or smuggled exotic species.³²⁹

Invasive species cause harm to wildlife and agricultural production in many ways. When a new and aggressive species is introduced into an ecosystem, it might not have any natural predators or controls. It can breed and spread quickly, taking over an area. Native wildlife may not have evolved defenses against the invader or they cannot compete with a species that has no predators.

Sporobolus jacquemontii or West Indian Dropseed is a weedy grass native to the West Indies and was introduced into Florida in the early 1900's. It became prevalent in cattle grazing pastures where it crowds out forage grasses and isn't palatable for cattle. It is very difficult to control and in recent years it has begun to spread into natural areas such as palmetto prairies and open flatwoods.³³⁰

Eichhornia crassipes, or the water hyacinth, is a floating plant. This invasive nuisance often jams rivers and lakes with thousands of tons of floating plant matter. A healthy acre of water hyacinths can weigh up to 200 tons. In Florida, where for 100 years this weed had the upper-hand in water management, the water hyacinth in most places is under “maintenance control”, meaning field crews constantly work to keep the plant numbers at their lowest possible levels, so that the rivers and lakes remaining usable.

Aquatic invasive species are a problem within the state of Florida as it is surrounded by water and has numerous lakes and rivers throughout. A variety of aquatic nonnative species have caused damage to Florida's ecology and economy and continues to cost Floridians considerable sums of money to prevent, control, or eradicate. Throughout Florida invasive nonnative species clog waterways (hydrilla) and power plant cooling intakes (green and Charru mussels) or affect native aquatic plants, shellfish, or fish populations through: competition for space (green mussel, water lettuce), diet overlap, herbivory (island apple snail), predation (lionfish), or by interbreeding with native species (red-eared slider turtle).³³¹

The lionfish, introduced into Atlantic waters around the 1980's, is a devastating invasive species. This fish can breed rapidly, kills out other predators for food and has the ability to thrive in almost any environment. The introduction of this fish has harmed commercial and sport fishing industries and has caused a decrease in certain types of fish Florida's economy relies on.

³²⁹ <http://www.nwf.org/Wildlife/Threats-to-Wildlife/Invasive-Species.aspx>

³³⁰ <http://plants.ifas.ufl.edu/plant-directory/eichhornia-crassipes/>

³³¹ <http://www.freshfromflorida.com/content/download/5697/97665/Aquatic-Invasive-Species.pdf>

Severe Weather

Florida may be considered the most vulnerable state in the nation to the impacts from hurricanes, tropical storms, and tropical depressions – collectively known as tropical cyclones. In addition to tropical cyclones, the State of Florida is vulnerable to numerous other types of severe weather such as severe storms, tornadoes, hail, drought, various types of flooding, and extreme temperatures, including freezes. The vulnerable geography and environment of the state combined with the subtropical climate creates continuous threats from these severe weather events.³³²

Freezes in Florida create a threat to the agricultural industry as the state's winter-season vegetable growers historically face a high risk of freeze damage from cold temperatures. Vulnerable crops include citrus and sugarcane crops and commercial foliage (tropical plants, trees, and shrubs). Florida accounts for about one-third of fresh-market supplies of warm-season vegetables during the late fall to early spring period. Therefore, a freeze in Florida can cause substantial disruption in the nation's supply of vegetables as well as economic problems. Additionally, prolonged freezes can have a detrimental effect on the state's aquaculture industry, specifically fish farming.

Within the State of Florida, the Department of Environmental Protection and the regional Water Management Districts monitor water supply and flood potential within their regions. A drought or flood can severely impact the industry causing loss of crops, the inability to replant, loss of livestock, and increased chance of disease or pest infestation. The Florida agricultural industry relies on water distribution to ensure healthy livestock and crops. In 2010 Florida withdrew 2.9 billion gallons of water a day for irrigation purposes and 213 million gallons a day for industrial fresh water supplies. This water is used for irrigation on farms, watering livestock, and aquaculture and fisheries within the state.³³³

Frequency

This hazard was determined to occur annually, giving it a Frequency ranking of Very Likely.

Magnitude

This hazard's Injuries and Deaths Magnitude was determined to be Low, meaning no injuries or deaths are recorded.

This hazard's Infrastructure Magnitude was determined to be High, meaning destruction of property occurs.

This hazard's Environment Magnitude was determined to be High, meaning significant damage to the environment occurs.

³³²<http://floridadisaster.org/documents/CEMP/2014/2014%20Hazard%20Annexes/2014%20Tropical%20and%20Non-Tropical%20Severe%20Weather%20Annex%20to%20the%20CEMP.pdf>

³³³https://s3images.americangeosciences.org/agi/statefactsheets/FL_GeoscienceInYourState_AGI.pdf

Potential Effects of Climate Change³³⁴

The potential impact of climate change on Florida's agriculture, commercial forests, and natural ecosystems is hard to predict; however, scientists agree that the warmer climate means more intense weather – heavier rains, higher probability of large storms, and longer periods of drought.

Commercial crops such as sugar cane, tomatoes, and even citrus may see a decline in yields over the long term with higher temperatures. Commercial forestry could see an increase in wildfire risk and the altered temperatures could change attributes of tree species. Climate change may also have an effect on the threat of invasive pests and species. The warmer conditions would likely affect livestock health and productivity as well as increase the risk of disease and outbreaks.

The aquaculture and commercial fishing industry could potentially see a decline in fish quantity and a move to deeper waters. Aquaculture farms may see a decline in health and productivity of fish and plant farms.

2. Geographic Areas Affected by Agricultural Disruption

All of Florida is vulnerable to Agricultural Disruption. Because of the sub-tropical environment, it is easy to grow crops and flowers, as well as keep livestock and aquatic animals. This climate also brings hazards that can disrupt production. If the weather is too hot or too cold, crops may not thrive. Most of Florida's fruits and vegetables are harvested in the winter months making them vulnerable to freezing and cold temperatures. Invasive species are another source of agricultural disruption with introducing a new insect, intentionally or unintentionally, being incredibly detrimental.

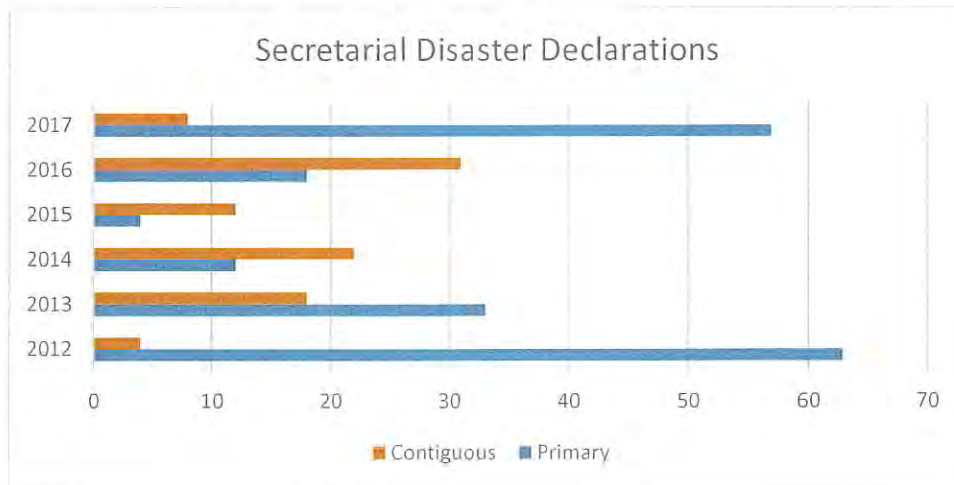
All counties in the state are potentially at risk, with the southern central counties at a slightly elevated risk due to the number of large farmlands. While there are human health implications from infected food supply, it is likely that the economic consequences of an agricultural disruption will be the most significant.

3. Historical Occurrences of Agricultural Disruption

Agricultural related disasters can be common within the state and the Secretary of Agriculture is authorized to designate counties as disaster areas to make emergency loans available to those suffering losses in affected counties and in counties that are adjacent to a designated county. In addition, other emergency assistance programs, such as Farm Service Agency (FSA) disaster assistance programs use disaster designations as an eligibility trigger. The chart below displays the Secretarial Disaster Declarations from 2012 through 2017.

³³⁴ [https://www.usda.gov/oce/climate_change/effects_2012/CC%20and%20Agriculture%20Report%20\(02-04-2013\)b.pdf](https://www.usda.gov/oce/climate_change/effects_2012/CC%20and%20Agriculture%20Report%20(02-04-2013)b.pdf)

Figure 109: Florida Secretarial Disaster Declarations, 2012-2017



Florida's lionfish threat began off the Atlantic coast in the late 1980s. Experts suspect the invasion started when someone released aquarium lionfish into the wild. Lionfish don't throw marine ecosystems out of balance in their native Indo-Pacific region, but in the Atlantic, research shows the rapid increase in lionfish coincided with a 65-percent native fish decline. The introduction of this fish has harmed commercial and sport fishing industries and has caused a decrease in certain types of fish Florida's economy relies on.

In 2015, Miami-Dade County declared a state of emergency for an Oriental Fruit Fly outbreak.³³⁵ The Florida Department of Agriculture and Consumer Services Division of Plant Industry (FDACS-DPI) confirmed it to be the largest outbreak on record and a quarantine of 85 square miles was instituted. Florida destroyed more than eight tons of infected fruit and sales from the quarantine area were on hold until the pest was eradicated. As of February 2016, the Oriental Fruit Fly has been eradicated from Miami-Dade County.

In 2015, Broward, Collier, Hendry, Miami-Dade, Monroe and Palm Beach counties were affected by a severe drought.³³⁶ According to the South Florida Water Management District, rainfall levels were well below average. Mobile irrigation labs were deployed to assist with agricultural irrigation schedules and water usage. Drought can have direct impacts on the agricultural industry such as reduced crop production, increased fire risk, increased livestock mortality rates, and increased risk of pest and disease infestation.

In 2015, Escambia, Holmes, Jackson, Okaloosa, Santa Rosa, and Walton counties experienced excessive rain, wind, and flooding. This type of inclement weather can result in loss of crops, damage or the prevention of planting crops. It can also lead to loss of livestock and feed. Damage to facilities and needed

³³⁵ <http://www.freshfromflorida.com/News-Events/Press-Releases/2016-Press-Releases/Commissioner-Putnam-Announces-Successful-Oriental-Fruit-Fly-Eradication-in-Miami-Dade-County>

³³⁶ <https://www.wcc.nrcs.usda.gov/ftpref/support/drought/dmrpt-20160908.pdf>

equipment can be seen following excessive winds and the areas are at a higher risk of disease and pest infestation.

In 2016, the USDA Animal and Plant Health Inspection Service (APHIS) confirmed the presence of New World screwworm in Key deer from National Key Deer Refuge in Big Pine Key, Florida. USDA's National Veterinary Services Laboratories in Ames, Iowa, confirmed it was a local infestation of New World screwworm (*Cochliomyia hominivorax*). It was the first local infestation in the United States in more than 30 years. In response to this infestation, the state declared an agricultural state of emergency in Monroe County, Florida.³³⁷

4. Probability of Future Agricultural Disruption

While the probability of a specific disease, pest, or weather threat is impossible to predict with certainty, tropical cyclones are a seasonal threat which cause damage through excessive rain, flooding, and wind. The introduction of pests and diseases which have been previously unknown in Florida or which have been long absent from the state will remain a threat as long as Florida remains open to the international trade and tourism it needs for its economic health. Even threats that can be anticipated, such as hurricanes and freezes, require a large and concentrated effort to mitigate the potential damage to crops and livestock, and sometimes damage or loss is unavoidable.

This hazard was determined to occur annually, giving it a Probability of Very Likely.

5. Agricultural Disruption Impact Analysis

- Public
 - Human health from diseased crops or livestock
 - Invasive species that are poisonous or dangerous
- Responders
 - N/A
- Continuity of Operations (including continued delivery of services)
 - Reduced supply of crop or livestock product.
 - Invasive species and plants can cause water flow disruptions and clogged transportation.
 - Livestock and plant health due to disease or pest infestation.
- Property, Facilities, Infrastructure
 - N/A
- Environment
 - Decline in natural species.
 - Loss of habitats and grazing land for livestock and marine animals and plants.
 - Invasive species and plants can cause water flow disruptions and clogged transportation.
- Economic Condition
 - Cost of quarantines for disease or pest infestation.
 - Cost to eradicate invasive species.

³³⁷ Staletoich, J. (2015, September 15). Florida declares farming emergency to deal with Asian fruit flies in Miami-Dade. The Miami Herald. Retrieved from <http://www.miamiherald.com/news/local/environment/article35324667.html>

- Economic losses for the state.
- Lost wages for farm workers
- Lost revenue for farmers.
- Public Confidence in Jurisdiction's Governance
 - The government could appear to not be in control.

6. 2018 LMS Integration

The following counties currently profile Agricultural Disruption or Pests and Diseases:

- Brevard
- Broward
- Charlotte
- Glades
- Hendry
- Hillsborough
- Indian River
- Jackson
- Lee
- Leon
- Palm Beach
- Martin
- Orange
- Osceola
- Pinellas
- Polk
- Seminole
- St. Lucie

7. Vulnerability Analysis and Loss Estimation, by Jurisdiction

Due to the nature and unpredictability of agricultural disruptions, all property and infrastructure within the agricultural industry in the State of Florida is at risk to these events. The majority of the agricultural industry is in the southern part of the state and so these counties would have an elevated risk for agricultural disruptions.

Florida recognizes that jurisdictions are vulnerable to agricultural disruptions, but there is a lack of data to quantify the economic vulnerability from these hazards compared to others.

8. Vulnerability Analysis and Loss Estimation of State Facilities

Due to the nature and unpredictability of agricultural disruptions, all property and infrastructure within the agricultural industry in the State of Florida is at risk to these events. The majority of the agricultural industry is in the southern part of the state and so these counties would have an elevated risk for agricultural disruptions.

Florida recognizes that jurisdictions are vulnerable to agricultural disruptions, but there is a lack of data to quantify the economic vulnerability from these hazards compared to others.

9. Overall Vulnerability

Each category was given a number and when all 5 categories are added together, the overall vulnerability is a number between 5 and 15.

Based on the Frequency, Probability, and Magnitude summary, the Overall Vulnerability of this hazard was determined to be High, with a score of 13.

AGRICULTURAL DISRUPTION					Overall Vulnerability
Overview					
<p>Hazards in the agricultural industry come in the form of pests, disease, and severe weather conditions. The industry brings in \$8 billion in cash receipts to the state of Florida. Weather poses a threat to Florida due to the subtropical nature of the state and the time of year that many of the harvests take place. As a popular destination for tourism and international business, the state faces an increased threat of foreign disease and pest infestations, as well.</p>					HIGH
Frequency	Probability	Magnitude			
		Injuries/Deaths	Infrastructure	Environment	
Very Likely	Very Likely	Low	High	High	

Biological Incident Hazard Profile

1. Biological Incident Description

A Biological Incident can refer to many different types of incidents, involving bacteria, viruses, or toxins, all of which can be harmful or deadly to humans and animals. These various bacteria, viruses and toxins are referred to as biological agents.

It is important to understand the terminology of diseases. Many people use the words pandemic and epidemic interchangeably although they have very distinct definitions. An epidemic is a widespread occurrence of an infectious disease in a community at a particular time. A pandemic refers to an epidemic that has spread beyond a region to infect large numbers of people worldwide. Another often confused word is endemic, which refers to a disease or condition that is regularly found among a specific group of people or geographic area.

Below are several examples of common agents that cause illness and disease in humans. Some are commonly known and naturally occurring, others are emerging diseases or zoonotic diseases that have recently spread in humans. These diseases are waterborne, foodborne, and airborne. Additionally, outbreaks can be naturally occurring or they can be the result of a terrorist act.³³⁸

Terminology

Some of the most virulent and prevalent biological agents include the following:³³⁹

- Anthrax
- Avian Flu
- Botulism
- Ebola
- Hantavirus
- Legionnaires disease
- Mold
- Plague
- Ricin
- Severe Acute Respiratory Syndrome (SARS)
- Smallpox
- Tularemia
- Viral Hemorrhagic Fevers (VHFs)

Emerging Diseases

The terms emerging disease or emerging biological agent refers to infections that have increased recently or are threatening to increase in the near future. According to the National Center for Emerging and

³³⁸ <https://www.osha.gov/SLTC/biologicalagents/index.html>

³³⁹ <https://www.cdc.gov/phpr/publications/2008/appendix6.pdf>

Zoonotic Infectious Diseases, these infections could be completely new or previously unknown; completely new to a specific area; reappearing in an area; or could be caused by bacteria that have become antibiotic resistant. Examples of each of these types are discussed below.

- The Bourbon Virus was discovered in Kansas in 2015 and is considered a completely new emerging disease. The Middle East Respiratory Syndrome (MERS) was also considered a completely new disease when it appeared in the Middle East in 2012.
- Until 2013, Chikungunya, which causes severe and disabling symptoms, was reported in Africa, Asia, Europe and the Indian and Pacific Ocean nations, but never in the Americas. Travelers likely brought the virus to the Americas and it has now spread to Florida.
- Dengue Fever is not endemic to the United States, but it has appeared a few times, due to traveler transmission, such as in Texas.
- Some infections have changed and become resistant to antibiotics, such as Methicillin-resistant Staphylococcus aureus (MRSA) as well as a strain of Tuberculosis. These cases are very difficult to cure, more expensive to treat, and often result in patient death.³⁴⁰

Chemicals

Biotoxin chemicals could also be released, intentionally or unintentionally, causing mass illness. These agents include, blister agents, blood agents, acids, choking agents, incapacitating agents, anticoagulants, metals, nerve agents, organic solvents, tear gas, toxic alcohols, or vomiting agents.³⁴¹

Zoonotic Diseases

Zoonotic Diseases are those that are spread between animals and people. Commonly known examples are:

- Lyme disease, which is spread by ticks;
- Salmonella, which is spread by poultry; and
- Rabies, which is spread by mammals.

Additionally, there are several diseases that are spread by household pets, such as Cat Scratch Disease, E.coli, and Ringworm.³⁴²

Foodborne Illnesses

There are also several types of Foodborne Illnesses. The most common are those caused by Norovirus, Salmonella, Clostridium perringens, and Campylobacter. Other commonly known foodborne illnesses and diseases are:

- Botulism,
- Cholera,
- E.coli,

³⁴⁰ <https://www.cdc.gov/nceid/who-we-are/index.html>

³⁴¹ <https://emergency.cdc.gov/chemical/index.asp>

³⁴² <http://www.cdc.gov/healthypets/diseases/index.html>

- Listeria,
- Shigella, and
- Travelers Diarrhea.

The CDC estimates that 48 million people get sick every year from foodborne illnesses and that 128,000 are hospitalized and 3,000 die. The CDC Food Safety division describes over 250 foodborne diseases, most of which are infections caused by bacteria, viruses, parasites, toxins, or poisonous chemicals. Each disease causes different symptoms, but nausea, vomiting, abdominal cramps, and diarrhea are very common. More severe symptoms include life threatening neurologic, hepatic, and renal syndromes.³⁴³

Foods most associated with foodborne illness include raw meat, poultry, shellfish, eggs, and unpasteurized milk. Unwashed fruits and vegetables processed in unsanitary conditions can also cause illness.

A foodborne illness is considered a foodborne disease outbreak when two or more people get the same illness from the same source.³⁴⁴

The CDC works with state and local health departments and hospitals to monitor possible disease outbreaks. The Emerging Infections Program has several programs, including the Active Bacterial Core Surveillance, FoodNet, Healthcare Associated Infections-Community Interface, and Influenza monitoring programs.³⁴⁵

Because there are hundreds of possible agents that could cause a deliberate or non-deliberate outbreak or epidemic, this profile will not go into great detail for all agents. Of particular concern to the United States and the State of Florida is the Zika Fever Virus and Influenza, so these will be profiled in greater depth below.

Zika Virus

Zika is a virus that is spread by the bite of an infected mosquito. There are many types of mosquitos but only the Aedes species spreads Zika. These mosquitos bite during both the day and night. Other types of transmission include sexual intercourse with an infected person and blood transfusions from an infected person. Zika can also be passed from a pregnant woman to her fetus and cause certain birth defects, such as microcephaly and Guillain-Barre syndrome. While Zika is not deadly, there is no vaccine or medicine to cure Zika. Symptoms of Zika include fever, rash, joint pain, red eyes, muscle pain, and headache and these symptoms last for several days to a week. A blood or urine test can confirm a Zika infection.

Zika was discovered in 1947, with the first human cases confirmed in 1952. Outbreaks of the disease have been reported in Africa, Southeast Asia, and the Pacific Islands. Outbreaks occurred in 2015 in Central and South America, Mexico, and the Caribbean. In 2016, Zika was introduced to Miami, Florida and began to be transmitted locally in southern Florida and Brownsville, Texas, as well as three US territories.

The Florida Department of Health (FDOH) identified a 1 square-mile in Miami-Dade County as having locally transmitted, mosquito-borne Zika; travel guidance was issued for these areas. The specific location

³⁴³ <https://www.osha.gov/SLTC/biologicalagents/index.html>

³⁴⁴ <http://www.cdc.gov/foodsafety/foodborne-germs.html>

³⁴⁵ <http://www.cdc.gov/nceizid/dpei/index.html>

changed over the next few months, but in December 2016, it was determined that there were not any new locally transmitted cases of Zika and travel guidance was removed. There are currently no areas of ongoing, active transmission of Zika by mosquitoes in Florida. All previously identified zones have been cleared.³⁴⁶

Influenza

Influenza is a contagious respiratory illness caused by a flu virus. It can cause mild to severe illness and can lead to death. According to the Florida Department of Health, the best way to prevent the flu is to get a flu vaccine each fall, but individuals will need to be re-vaccinated each year because the flu viruses change. People aged 65 years and older; children, especially those from the ages of 6 months to 23 months; and those with chronic medical conditions are more likely to have complications with influenza. However, it is important to remember that anyone can get the flu and that serious complications can occur at any age.

While about 114,000 people are admitted to the hospital each year for an influenza infection, about 36,000 people in the United States die from influenza each year.

As of March 2017, Florida was reporting widespread activity for the eighth week in a row. The most common subtype detected at the Bureau of Public Health Laboratories statewide has been the strain Influenza A (H3).

A weekly Florida Influenza Surveillance report is available on the Florida Department of Health website. There are historical reports dating back to the 2001-2002 influenza season.³⁴⁷

Pandemic Influenza, or PanFlu, refers to an influenza pandemic where a novel and highly contagious strain of the influenza virus emerges, affecting populations around the world. According to FDOH, these influenza pandemics have occurred every 11-39 years; however, it has been more than 30 years since the last pandemic. Florida's geographic and demographic characteristics make it particularly vulnerable to the importation and spread of influenza. This is because nearly one third of Floridians reside in urban and suburban areas of just 3 counties, including large populations of immigrants. Additionally, Florida has a large tourism industry, two Interstate road systems, and 13 international airports, the largest being Orlando and Miami.

FDOH has estimated that an influenza pandemic could result in up to 10 million infected Floridians, with 5 million chronically ill and up to 18,000 deaths. The demands on the healthcare industry in Florida would overwhelm the state's capabilities. Additionally, because a pandemic influenza would likely affect the entire United States, mutual aid from other states would likely be unavailable. Because of this serious risk that pandemic influenza poses to Florida, an Influenza Pandemic Preparedness Plan has been developed, with cooperation from surrounding states and the CDC. The plan describes disease surveillance, emergency management, vaccine delivery, laboratory and communications activities, and agency coordination.³⁴⁸

³⁴⁶ <https://www.cdc.gov/zika/index.html>

³⁴⁷ <http://www.floridahealth.gov/diseases-and-conditions/influenza/florida-influenza-surveillance-reports/index.html>

³⁴⁸ <http://www.floridahealth.gov/diseases-and-conditions/influenza/pandemic-influenza.html>

The DEP influenza pandemic response plan can be found online.³⁴⁹

Vibrio Vulnificus

Vibrio vulnificus is a natural bacterium that normally lives in warm, brackish seawater. These infections are rare but serious.³⁵⁰

Table 71: Vibrio Vulnificus, Florida Cases

Year	Cases	Deaths
2008	16	6
2009	24	7
2010	32	10
2011	35	13
2012	26	9
2013	41	12
2014	32	7
2015	45	14
2016	46	10

Transmission

There are several methods of disease transmission.

The diseases and illnesses that could cause an outbreak or biological incident are communicable. This means the disease is spread through direct or indirect contact with the disease.

Direct contact refers to an infected person or animal actually touching an uninfected person.

Indirect contact refers to an environmental reservoir, such as a contaminated surface or atmospheric dispersion. Another example of indirect transmission is the spread of disease via vectors, such as mosquitoes and other insects.³⁵¹ Diseases can also be waterborne or foodborne, meaning indirect transmission occurs by consuming contaminated water or food.^{352 353}

Bioterrorism

Bioterrorism is a concern in today's society. Bioterrorism is the deliberate release of viruses, bacteria, or other germs (agents) used to cause illness or death in people, animals, or plants. These agents are typically found in nature, but can be altered by terrorists to increase their ability to cause disease or to increase their transmission capabilities. These agents are usually either airborne, waterborne or foodborne.³⁵⁴

³⁴⁹ http://www.dep.state.fl.us/secretary/events/annex_k_pandemic.pdf

³⁵⁰ https://www.floridahealth.gov/diseases-and-conditions/vibrio-infections/vibrio-vulnificus/index.html?utm_source=flhealthIndex

³⁵¹ http://www.who.int/csr/disease/WHO_PED_flyer_2014.PDF?ua=1

³⁵² <https://www.cdc.gov/ncezid/who-we-are/index.html>

³⁵³ https://www.fema.gov/pdf/emergency/nrf/nrf_BiologicalIncidentAnnex.pdf

³⁵⁴ <https://emergency.cdc.gov/bioterrorism/index.asp>

A Biological Attack refers to an intentional release of a disease-causing agent against humans, animals, or plants. The purpose of this type of attack is to cause illness, death, fear, social disruption, and economic damage.³⁵⁵

Terrorists could release biological agents in many different forms, including, aerosol, food, water, infected humans, infected animals, insects, physically (mail), or agriculturally.³⁵⁶

Biological agents are readily available because they are found in nature. Agents could also be stolen from laboratories. Additionally, agents could be manipulated in a laboratory to make them more destructive. For example, an agent could be manipulated into an aerosol form for easier dispersion, or an agent could be altered to shorten an incubation period to make containment nearly impossible.

Biological agents are organized into three categories, based on their capabilities for damage and their availability.

- Category A agents are high priority and pose the highest risk to the public and national security. These agents are easily spread, result in a high death rate, can cause public panic and social disruption, and require special response.
- Category B agents are moderately easy to spread, result in moderate illness rates and low death rates, but still require special response.
- Category C agents are emerging pathogens that can be manipulated for mass dispersion, are easily available, easily produced, and have high morbidity and mortality rates.

The United States plans for specific agents that are possible bioweapons, mostly Category A and B. These agents include:

- Anthrax
- Botulism
- Brucellosis
- Plague
- Smallpox
- Tularemia
- Viral Hemorrhagic Fever

Symptoms

Aside from the health impacts, there are psychological impacts after a biological attack, including anger, fear and social isolation. There is also the risk of mass hysteria and mass psychogenic illness, which means that people display similar symptoms as others who were infected, but are not actually infected. This is a real condition, noted by the DSM-IV-TR as epidemic hysteria, where people develop symptoms similar to those who were infected. Decontamination is required after a biological agent exposure. If there is a

³⁵⁵ <https://emergency.cdc.gov/bioterrorism/index.asp>

³⁵⁶ https://www.dhs.gov/xlibrary/assets/prep_biological_fact_sheet.pdf

contamination, deliberate or not, of livestock or produce, it may be necessary to halt the movement and recall possibly contaminated products to limit exposure.³⁵⁷

SNS Stockpile

The National Pharmaceutical Stockpile was created in 1999 to ensure the nation was prepared for a bioterrorism event. The idea was to have large quantities of medical supplies that could be delivered to a community in need within a short timeframe. This program became the Strategic National Stockpile (SNS) and has been used several times in recent years, including during the 9/11 attacks, natural disasters, H1N1 PanFlu, Ebola outbreak, and the Zika virus. The packs include antibiotics, chemical antidotes, antitoxins, vaccines, antiviral drugs, Personal Protective Equipment, and ventilators, among other things. There is also a 12 hour Push Package available for when a biological incident is occurring but the specific agent is unknown. This includes 50 tons of emergency medical resources and is the first line of federal support. Another resource is a CHEMPACK which contains nerve agent antidotes and can be used even when the agent is unknown because the medicine treats the symptoms of exposure. This is a useful tool because more than 90% of the population lives within 1 hour of a location. The SNS locations are placed strategically across the United States to be available to all areas in a short amount of time.³⁵⁸

Surveillance

Public Health agencies monitor the occurrence of certain diseases in an attempt to stop an outbreak from continuing or from becoming more severe. The CDC Emerging Infections Program has several programs to monitor the health of the nation, including Active Bacterial Core Surveillance (ABCs), FoodNet, Healthcare Associated Infections – Community Interface (HAIC), as well as monitoring reports of influenza. These programs translate surveillance and research into informed policy and public health practices.³⁵⁹ Additionally, there is a tool called the National Bio Surveillance Integration System to help determine the difference between a normal or common illness and a biological incident. Medical centers are often the first place that the introduction of biological agents is detected, whether it is natural or a biological attack. The CDC also has an Outbreak Response Team that coordinates multistate foodborne outbreak investigations for agents such as Salmonella and E.coli. This team coordinates with the USDA to remove contaminated food from commerce. In addition to this team, the CDC has a program called Foodborne Diseases Centers for Outbreak Response Enhancement which responds to bacteria outbreaks in food.³⁶⁰

Control

To prevent a disease outbreak, mass isolation or quarantine of affected or potentially affected people may be necessary. International and interstate travel may also need to be restricted to prevent further outbreak. Decontamination of exposed individuals may be necessary. Food, animals and agricultural products may need to be quarantined as well. Livestock and poultry may need to be either vaccinated or depopulated and the movement of animals and equipment may be restricted. All of these actions would

³⁵⁷ https://www.dhs.gov/xlibrary/assets/prep_biological_fact_sheet.pdf

³⁵⁸ <http://www.cdc.gov/phpr/stockpile/history.htm>

³⁵⁹ <http://www.cdc.gov/ncezid/dpei/index.html>

³⁶⁰ <http://www.cdc.gov/foodsafety/foodborne-germs.html>

be intended to prevent the spread of disease. It is important to note that the restriction of travel and movement of animals could severely impact the economy.³⁶¹

Frequency

This hazard was determined to occur about every 5-10 years, giving it a Frequency ranking of Likely.

Magnitude

This hazards Injuries and Deaths Magnitude was determined to be High, meaning any deaths are recorded.

This hazards Infrastructure Magnitude was determined to be Low, meaning little to no damage to property occurs.

This hazards Environment Magnitude was determined to be Low, meaning little to no damage to the environment occurs.

2. Geographic Areas Affected by Biological Incidents

The entire State of Florida could be affected by Biological Incidents. Transportation hubs, like Orlando and Miami, could be more likely to experience these incidents and would likely be the first to experience these incidents because of the large population and high numbers of travelers.

3. Historical Occurrences of Biological Incidents

Table 72: Florida Historical Occurrences, Biological Incidents

Date/Time Period	Description
1340s	Europeans threw plague-infected cadavers over city walls to infect those within.
World War I	Germans infected Allied livestock with anthrax and glanders.
World War II	Unit 731 in Manchuria dropped plague infected fleas in Japanese controlled area in China, which led to more than 50,000 deaths.
1984	Cult followers of Baghwan Shree Rajneesh sickened 751 people in Oregon with salmonella bacteria in salad bars in 10 restaurants, intended to keep people from voting in the election.
1990s	The cult Aum Shinrikyo attempted and failed to release anthrax and botulinum toxin in Tokyo. The cult did succeed in carrying out a chemical attack with Sarin nerve agent.
2001	Anthrax attacks through the US mail infected 11 people, 5 of which died, with inhalational anthrax. An additional 11 people were infected with skin anthrax.
2014	In September of 2014, the first confirmed case of Ebola within the United States was documented. The man had traveled to Dallas, Texas from Liberia with no apparent symptoms. The patient passed away in October. In October 2014, two

³⁶¹ https://www.fema.gov/pdf/emergency/nrf/nrf_BiologicalIncidentAnnex.pdf

	health care workers from Texas Presbyterian Hospital contracted the disease and have since recovered. A New York City health care worker returned home after contracting the disease in Guinea and has since recovered.
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Florida has only experienced one biological incident in recent history. In 2016, there were 1,122 cases of Zika virus and 118 cases in 2017. There were cases of local transmission of the Zika virus in four Miami communities in 2016, but all were designated as clear by the end of that year.³⁶²

4. Biological Incident Impact Analysis

- Public
 - Injury or death from exposure
 - Fear
- Responders
 - Injury or death from exposure
- Continuity of Operations (including continued delivery of services)
 - Services may be interrupted because of employee absenteeism
- Property, Facilities, Infrastructure
 - N/A
- Environment
 - Could affect animal species and cause drop in numbers.
- Economic Condition
 - If employee or consumer absenteeism is a major issue, businesses may be forced to close
- Public Confidence in Jurisdiction's Governance
 - Public will begin to doubt in capabilities and take precautions themselves, perhaps dangerously

5. Probability of Future Biological Incidents

It is somewhat likely that a biological incident will occur in Florida. The Zika outbreak occurred and it is likely that other diseases will affect the state.

This hazard was determined to occur about every 5-10 years, giving it a Probability ranking of Likely.

6. 2018 LMS Biological Incident Integration

The following counties profile Biological Incidents (or a similar hazard) in their most recent LMS plan:

- Brevard
- Broward

³⁶² https://www.dhs.gov/xlibrary/assets/prep_biological_fact_sheet.pdf

- Clay
- Collier
- Dixie
- Duval
- Escambia
- Flagler
- Glades
- Gulf
- Hendry
- Hillsborough
- Indian River
- Leon
- Madison
- Martin
- Miami-Dade
- Nassau
- Orange
- Osceola
- Palm Beach
- Pinellas
- Polk
- Seminole
- St. Lucie
- Sumter
- Volusia

7. Vulnerability Analysis and Loss Estimation by Jurisdiction

It is impossible to determine a jurisdiction's vulnerability, however it is reasonable to claim that every county is somewhat vulnerable to a biological incident occurring. Additionally, a loss estimation is difficult to determine because of several unknown variables, but it is reasonable to claim that losses could range from minimal, to extreme, depending on the disease and the magnitude.

8. Vulnerability Analysis and Loss Estimation of State Facilities

A state facility is not itself vulnerable to a biological incident. However, a state facility may notice impacts from a biological incident, such as employee absenteeism, leading to disrupted operations and therefore lost wages and productivity.

9. Overall Vulnerability

Each category was given a number and when all 5 categories are added together, the overall vulnerability is a number between 5 and 15.

Based on the Frequency, Probability, and Magnitude summary, the Overall Vulnerability of this hazard was determined to be Medium, with a score of 9.

BIOLOGICAL INCIDENTS					Overall Vulnerability
Overview					
<p>Biological Incidents are incidents involving bacteria, viruses, or toxins that can all be harmful or deadly to humans and animals. These various actors are called biological agents. It is important to note that these can be naturally occurring or intentionally placed into a society. The act of intentional placing these biological agents into a society in order to harm people or animals is referred to as bioterrorism. Florida has encountered issues involving Influenza and the Zika virus in the past.</p>					MEDIUM
Frequency	Probability	Magnitude			
		Injuries/Deaths	Infrastructure	Environment	
Likely	Likely	High	Low	Low	

Mass Migration Hazard Profile

1. Mass Migration Description

Florida's proximity to the Caribbean basin makes it a vulnerable point of entry for a massive influx of immigrants and refugees entering the United States. While the majority come from the Caribbean, they can come from other locations such as Mexico and South America. Even though all of Florida's counties are subject to receiving such arrivals, the most vulnerable counties are Monroe, Miami-Dade, Broward, Palm Beach, Martin, St. Lucie, Indian River, Lee, and Collier. The consequences of a mass arrival of undocumented entrants include the threat of health, safety, and welfare of citizens and that of entrants that may be detained for an extended length of time. Florida has participated with the federal government in the development of a federal Mass Immigration Annex that bridges components of the federal Mass Immigration Plan with the National Response Framework.

Mass Migration

According to United States Code Title 8, Chapter 12, the definition of mass migration is a migration of undocumented aliens that is of such magnitude and duration that it poses a threat to the national security of the United States, as determined by the President. This usually refers to an event, or series of events, that may take place over the course of several years or even decades. The event could be economic, social, or political in nature but it is something that causes a mass exodus from the country of origin. While some counties and state agencies use a specific number that determines when an emergency exists for operational purposes, the State of Florida understands that a continuous and high volume flow of migrants over a period of time, could exceed the normal capabilities of the local offices of the United States Coast Guard and Customs and Border Protection.³⁶³ The main problem posed by undocumented individuals is the inability of the system to assimilate them without affecting already strained local economies and infrastructure such as health, medical, and social services. The Pew Research Center estimates that in fiscal year 2014, Florida had an influx of 850,000 (+/- 40,000) undocumented migrants and that the state experienced growth in undocumented population at the national average of 250%.³⁶⁴

Unaccompanied Minors

Children who arrive in the United States alone or who are required to appear in immigration court on their own often are referred to as unaccompanied children or unaccompanied minors.³⁶⁵ Unaccompanied alien child (UAC) is a technical term defined by law as a child who has no lawful immigration status in the United States; has not attained 18 years of age; and with respect to whom—there is no parent or legal guardian in the United States; or no parent or legal guardian in the United States is available to provide care and physical custody. Unaccompanied children generally leave their home countries to join family already in the United States; escape abuse, persecution or exploitation in their home country; or to seek employment or educational opportunities in the United States. The age of these individuals, their

³⁶³ <http://www.floridadisaster.org/documents/CEMP/2012/MASS%20MIGRATION%20ANNEX.pdf>

³⁶⁴ <http://www.pewhispanic.org/interactives/unauthorized-trends/>

³⁶⁵ https://www.americanimmigrationcouncil.org/sites/default/files/research/a_guide_to_children_arriving_at_the_border_and_the_laws_and_policies_governing_our_response.pdf

separation from parents and relatives, and the hazardous journey they take make unaccompanied children especially vulnerable to human trafficking, exploitation, and abuse. When a child who is not accompanied by a parent or legal guardian is apprehended by immigration authorities, the child is transferred to the care and custody of the Office of Refugee Resettlement (ORR).³⁶⁶ Federal law requires that ORR feed, shelter, and provide medical care for unaccompanied children until it is able to release them to safe settings with sponsors (usually family members), while they await immigration proceedings.

The following table shows the total number of unaccompanied children released to sponsors in fiscal year 2017.

Table 73: Unaccompanied Minors Released to Sponsors, FY 2017³⁶⁷

County	Total number of children
Broward	282
Collier	186
Duval	122
Hillsborough	148
Lee	333
Manatee	53
Martin	91
Miami-Dade	930
Orange	185
Palm Beach	818

Mass Immigration

Immigration is the movement of people to another country, of which they are not natives, and where they do not possess citizenship, in order to settle or reside there. The definition of an immigrant or alien from the United States Code Title 8³⁶⁸ means an applicant for admission coming or attempting to come into the United States at a port-of-entry, or an alien seeking transit through the United States at a port-of-entry, or an alien interdicted in international or United States waters and brought into the United States by any means, whether or not to a designated port-of-entry, and regardless of the means of transport. The Bureau of Economic and Business Research shows that migration or immigration is the primary source of Florida's population growth and the U.S. Census Bureau estimates that in fiscal year 2015, 86% of the total population growth since 2010 was due to net migration and immigration. Palm Beach, Broward, Miami-Dade, Orange, and Hillsborough counties see the highest influx of immigration and Miami-Dade alone accounted for a quarter of Florida's total foreign immigrants between 2005 and 2009. As with mass migration, an influx of immigrants to any particular county could overwhelm the local economy and infrastructure.

³⁶⁶ <https://www.acf.hhs.gov/orr/programs/ucs>

³⁶⁷ <https://www.acf.hhs.gov/orr/resource/unaccompanied-alien-children-released-to-sponsors-by-county>

³⁶⁸ https://www.ecfr.gov/cgi-bin/text-idx?SID=29f9238515a0b92dcfa5f8f11f2d5abb&mc=true&node=se8.1.1_12&rgn=div8

Repatriation

Repatriation is the procedure where United States citizens and their dependents, who have been identified by the U.S. Department of State, are returned from a foreign country to the U.S. because of destitution, illness, war, threat of war, or a similar crisis. This could also include Third Country Nationals (TCN) who are individuals approved by the Department of State that are neither a U.S. Department of Defense dependent nor a U.S. citizen. Emergency Repatriation is the influx of 500 or more U.S. citizens or dependents from foreign countries. Through ORR agreements, states that are designated as ports of entry will be asked to activate their state emergency repatriation plan during an emergency repatriation.³⁶⁹ Florida has three designated Ports of Debarkation and the bases and installations designated with primary responsibilities will be the lead agent. The American Red Cross is the lead agency on providing shelters, mass feeding, first aid, emergency communications, and access to financial assistance to those in need. Florida currently has a Repatriation plan that can be activated should the need arise.

Frequency

This hazard was determined to occur about every 5-10 years, giving it a Frequency ranking of Likely.

Magnitude

This hazard's Injuries and Deaths Magnitude was determined to be High, meaning any deaths are recorded.

This hazard's Infrastructure Magnitude was determined to be Low, meaning little to no damage to property occurs.

This hazard's Environment Magnitude was determined to be Low, meaning little to no damage to the environment occurs.

2. Geographic Areas Affected by Mass Migration

Although it is possible that any Florida county could receive a migrant landing, either maritime or aviation, counties in the southern half of the state are most vulnerable due to geography. South Florida is in proximity to islands such as Cuba, Puerto Rico, Dominican Republic and Haiti, and the Gulf Coast is within proximity of Mexico. Mass migration can also occur domestically due to an impending hazard causing large groups of people to head north or inland to other counties in an effort to evacuate.

3. Historical Occurrences of Mass Migration

The 1980 Mariel Boatlift was one of the largest incidents of mass migration to affect Florida. Beginning in April 1980 and ending in October 1980, over 125,000 Cubans and between 40,000 and 80,000 Haitians made their way to South Florida. The Cuban President at the time, Fidel Castro, granted permission to all Cubans who wanted to leave access to the Port of Mariel. The United States Coast Guard was tasked with

³⁶⁹ <http://www.floridadisaster.org/documents/CEMP/2012/Repatriation%20Annex%20to%20the%20CEMP.pdf>

assisting the boats and rafts making their way to Florida and it would become one of the largest operations they had ever undertaken during peacetime.³⁷⁰

In the autumn of 1991 a military coup overthrowing Haitian President Aristide led to a mass exodus of roughly 38,000 people towards South Florida. Many perished at sea on failing vessels or homemade rafts and those that survived were detained and interviewed at Guantanamo Bay before being forcibly sent back to Haiti. Of the thousands that left, roughly 200 were granted asylum in the United States with many of them settling in Florida's metropolitan areas.³⁷¹

The Cuban Exodus in August 1994 saw over 35,000 refugees on often handmade boats and rafts, fleeing to South Florida. Many died at sea but those that survived were apprehended by the United States Coast Guard and detained at Guantanamo Bay. In May 1995, almost all those detained, roughly 30,000 people, were released and allowed entry into the United States. Many of them settled in South Florida and this exodus would lead to a change in public policy and the creation of the "Wet foot, Dry foot" policy.³⁷²

While not an incident of mass migration, the 2010 Haiti Earthquake resulted in a number of unique immigration situations and challenges. Florida supported the repatriation of U.S. citizens, as well as helping Haitian and other foreign nationals with passports or visas into the U.S. 50,000 Haitians were brought into the United States under Temporary Protected Status (TPS) with many resettling in Miami and Orlando. Some Haitians visiting or residing in Florida at the time of the earthquake were unable or unwilling to return to their newly devastated homeland and were given TPS in order to remain in the United States.³⁷³

In 2016, 800 unaccompanied minors were transported to Homestead, Florida and placed within a temporary tent city. They came from multiple countries including Honduras, Guatemala, and El Salvador to escape violence, poverty, or abuse. The American Red Cross and the Office for Refugee Resettlement worked together to care for these children and ultimately place them with sponsors throughout the state.³⁷⁴

4. Probability of Future Mass Migration Events

There is no sure way to predict future mass migration events as most typically occur without warning. The probability of a migration influx in the State of Florida is perceived to be high, and planning must be done as part of the larger national DHS initiatives. As political unrest and large scale natural disasters continue to increase within the Caribbean and South American regions, there will be people wanting to leave. South Florida is in close proximity and has an extensive network of people from these countries in place. The Mass Migration Annex of the Florida State Comprehensive Emergency Management Plan provides augmentation information that connects with the U.S. Department of Homeland Security Plan entitled "Operation Vigilant Sentry" and subsequent revisions.

³⁷⁰ <https://fas.org/sgp/crs/row/R40566.pdf>

³⁷¹ <http://www.crf-usa.org/bill-of-rights-in-action/bria-10-2-b-haiti-and-the-boat-people>

³⁷² <https://www.hrw.org/legacy/reports/pdfs/c/cuba/cuba94o.pdf>

³⁷³ <http://www.migrationpolicy.org/article/haitian-immigrants-united-states/>

³⁷⁴ <https://www.local10.com/news/tent-village-near-homestead-air-reserve-base-prepared-to-shelter-refugee-children>

This hazard was determined to occur about every 5-10 years, giving it a Probability ranking of Likely.

5. Mass Migration Impact Analysis

- Public
 - Loss of life.
 - Injury.
 - Fear of going to law enforcement can lead to undocumented individuals not seeking help or evacuating in the event of a hazard.
 - Few resources available:
 - Food
 - School
 - Water
 - Work
 - Translators
 - Housing
- Responders
 - Public safety resources could be strained or depleted causing community wide problems.
 - Local law enforcement is affected with added population and confrontation with undocumented individuals.
 - Customs and Border Protection is responsible for ensuring all incoming immigrants have proper documentation and intervening with unauthorized entry into the state. This can lead to a strain on the agency.
 - Coast Guard is responsible for protecting the shores and intervening with any unauthorized entry into the state. This can lead to a strain on the agency.
- Continuity of Operations (including continued delivery of services)
 - Evacuations in the event of a hazard can get congested with additional population numbers.
 - Overwhelmed public service of too many people go to the same places, such as schools or jobs.
- Property, Facilities, Infrastructure
 - Strain on detention facilities following mass undocumented intervention could lead to economic strain and lack of space.
 - Education is used by undocumented families and can place a strain on local schools and facilities within a community.
 - Social services can be strained to accommodate incoming immigrants/migrants and unaccompanied children
- Environment
 - Additional pressure on the environment and natural resources.
 - Could bring invasive species.
- Economic Condition
 - A financial strain on communities is present when the population grows quickly and local communities, or the state, cannot account for them all in terms of services and emergency needs.
 - Growth of population can cause impacts to urban planning and resources such as local economies and social services.

- Public Confidence in Jurisdiction's Governance
 - Lack of ability to integrate these people reflects poorly on government.
 - Reports of mistreated detained immigrants reflects poorly on government.

6. 2018 LMS Integration

The following counties profile Mass Migration:

- Broward
- Dixie
- Escambia
- Indian River
- Levy
- Madison
- Martin
- Osceola
- Palm Beach
- Seminole
- St. Lucie
- Sumter

7. Vulnerability Analysis and Loss Estimation by Jurisdiction

Due to the nature and unpredictability of human-caused hazards, all property and infrastructure in the State of Florida is at risk to these events. Even though all of Florida's counties are subject to receiving such arrivals, the most vulnerable counties are Monroe, Miami-Dade, Broward, Palm Beach, Martin, St. Lucie, Indian River, Lee, and Collier.

Florida recognizes that jurisdictions are vulnerable to human caused hazards, but there is a lack of data to quantify the economic vulnerability from these hazards compared to others.

8. Vulnerability Analysis and Loss Estimation of State Facilities

Due to the nature and unpredictability of human-caused hazards, all state facilities could potentially be at risk. The facilities could become overwhelmed, have a lack of space, and programs could become drained.

Though Florida recognizes that state facilities are vulnerable to human caused hazards, there is a lack of data to quantify the vulnerability of facilities to these hazards compared to natural hazards.

9. Overall Vulnerability

Each category was given a number and when all 5 categories are added together, the overall vulnerability is a number between 5 and 15.

Based on the Frequency, Probability, and Magnitude summary, the Overall Vulnerability of this hazard was determined to be Medium, with a score of 9.

MASS MIGRATION					Overall Vulnerability
Overview					
<p>Florida’s proximity to the Caribbean basin makes it a vulnerable point of entry for a massive influx of immigrants and refugees entering the United States. While the majority come from the Caribbean, they can come from other locations such as Mexico and South America. The consequences of a mass arrival of undocumented entrants include the threat of health, safety, and welfare of citizens and that of entrants that may be detained for an extended length of time.</p>					MEDIUM
Frequency	Probability	Magnitude			
		Injuries/Deaths	Infrastructure	Environment	
Likely	Likely	High	Low	Low	

Civil Disturbance Hazard Profile

1. Civil Disturbance Description

According to FEMA, civil disturbance, sometimes referred to as civil unrest, is an activity such as a demonstration, riot, or strike that disrupts a community and requires intervention to maintain public safety.³⁷⁵

Most protestors are law abiding citizens who intend their protest to be nonviolent; however, sometimes these situations become highly emotional and tense which can turn a peaceful crowd into a violent riot.

According to the US Army Civil Disturbance Operations Manual, civil disturbances and riots can arise from crowds. Crowds are gatherings of a multitude of individuals and small groups that have temporarily assembled in the same place, usually representing a group belief or cause.

There are two types of gatherings, impromptu and organized. Impromptu gatherings develop informally and by word of mouth, while organized gatherings involve well-established groups that plan and organize the gathering.

There are three phases of gatherings: the assembly process, the building of the crowd, and the dispersal process. The assembly process refers to the movement of people to a common location within a given period, usually coinciding with activities of individual or groups with a specific agenda, like yelling a slogan.

During the building of the crowd phase, it is important to note that not all participants are the same and that the majority of crowds are comprised of several small groups and only some individuals. Additionally, not all participants have the same motivations.

The dispersal phase is the movement of people from the assembly location to one or more alternate locations. Dispersal can be routine, emergency, or coerced. Routine dispersal is often specified in advance by organizers, while emergency dispersal occurs when people evacuate an area in response to an unexpected crisis. A coerced dispersal involves the use of force from law enforcement at some level; however, this is not necessarily the best or safest way to force crowd dispersal.

Most gathered crowds are orderly, nonviolent and do not cause problems for authorities, but there are three types of crowds that can create a civil disturbance. A Public Disorder is the basic breach of civic order, meaning the crowd has a tendency to disrupt the normal flow of things around them, such as traffic. A Disorder is escalated to a Public Disturbance, or a demonstration that is designed to cause turmoil and disruption. These crowds chant, yell, and sing to voice collective opinions. Finally, a Disturbance escalates to a Riot when it turns violent. The crowd suddenly becomes a mob that violently expresses itself by destroying property, assaulting others, and creating an extremely volatile environment.

Riots can be further categorized into communal, protest, commodity, and celebration riots. Communal riots are those involving a group of people with deep-seated ethnic, religious, or language differences. Protest riots are those involving people aggressively and sometimes violently opposing something.

³⁷⁵ <https://training.fema.gov/programs/emischool/el361toolkit/glossary.htm#C>

Commodity riots involve an attack on property with vandalism, looting, or arson. Celebration riots are those involving a group of people celebrating some event, usually a sports team victory.

There are several types of crowds, including casual, sighting, agitated, and mob-like. Casual crowds are those that consist of people gathered in the same place but have nothing in common, such as a crowd at a mall. Sighting crowds are those where people have gathered in the same location for a specific event, such as a concert. Agitated crowds are similar to sighting crowds, but strong emotions are also present, which can spread, developing a sense of unity and changing the demeanor of the crowd from pleasant to yelling, screaming, crying, and name-calling. Finally, mob-like crowds are agitated crowds that are also aggressive, physical, and sometimes violent. While all types of crowds can turn violent, agitated and mob-like crowds have the greatest tendency to do so.

Crowd dynamics and how people act when they are part of a crowd are complex topics. Crowds provide a sense of anonymity and therefore a sense of invulnerability and anyone in a crowd is susceptible to behaving contrary to their normal behavior. Emotional contagion is a serious psychological factor of crowd dynamics, which provides a temporary bond of unity and can push a simple organized crowd into a mob.

Crowds, especially angry and organized crowds, use certain tactics to provoke law enforcement and defeat authorities. One common tactic is verbal abuse, such as obscene language, racial remarks, taunts, and ridicules to anger, demoralize, and provoke a physical response from law enforcement. Another common tactic is throwing rocks, bottles, smoke grenades, or Molotov cocktails to disrupt and confuse the control force. Other tactics include creating barricades to protect themselves and even feinting and flanking actions to attempt to engage, surround, or overpower the control force.

Crowds can become a riot or a violent mob very quickly. These are the types of civil disturbances that are of primary concern to the state of Florida. Violent crowds strike out physically at bystanders and others in the crowd, destroy private and government property, and often set fires and smash glass. Riots or mobs also often create barricades or physical barriers, using any available materials such as vehicles, trees, furniture, and fencing, to impede movement of authorities and to provide a source of protection against law enforcement.

Although violent riots or mobs are a serious concern, nonviolent crowds can be considered a civil disturbance too. Nonviolent actions can be disruptive if they are in direct conflict with instructions from authorities. Examples of disruptive nonviolent actions are refusing to leave when instructed, locking arms, and sitting in areas that authorities are attempting to clear.

Each local jurisdiction should have a civil disturbance response plan; however, it is important to remember that each incident is unique and intelligence about a specific group, such as their demonstrators, capabilities, and possible courses of action are key to developing a successful response plan. Additionally, the response plans should emphasize prevention and de-escalation, not confrontation.³⁷⁶

Frequency

This hazard was determined to occur about every 5-10 years, giving it a Frequency ranking of Likely.

³⁷⁶ <http://documents.theblackvault.com/documents/gardenplot/fm3-19CivilDisturbanceOPs.pdf>

Magnitude

This hazards Injuries and Deaths Magnitude was determined to be Medium, meaning any injuries, but no deaths are recorded.

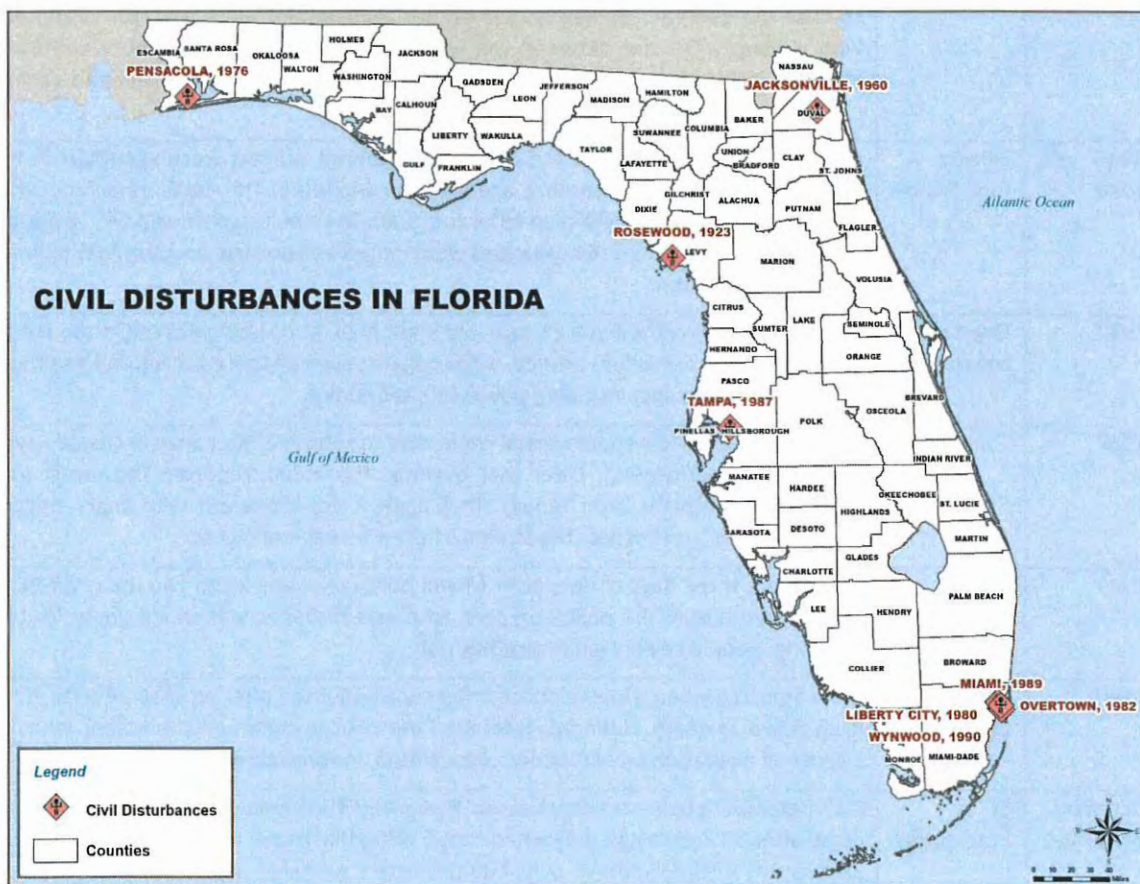
This hazards Infrastructure Magnitude was determined to be Medium, meaning significant damage to property occurs.

This hazards Environment Magnitude was determined to be Low, meaning little to no damage to the environment occurs.

2. Geographic Areas Affected by Civil Disturbance

Civil Disturbances tend to occur in urban areas, but can occur anywhere. Below is a map depicting major incidents of civil disturbance in Florida, which are discussed below in Historical Occurrences.

Figure 110: Florida Historical Occurrences, Civil Disturbance



3. Historical Occurrences of Civil Disturbance

Civil Disturbances have been occurring since the beginning of time. There are several examples of civil disturbances in Florida. Many of the examples below include some type of racial motivation, such as anger in response to police brutality against African Americans.

Table 74: Florida Historical Occurrences, Civil Disturbance

Date	Location	Description
1923	Rosewood	A mob of several hundred white men searched the area for Black men and burned almost every structure in Rosewood. Several Black men died. Survivors hid in swamps for days until they were rescued.
1960	Jacksonville	An angry white mob attacked Black youths for attempting to eat at a white only lunch counter, using ax handles (without the blades) and baseball bats. The attacks quickly turned into a riot in the downtown area involving whites and Blacks. Dozens were injured.
1976	Pensacola	A white school was desegregated leading to the ban of the racially insensitive mascot and use of the confederate flag. Hundreds of white students gathered and attempted to raise the confederate flag on the school flagpole and Black students responded with violence. The riot between the white students outside the school and Black students inside the school lasted for 4 hours, left 30 students injured, and caused extensive damage to the school.
May 17, 1980	Liberty City, Miami	A riot erupted after four white Miami Dade police officers were acquitted in the beating death of Black insurance agent Arthur McDuffie. This came after four other police brutality cases in Miami in 1979 and 1980. The riot lasted three days, 18 people died, 400 were injured, 116 businesses were looted and burned, and property damage totaled \$100 million.
1982	Overtown, Miami	After police shot and killed a 21-year-old Black man, hundreds gathered at the scene. When homicide detectives arrived, a riot began. Seven people were injured and there was property damage, including police cars set on fire.
1987	Tampa	A police officer used a controversial chokehold to subdue a Black man in custody, who later died of suffocation. Later that evening, the media reported the arrest of a famous Black athlete from Tampa. That night a riot broke out with angry citizens throwing rocks and bottles. The violence lasted for several nights.
1989	Miami	There were three days of riots after Miami police shot and killed two unarmed Black men. When one of the police officers, who was Hispanic, was found guilty for this shooting, people celebrated in another riot.
1990	Wynwood, Miami	Riots occurred when a Miami police officer was acquitted after he beat a Puerto Rican drug dealer to death. Hundreds from the Puerto Rican community in Miami, who felt a sense of alienation and powerlessness, rioted, looting stores and setting fires.
October 24, 1996	St. Petersburg	A St. Petersburg police officer shot an 18-year-old Black man during a traffic stop. This came after St. Petersburg police had shot 5 other Black men already that year. Within 30 minutes of the shooting, over 100 protestors gathered at the scene. The rioters scuffled with police, threw rocks, bottles, stones, and Molotov cocktails, set vehicles on fire, including a news van, and broke windows of a responding fire engine. Police shot tear gas into the crowd but the situation became increasingly volatile. The Mayor declared a State of Emergency and brought in the Florida National Guard to help

		police regain control. Eventually, the Mayor met with community leaders to diffuse the situation. By the end there were 20 people arrested, 11 people injured, at least 28 cases of arson, and several stores looted. Riots broke out again a few weeks later when a grand jury did not indict the officers that were involved with the shooting on October 24.
November 19, 2000	Miami	During a recount of presidential election votes, hundreds of paid Republican operatives traveled to south Florida to protest the State's recount. Protestors were described as 50-year-old white lawyers with cell phones, Hermès ties, and Brooks Brothers suits. The demonstration turned violent when protestors tried to rush the doors of the Office of the Supervisor of Elections. People were trampled, punched, and kicked and sheriff deputies had to restore order.
2000	Miami	Riots broke out when US Immigration Officers stormed a home and took 6-year-old Elian Gonzalez and flew him to be with his father near Washington DC. After he was taken, his relatives that had been taking care of him in Miami and the rest of the community gathered in the streets, crying; soon they began to burn tires and disrupt traffic. They also kicked and spat at police, threw bus benches into streets, and blocked the road to the Miami International Airport. The situation was highly emotional and tense because of Cuban-American relations. The Cuban refugees living in Miami didn't want the boy to be forced to return to Cuba.
2003	Miami	More than 10,000 peaceful demonstrators protested Bush's free trade zone agenda at the trade ministers' meeting. Several dozen demonstrators grew violent and clashed with police, throwing bottles, rocks, and smoke bombs, and setting fires. Police responded with pepper spray, rubber bullets, and stun guns.

4. Probability of Future Occurrences of Civil Disturbance

It is likely that occurrences of Civil Disturbance will continue in the future. There have been several in Florida in the past and protesting is a fundamental right protected by the US Constitution.

This hazard was determined to occur about every 5-10 years, giving it a Probability ranking of Likely.

5. Civil Disturbance Impact Analysis

- Public
 - Injury
 - Death
 - Arrested
- Responders
 - Injury
 - Death
- Continuity of Operations (including continued delivery of services)
 - Disrupt transportation systems .
 - Disrupt operations of the facility that is being blocked
- Property, Facilities, Infrastructure
 - May damage roads, fencing, benches, etc.
 - Businesses and adjacent buildings may be vandalized or damaged.

- Environment
 - The use of Molotov cocktails or other forms of fire could create environmental issues and cascade into other hazards such as fires.
- Economic Condition
 - Blocked roads could lead to an inability for businesses to open or employees to get to work, causing economic impacts.
- Public Confidence in the Jurisdiction's Governance
 - If the law enforcement cannot control civil disturbances, then it is likely that the public will view the jurisdiction as weak and that they are able to be taken advantage of

6. 2018 LMS Integration

The following counties profile Civil Disturbance (or some similar hazard) in their most recent LMS plan:

- Brevard
- Clay
- Dixie
- Escambia
- Flagler
- Glades
- Hendry
- Indian River
- Levy
- Madison
- Martin
- Miami-Dade
- Osceola
- Palm Beach
- Pinellas
- Seminole
- St. Lucie
- Volusia

7. Vulnerability Analysis and Loss Estimation by Jurisdiction

It is impossible to conduct a vulnerability analysis and loss estimation by jurisdiction for Civil Disturbances. While peaceful protests or demonstrations occur frequently, it is difficult to determine when a protest will become a civil disturbance or riot, by disrupting daily operations or by becoming violent. Based on the historical occurrences, the large, urban areas of the state are more likely to be affected by Civil Disturbances than the small rural areas.

8. Vulnerability Analysis and Loss Estimation of State Facilities

State facilities are not particularly vulnerable to civil disturbances. There is a chance the group would protest in a state facility and that the protest might turn violent or destructive. There is also the chance that since sometimes state facilities are in downtown areas, that a facility may be damaged during civil disturbances or riots in the general downtown area. A Loss Estimation of State Facilities for Civil Disturbances is not possible to conduct.

9. Overall Vulnerability

Based on the Frequency, Probability, and Magnitude summary, the Overall Vulnerability of this hazard was determined to be Medium, with a score of 9.

CIVIL DISTURBANCE INCIDENTS					Overall Vulnerability
Overview					
<p>Civil disturbance is an activity such as a demonstration, riot, or strike that disrupts a community and requires intervention to maintain safety in the community. The different types of gatherings include impromptu and organized. Civil disturbance incidents tend to occur in urban locations but can realistically happen anywhere.</p>					MEDIUM
Frequency	Probability	Magnitude			
		Injuries/Deaths	Infrastructure	Environment	
Likely	Likely	Medium	Medium	Low	

FUNDING AND PROJECTS

State Hazard Mitigation Plan Requirements
S9. Does the plan prioritize mitigation actions to reduce vulnerabilities identified in the risk assessment? [44 CFR §201.4(c)(3)(iii) and §201.4(c)(3)(iv)]
S10. Does the plan identify current and potential sources of funding to implement mitigation actions and activities? [44 CFR §201.4(c)(3)(iv)]
S12. Does the plan discuss the evaluation of the state's hazard management policies, programs, capabilities, and funding sources to mitigate the hazards identified in the risk assessment? [44 CFR §201.4(c)(3)(ii)]
S15. Does the plan describe the criteria for prioritizing funding? [44 CFR §201.4 (c)(4)(iii)]
E2. Does the plan demonstrate integration to the extent practicable with other state and/or regional planning initiatives and FEMA mitigation programs and initiatives? [44 CFR §201.5(b)(1)]
E4. Does the enhanced plan document capability to implement mitigation actions? [44 CFR §201.5(b)(2)(i), §201.5(b)(2)(ii), and §201.5(b)(2)(iv)]
E5. Is the state effectively using existing mitigation programs to achieve mitigation goals? [44 CFR §201.5(b)(3)]
E6. With regard to HMA, is the state maintaining the capability to meet application timeframes and submitting complete project applications? [44 CFR §201.5(b)(2)(iii)(A)]
E7. With regard to HMA, is the state maintaining the capability to prepare and submit accurate environmental reviews and benefit-cost analyses? [44 CFR §201.5(b)(2)(iii)(B)]
E8. With regard to HMA, is the state maintaining the capability to submit complete and accurate quarterly progress and financial reports on time? [44 CFR §201.5(b)(2)(iii)(C)]
E9. With regard to HMA, is the state maintaining the capability to complete HMA projects within established performance periods, including financial reconciliation? [44 CFR §201.5(b)(2)(iii)(D)]
RL4. Did Element S10 (funding sources) address RL and SRL properties? [44 CFR §201.4(c)(3)(iv) and §201.4(c)(3)(v)]
RL6. Did Element S15 (prioritizing funding) address RL and SRL properties? [44 CFR §201.4(c)(4)(iii) and §201.4(c)(3)(v)]

Introduction

The Florida Division of Emergency Management (FDEM) assists communities and other potential applicants with finding disaster mitigation and recovery funds. Once funding opportunities are made known to the Mitigation Planning Unit, communities and potential applicants are provided with information on various funding opportunities via phone and email. In addition, all applicable state and local mitigation counterparts are provided opportunity to attend various workshops delivered by state mitigation staff on these opportunities once they are available.

The state makes full use of the Federal Emergency Management Agency (FEMA) mitigation grant program funding and encourages local communities to do the same. FEMA mitigation grants are used to leverage state, local, and other funds for maximum mitigation activity. For recent funding use, please see individual grant descriptions later in this section as well as in the *State Mitigation Strategy Section*.

The 2018 SHMP attempts to streamline information about each of the available funding programs by combining the majority of program information under one heading. For the 2018 update, all available funding sources were reviewed and updated as necessary. Enhanced and standard plan elements have been integrated throughout this section.

Funding Source Identification and Usage

The state uses a variety of programs and funds to achieve its mitigation goals. This includes special appropriations from Congress and State Legislature, as well as funds from federal sources. Various programs and sources of project funding are described throughout this section.

All projects funded by FEMA and managed by the state must align with the goals and objectives in the SHMP. As stated in the *State Mitigation Strategy Section*, the four goals for the 2018 Enhanced State Hazard Mitigation Plan (SHMP) are as follows:

- Goal 1: Implement an effective comprehensive statewide hazard mitigation plan.
- Goal 2: Support local and regional mitigation strategies.
- Goal 3: Increase public and private sector awareness and support for hazard mitigation in Florida.
- Goal 4: Support mitigation initiatives and policies that protect the state's cultural, economic, and natural resources.

In addition to making sure that projects align with the SHMP goals, projects submitted under many of the federal grant programs must also be prioritized. Project prioritization varies by funding source and applicant. In general, limited special prioritization considerations are given to communities that have the highest risk or are under strong development pressures; however, proactive approaches are encouraged whenever possible.

Federal Funding

Mitigation opportunities are pursued on a year-round basis in Florida. While many opportunities exist to fund projects at the local level, both the state and local applicants rely heavily on the use of federal funds to implement mitigation projects. The following federal funding sources are some of the most popular programs used to help achieve the state's mitigation goals. More information regarding federal funding sources can be found on FEMA's website.

Below is a snapshot of both Federal and State funding sources that each county has utilized in the past.

Table 75: LMS Funding Source Identification

Funding & Projects Section : LMS Projects Funding Matrix																		
	Federal Grants								State/Community Funds						Tax			
	HMGP	PDM / FMA	406	Public Assistance	HLMF	CDBG	EMPA	EMPG	State Homeland Security Program	Revenue Bonds	Jurisdiction Funds	General County Fund	State / County Agencies	Florida Communities Trust	In-Kind	Ad Valorem	Storm-water	Sales
Alachua	X	X																
Baker	X								X	x	x	x						
Bay	x	x									x							
Bradford	x										x							
Brevard	x			x		x		x				x						
Broward	x	x					x					x						
Calhoun	X	X	X		X	X						X	X					
Charlotte	X										X	X	X					X
Citrus	X	X							X		X	X						
Clay	x																	
Collier	x	x			x							x				x		
Columbia	x	x			x		x				x	x	x					
Desoto	x											x						
Dixie	x	x				x	x					x						
Duval	x	x			x						x	x	x					
Escambia	x										x							
Flagler	x	x			x		x				x	x						
Franklin	x				x													
Gadsden	x	x				x	x					x						
Gilchrist	x					x									x			
Glades	x				x							x						
Gulf	x	x			x	x					x	x						
Hamilton	x					x												
Hardee	x										x	x	x					
Hendry	x	x			x	x						x						
Hernando	x	x					x				x	x						
Highlands	x	x	x		x	x	x					x	x		x			
Hillsborough	x	x											x					x
Holmes	x	x				x	x					x	x					
Indian River	x	x					x	x					x					
Jackson	x	x				x						x	x					
Jefferson	x						x				x	x	x					
Lafayette	x											x						
Lake	x											x						
Lee	x																	
Leon	x	x				x	x				x	x	x					
Levy	x	x				x	x						x					
Liberty	x	x			x							x	x					
Madison	x	x				x												
Manatee	x										x	x	x					x
Marion	x	x										x	x			x		
Martin				x		x					x	x						
Miami-Dade											x	x	x					x
Monroe	x			x									x					
Nassau	x	x									x	x	x					
Okaloosa	x											x						
Okeechobee	x	x		x									x					
Orange	x	x																
Osceola	x	x				x							x					
Palm Beach	x	x		x			x											
Pasco	x	x				x	x					x	x			x		x
Pinellas	x	x			x	x	x				x	x	x					
Polk	x	x					x				x	x	x					
Putnam	x	x					x				x	x	x					
Santa Rosa	x											x						
Sarasota	x											x	x					
Seminole	x	x																
St. Johns	x					x					x	x						
St. Lucie	x							x			x	x	x					
Sumter	x	x				x						x						
Suwannee	x					x					x	x	x					x
Taylor	x	x				x	x	x					x					x
Union	x				x			x				x						
Volusia	x																	
Wakulla	x	x			x	x		x					x					x
Walton	x	x		x		x	x						x					
Washington	x	x				x	x				x		x					

All mitigation measures submitted to the state for funding under FEMA's Hazard Mitigation Assistance (HMA) programs which include the Hazard Mitigation Grant Program (HMGP), Pre-Disaster Mitigation (PDM) grant program, the Flood Mitigation Assistance (FMA) program, the Severe Repetitive Loss (SRL), and the Hazard Loss Mitigation Program (HLMP) program must:

- Be consistent with the SHMP.
- Solve or at the very least address a problem.
- Be technically feasible.
- Be cost effective.
- Comply with environmental regulations.
- Identify a non-federal match (if required).

In addition, to the standard federal requirements, the State of Florida has developed additional eligibility criteria for all proposed multi-hazard mitigation measures submitted to FDEM. These criteria are reflected in Florida Administrative Code 27P-22 (see *Appendix B: Governing Policies*).

Hazard Mitigation Grant Program

The Hazard Mitigation Grant Program (HMGP) is authorized by Section 404 of the Robert T. Stafford Disaster Relief and Emergency Assistance Act (PL 93-288 as amended). This program, administered by DEM's HMGP Unit (See DEM's Agency Summary in the *State Mitigation Strategy Section*), is designed to help states, local governments, private non-profit organizations, and tribes implement long-term hazard mitigation measures following a major disaster declaration. Funds may be used to protect public or private property. They may also be used to purchase property that has been subjected to, or is in danger of, repetitive damage. Projects include acquisition and relocation, multi-hazard retrofits, minor flood control projects, and construction of safe rooms.

The standard federal mitigation funding allocation for this program is 15 percent of allocated disaster relief (the sum of public assistance, individual assistance and Small Business Administration (SBA)). States with an approved Enhanced SHMP are eligible to receive an additional five percent of the disaster relief funds. Up to seven percent of HMGP money can be used for mitigation planning activities.

In Florida, it is up to the state as to how those planning funds will be allocated. Often times the seven percent planning funds are used for state level planning initiatives. Under this program, the state requests the additional seven percent set aside, which requires approval from FEMA. Other set-asides can include a five percent initiative for special state initiatives and potentially another five percent for activities that address promoting disaster-resistant codes for all hazards.

The state's five percent initiative funds are used to implement special mitigation priorities set by the Governor and the Governor's Authorized Representative (GAR). These statewide projects include those mitigation activities that are proposed by state and regional agencies. This includes activities proposed by DEM that are regional or statewide in scope. If there are no priorities set for these initiative funds, the five percent can be applied to local initiatives, at the discretion of the state.

Key objectives of the HMGP are to:

- Prevent future losses of lives and damage to property due to disasters.
- Implement state or local hazard mitigation plans.

- Enable mitigation measures to be implemented during immediate recovery from a disaster.
- Provide funding for mitigation measures that benefit the disaster area.

While the HMGP is a federally funded program, it is administered by the HMGP Unit in accordance with federal and state regulations. In this capacity, the key responsibilities of the state are to:

- Solicit and review HMGP proposals from applicants.
- Prepare and submit proposals to FEMA in accordance with the HMGP Administrative Plan.
- Manage HMGP and funds allocated under the program.

The state is the grantee of the GAR funds. The GAR serves as the grant administrator for all funds provided under HMGP, as well as funds authorized under other disaster programs. In Florida, the GAR has signatory authority for all disaster assistance programs, but the State Coordinating Officer (SCO) manages HMGP through the State Hazard Mitigation Officer (SHMO).

Eligibility for Hazard Mitigation Grant Program Grants

To be eligible for mitigation funding, a project must be listed in the community's Local Mitigation Strategy (LMS) and satisfy the requirements listed below.

These criteria are also listed in the HMGP Administrative Plan (see *Appendix J: HMGP Administrative Plan*), which is used for all federal hazard mitigation programs:

- Be in conformance with the SHMP.
- Have a beneficial impact upon the declared disaster area. A project located outside the declared disaster area cannot be eligible unless it has a direct and beneficial impact to the disaster area or until all projects within the declared disaster area have been funded.
- Conform to 44 CFR, Part 9, Floodplain Management and Protection of Wetlands, and 44 CFR, Part 10, Environmental Considerations.
- Solve a problem independently or constitute a functional portion of a solution where there is assurance that the project will be completed as a whole. Projects that merely identify or analyze hazards or problems are not eligible.
- Be cost-effective and substantially reduce the risk of future damage, hardship, loss, or suffering resulting from a major disaster. The grantee must demonstrate this by documenting that the project:
 - Addresses a problem that has been repetitive, or a problem that poses a significant risk to public health and safety if left unsolved.
 - Will not cost more than the anticipated value of the reduction in direct damages and subsequent negative impacts to the area if future disasters were to occur.
 - After consideration of a range of options, has been determined the most practical, effective and environmentally sound alternative.
 - Contributes to a long-term solution to what it is intended to address.
 - Considers long-term changes to the areas and entities it protects, and has manageable future maintenance and modification requirements.

FEMA defines hazard mitigation as an action intended to reduce repetitive losses from future natural disasters. In this context, "repetitive" refers to similar types of losses caused by a recurring natural hazard. The term "losses" refers to expenditures for the repair or replacement of public and private property, and for the relief of personal loss or other hardship. Post-disaster projects that simply repair and reconstruct damaged property to pre-disaster conditions are not eligible. Rather than mitigating loss, these types of projects serve to perpetuate the cycle of damage, reconstruction, and repeated damage.

Acquisition or construction of a site in the designated Special Flood Hazard Area (SFHA) of a community not participating in NFIP is not eligible for HMGP funding. This includes communities suspended from participation. Non-participating communities may submit projects to the HMGP only if the projects are located in unmapped areas or outside of the SFHA.

Any HMGP construction project located within a SFHA must be comply with the minimum NFIP standards for such projects. The activities of the HMGP Unit within DEM's Bureau of Mitigation are reviewed in DEM's agency summary within the *State Mitigation Strategy Section*. You can find projects currently funded through HMGP by referencing *Appendix M: State Managed Projects*.

The Disaster Mitigation Act of 2000 (DMA2K) requires, as a condition for receipt of federal mitigation assistance funds, local governments develop a FEMA approved local mitigation plan. The plan must contain locally prioritized projects that are technically feasible, cost effective, and environmentally sound. In Florida, the prioritized project lists serve a very important purpose. In addition to the federal criteria, Florida requires, through 27P-22.005 of the Florida Administrative Code (FAC), the prioritized project list to list the estimated costs and associated funding source for each project listed. Florida is the only known state to have a legislatively approved process for distributing HMGP funds. The law serves to strengthen local planning processes while providing autonomy in how funds are distributed.

In the instances where a cost effective, eligible, and technically feasible project submitted under a specific grant program fails to receive a grant due to lack of funds, DEM will provide information on the next available qualifying funding source. For example, if an acquisition is submitted under HMGP and meets all program eligibility requirements but is not funded due to limited HMGP funds, this project will be provided to the FMA staff for consideration under the next open cycle.

Prioritization for HMGP Funds

Upon notice from FEMA of the availability of HMGP funds, the mitigation staff determines the amount of funds that have been dispersed in each of the declared counties from the Individual Assistance (IA) Program, the Public Assistance (PA) Program, and the SBA Disaster Loan Program. Each county receives a proportional HMGP allocation based on these figures.

DEM will use the 90-day estimate in order to determine the percentage of funds allocated to each county. This process repeats after each successive estimate and the allocations adjust accordingly. When county allocations have been determined, a Notice of Funding Availability (NOFA) is published in Florida Administrative Weekly and distributed to mitigation partners throughout the state.

Local mitigation projects are prioritized by each LMS Working Group. Prioritized lists are submitted to the state each year as a part of the FAC 27P-22 rule update process and again with five- year plan updates. DEM has delegated its authority to set priorities and select projects to the LMS Working Groups in order to validate the local mitigation planning process embodied in the LMS. Under the rule, only prioritized

projects from the LMS are eligible for HMGP project funding. LMS Working Groups are encouraged to gather estimates of costs and conduct a simple benefit-cost review as part of the priority setting process, not only to help meet federal planning requirements but also because it is critical to early implementation of projects in a disaster’s aftermath.

A letter from the LMS Chairperson must accompany each application submitted endorsing the project and assigning a funding priority. To meet the requirements of DMA2K, the letter must indicate the LMS goal (and objective where appropriate) addressed by the project. The state mitigation staff verifies that the community is listed as an approved participant in the LMS.

To ensure that all of the HMGP project funds are used, DEM uses a three-tiered distribution system as described below.

Table 76: Hazard Mitigation Grant Program Distribution System

Tier 1	HMGP funds are allocated to counties included in the relevant Presidential disaster declaration. Funds are allocated in proportion to each county’s share of federal disaster funding from the PA, IA, and SBA Disaster Loan Program as of the date of receipt of the FEMA NOFA. Eligible projects are funded in order of LMS priority until allocations (through the 12-month lock-in) are exhausted or all eligible projects are funded.
Tier 2	Any funds remaining after all eligible projects are funded are re-allocated to declared counties with insufficient allocations to fund all submitted eligible projects. Priority for re-allocating funds begins with the declared county with the lowest initial allocation.
Tier 3	If funds remain, they shall be applied to fund eligible projects submitted first-come-first-served from counties that did not receive a Tier 1 allocation because they were not included for IA, PA or SBA loans.

Prioritization for Hazard Mitigation Grant Program Set-Asides

Prioritization for special set-asides under the HMGP are handled a different way. If the state chooses to use the five percent initiative funding under HMGP, the Governor and the GAR in consultation with the state legislature set priorities for the funding based upon the hazard, type of damages, and identified need resulting from a hazard event. If the Governor and legislature do not set statewide priorities for funds, projects will be deferred to a Project Review Committee of subject matter experts. In all cases, the projects recommended for funding must be in compliance with all other applicable federal requirements.

In Florida, prioritization for statewide and regional agency projects typically falls under the responsibility of the Mitigate FL Team and the SHMO. The SHMO also coordinates with many other entities on these decisions. All projects are endorsed by the SHMO as being consistent with the SHMP.

Prioritization for Hazard Mitigation Grant Program Planning (Seven Percent) Funds

When these funds are available, the review of projects submitted for funding will consist of a Project Review Team comprised of subject matter experts. A standardized process has been developed to rank planning grants for when the amount of available funding is not enough to cover all projects submitted, or when similar projects are received from different jurisdictions or agencies.

The scoring system below, as established by DEM, determines how HMGP planning projects will be prioritized for funding.

Table 77: Hazard Mitigation Grant Program Prioritization Scoring System

The clarity of the defined mitigation need and the degree to which the projected outcome of the planning project addresses the need.	75 points
The consistency of the planning project with risk analysis and the goals and objectives of the relevant LMS, other local plans, and the SHMP.	75 points
The degree to which the planning project integrates with other local plans.	100 points
The suitability of the proposed planning process to address the need including proposed actions to involve the public and, where appropriate, participants from surrounding neighborhoods as well as appropriate state and local agency or other personnel.	100 points
Creativity of approach to meeting the required match.	50 points
The capability of the applicant to complete the project based on experience, resources and demonstrated ability.	25 points
TOTAL Scoring	425 points

Tiebreaker: The degree to which the planning project builds on earlier planning projects.

Allocations of Hazard Mitigation Grant Program

The FAC 27P-22 defines how the HMGP Unit will allocate the funds. As previously mentioned, the HMGP Unit maintains an Administrative Plan (see *Appendix J: HMGP Administrative Plan*), approved by FEMA after each disaster, which further explains how the program funds will be distributed. Projects submitted to the state for potential funding have all been prioritized at the local level.

As of August 2016, Florida had completed more than 2,800 projects under HMGP worth over \$853 million. Florida has disbursed \$553.8 million in HMGP funds since 2004. As of August 2017, we are managing 99 HMGP open projects totaling \$155 million. Since September 2008, the state has received \$45, 306,741 in additional mitigation funding due to our enhanced status. Since the last plan update, Florida has closed a total of 6 disasters. Florida is one of the nation’s most active mitigation states. Examples of projects that have been funded or are in the process of being funded through HMGP can be found in *Appendix M: State Managed Projects*.

“406 Mitigation”

HMGP is similar to the PA Program authorized by Section 406 of the Stafford Act. PA funds allow an eligible applicant to incorporate mitigation measures into the repair of an existing damaged structure and infrastructure if the measures are cost-effective or required by code. HMGP can fund mitigation measures to protect public or private property in compliance with the program’s guidelines. It is appropriate to fund mitigation measures for public property damage in a disaster under Section 406 before applying for assistance under HMGP.

Flood Mitigation Assistance Program

The Flood Mitigation Assistance (FMA) program is authorized by Section 1366 of The National Flood Insurance Act of 1968, as amended (Pub. L. No. 90-448) (42 U.S.C. § 4104c) and appropriated annually by

the Consolidated Appropriations Act. Since the last plan update, consistent with the legislative changes made in the Biggert-Waters Flood Insurance Reform Act of 2012, the established partnership was designed to help states, local, and tribal governments reduce or eliminate long-term risks of flood damage to repetitively flooded structures insured under NFIP. The goals of the FMA are to:

- Fund cost-effective and technically feasible measures that reduce or eliminate long-term risk of flood damage to structures insured through NFIP.
- Encourage long-term, comprehensive mitigation planning against repetitive flooding.
- Reduce repetitively or substantially damaged structures and associated claims on the National Flood Insurance Fund (NFIF) by giving priority to Severe Repetitive Loss (SRL) structures.
- Complement other federal and state mitigation programs with similar goals.

As of FY 2017, the types of grants available through FMA are: Community Flood Mitigation Advance Assistance, Community Flood Mitigation Projects, Mitigation Planning and Residential Mitigation Projects. Projects include the following eligible activities:

- Development of Mitigation Strategies and/or Data to Prioritize, Select and Develop Viable Community Flood Mitigation Projects
- Projects that Integrate Cost Effective Natural Floodplain Restoration Solutions and Improvements to NFIP-Insured Properties
- Development of State or Local Flood Plans and Flood Plan Updates
- Acquisition and demolition
- Acquisition and relocation
- Standard elevation
- Mitigation reconstruction
- Dry flood-proofing
- Minor flood control projects

Although the FMA Program is federally funded, the program is administered through a partnership with DEM. In this capacity, the key responsibilities of the state are to:

- Solicit and review FMA proposals from applicants
- Prepare and submit fundable proposals to FEMA
- Manage the FMA Program
- Fully utilize the funds available under the program

Eligibility for Flood Mitigation Assistance Grants

State mitigation staff evaluate all applications to ensure that the applicant and proposed projects are eligible according to 44 C.F.R. Part 79 and the HMA Guidance. Projects must conform to regulations found in 44 C.F.R. Part 79 and the HMA Guidance. Projects must be:

- Eligible, cost-effective and technically feasible.
- In conformance with applicable environmental laws and regulations.
- Included in, and in conformance with, the Floodplain Management Plan.

- Physically located in a participating NFIP community not on probation, or the project must benefit such a community directly by reducing future flood damage.
- NFIP insured at the time of the opening of an application period and maintained through at least the completion of the project. For projects where a structure remains in the special flood hazard area (SFHA), properties must maintain a flood insurance policy for the life of the structure.

State agencies, federally recognized tribes, and local governments/communities are eligible to apply.

Prioritization for Flood Mitigation Assistance

The State of Florida supports and encourages multi-hazard planning and each LMS must include a flood component. Specialized flood planning is an eligible activity through FMA to augment multi-hazard plans. As the FMA applicant, FDEM has the authority to rank or prioritize project and planning grants applications. FDEM also has the authority to decide whether or not to submit sub-applications to FEMA for FMA related activities.

FDEM utilizes FEMA's priorities to assist communities with determining if they may benefit from FMA project and/or planning opportunities. In conjunction with communities, staff considers various circumstances to make this determination. These include the impact of flooding on the community and the desire to initiate new and improved flood hazard initiatives or implement strategies to improve their usage of FMA project funds.

There was never a case in which the number of projects exceeded the FMA allocation, but in the event there was, the following method would have been used to review and rank local government applications:

- Priority #1: Local governments that have experienced a significant flood event and did not receive a presidential disaster declaration.
- Priority #2: Local governments that have severe repetitive loss structures, but have never submitted or infrequently submitted applications to FMA for flood mitigation projects.
- Priority #3: Local governments that have a high number of FEMA repetitive loss structures.
- Priority #4: Local governments that have targeted repetitive loss structures.
- Priority #5: Those who participate in CRS with ten or more FEMA repetitive loss properties.

Should multiple applicants rank equally, the highest number of severe repetitive loss structures will have priority. FDEM elects not to provide FEMA with sub-applications that exceed its annual allocation of FMA funds.

Allocations of Flood Mitigation Assistance

The State of Florida has aggressively implemented and administered the FMA program. The State Hazard Mitigation Office, the office responsible for managing the FMA program, has managed funding and the implementation and completion of acquisition, elevation, mitigation reconstruction and flood retrofitting of repetitively flooded structures since 1997.

Evidence of the state's proactive mitigation effort is seen in the fact that it would often request a waiver to increase the five-year, \$20 million limit. As last known, the program works with local and federal partners to mitigate both residential and non-residential properties.

Florida received \$43,465,434.71 in federal funds for FMA projects between fiscal years (FY) 2013 and 2016. Yearly awards include:

- FY 2013: \$6,291,844.71
- FY 2014: \$7,718,267.57
- FY 2015: \$7,468,074.09
- FY 2016: \$21,987,248.34

Pre-Disaster Mitigation Grant Program

The Pre-Disaster Mitigation Grant Program (PDM) is authorized by Section 203 of the Robert T. Stafford Disaster Relief and Emergency Act, as amended (Public Law 93-288) (42 U.S.C. 5133) and appropriated annually by the Consolidated Appropriations Act. It exists to assist communities in reducing overall risk to the population and structures from natural disasters. Eligible applicants are state agencies, federally recognized Indian tribal governments, and local governments. Private non-profit organizations are not eligible to apply; however, they may request a local government submit an application for proposed activities on their behalf.

Potential project types include:

- Acquisition/Demolition; Acquisition/Relocation
- Elevation
- Mitigation Reconstruction
- Dry Flood proofing
- Generators
- Engineering studies
- Hydrologic/hydraulic studies/analyses
- Localized and Non-localized flood reduction projects
- Protective measures for utilities
- Retrofitting
- Safe rooms
- Storm water management projects
- Soil Stabilization
- Wildfire Mitigation

Through PDM, Florida has provided protection to local government structures and critical facilities, as well as reduced flooding in neighborhoods. Although the PDM program is federally funded, the program is administered through a partnership arrangement with DEM. In this capacity, the key responsibilities of the state are to:

- Solicit and review PDM proposals from applicants.
- Prepare and submit eligible proposals to FEMA.
- Manage the FMA Program.
- Fully utilize the funds available under the program.

Eligibility for Pre-Disaster Mitigation Program Grants

State mitigation staff evaluates the projects to be sure that the applicant and project are eligible according to FEMA's most recent HMA Guidance. The project must conform to regulations found in this Guidance, including:

- Be in conformance with the LMS, local ordinances, planning requirements, and floodplain management plans as applicable.
- Be complete and cost-effective.
- Be long-term and technically feasible.
- Conform to all applicable environmental, historic, or cultural preservation reviews.
- Benefits must not duplicate those available through another primary source or program.

Prioritization for Pre-Disaster Mitigation Program

Florida will only consider PDM applications from communities that have a FEMA-approved LMS. Typically, PDM funds are available to all eligible applicants statewide for projects that are designed to reduce future risk to individuals and property from natural hazards. While not required to be prioritized by the local LMS working groups, projects submitted for funding under the PDM must be consistent with the LMS and documented as such.

Since funding for PDM is competitive nationwide and the federal guidance material may or may not limit the total number of sub-applications a state may submit, FDEM provides technical assistance to all eligible applicants with a FEMA approved LMS. When these funds are available, the review of projects submitted for funding will consist of a Project Review Team composed of subject matter experts.

In those instances where federal guidance limits the number of sub-applications a state may submit, FDEM will limit its submittals to eligible cost-effective sub-applications as provided in the guidance. In any case, FDEM will prioritize and rank eligible cost-effective project applications by FEMA's priorities, benefit cost ratio and technical feasibility.

In situations where there is a tie, FDEM will prioritize those project applications from communities that have not received any HMGP funds over a 12-month period.

This process is the state's system to rank mitigation grant applications when the amount of available funding is not enough to cover all projects submitted or when similar projects are received from different jurisdictions or agencies.

Allocations of Pre-Disaster Mitigation Program

The PDM program is highly competitive on a national level. Considering the recent funding limitations and restrictions under the PDM program, the State of Florida has continued to aggressively implement and administer the PDM program. The State Hazard Mitigation Office, the office responsible for managing the PDM program has successfully managed funding and the implementation and completion of many dry flood proofing, generator, retrofit and drainage projects.

Florida received \$8,436,862.03 in federal funds for PDM projects between fiscal years (FY) 2013 and 2016. Yearly awards include:

- FY 2013: \$272,199.85
- FY 2014: \$929,074.06
- FY 2015: \$624,987.65
- FY 2016: \$6,610,600.47

Emergency Management Performance Grant

FEMA is responsible for leading and supporting the nation in a comprehensive, risk-based, all hazards emergency management program. The primary means of ensuring the development and maintenance of such a program is FEMA funding to states through the Emergency Management Performance Grant (EMPG). The purpose of the Emergency Management Performance Grant (EMPG) Program is to provide federal funds to states to assist state, local, territorial, and tribal governments in preparing for all hazards. DHS/FEMA make grants available for the purpose of providing a system of emergency preparedness for the protection of life and property in the United States from hazards and to vest responsibility for emergency preparedness jointly in the Federal Government, states, and their political subdivisions. The Federal Government, through the EMPG Program, provides necessary direction, coordination, and guidance, as well as assistance, to support a comprehensive all hazards emergency preparedness system.

FDEM uses EMPG funding for programs in all four phases of emergency management: preparedness, response, recovery and mitigation. Examples of EMPG funded mitigation activities include initiating or achieving whole community approach to security and emergency management; updating emergency plans; completing the State Preparedness Reports (SPR), including the Threat and Hazard Identification and Risk Assessment (THIRA) process; designing and conducting exercises that engage a whole community of stakeholders and validate core capabilities; and conducting training.

Allocations of Emergency Management Performance Grant

Florida receives EMPG funding each year for state and county emergency management, as well as for special projects. Generally, these funds are used to implement state priorities, maintain or expand capacity in planning, exercise, and training, and to implement NIMS.

Between fiscal years 2011 and 2016, the State of Florida received over \$44 million in EMPG funding for:

- Local Emergency management programs
- Public education and outreach
- Private sector outreach
- Training and exercise activities on required capabilities
- Upgrades to state emergency management resources
- Catastrophic analysis and planning for state and local plans

Recent mitigation-related projects between fiscal years 2010/2011 and 2015/2016 under the EMPG program include:

- FY2010/2011
 - Television and Radio Airtime (\$250,000)
 - "Get A Plan" Outreach (\$200,000)
 - FloridaDisaster.org redevelopment (\$150,000)

- Community Outreach Materials, Events, Documentation, and Development of Public Service Announcements (\$425,000)
- County Emergency Management Programs (\$5,404,070)
- FY2011/2012
 - Television and Radio Airtime (\$250,000)
 - Public Information Website Maintenance and Upgrades (\$75,000)
 - Florida Severe Weather Awareness Week (\$100,000)
 - Production Services for Website and Television Outreach (\$125,000)
 - Community Outreach Materials, Events, Documentation, and Development of Public Service Announcements (\$125,000)
 - "Get A Plan" Events, TV/ Radio Spot (\$100,000)
 - Depth Analysis for state (\$25,000)
 - Training and Maintenance on the Regional Evacuation Studies (\$100,000)
 - County Emergency Management Programs (\$5,602,085)
- FY2012/2013
 - Television and Radio Airtime (\$250,000)
 - Florida Severe Weather Awareness Week (\$75,000)
 - Production Services for Website and Television Outreach (\$300,000)
 - Community Outreach Materials, and Public Service Announcements (\$125,000)
 - Kids Get A Plan Education Campaign (\$175,000)
 - Training and Maintenance of the Regional Evacuation Studies (\$80,000)
 - Citizen Corp Program Funding for County Base Grants (\$290,000)
 - County Emergency Management Programs (\$5,709,319)
- FY2013/2014
 - Television and Radio Airtime (\$600,000)
 - Kids Get A Plan Education (\$841,897)
 - Florida Severe Weather Awareness Week (\$27,500)
 - Production Services for Website and Television Outreach (\$150,000)
 - Florida's Get A Plan Education Materials and Outreach (\$220,000)
 - Training and Maintenance of the Regional Evacuation Studies (\$490,000)
 - Citizen Corp Program (\$279,240)
 - Statewide Emergency & Alert Notification System (\$1,501,398)
 - County Emergency Management Programs (\$6,229,836)
- FY2014/2015
 - Kids Get A Plan (\$113,114)
 - Private Sector Outreach Campaign (\$15,928)
 - Florida's Get A Plan Outreach and Production Services (\$218,445)
 - Special Needs Public Education (\$229,896)
 - Citizen Corp Program (\$282,896)
 - County Emergency Management Programs (\$6,102,312)
- FY2015/2016
 - Public Education Campaign (\$485,698)

- Planning, Training, Exercise (\$500,000)
- Citizen Corp Program (\$360,000)
- Special Needs Registry (\$125,000)
- All Hazards Incident Management Team (\$30,000)
- County Emergency Management Programs (\$6,285,075)

State Funding

The following is an overview of available state funding sources that have been used as the non-federal share for federal grant programs as well as to fund non-federally funded local projects. This list is not all-inclusive and will be updated as additional state funding sources are identified.

Florida Hurricane Catastrophe Fund

The Florida Hurricane Catastrophe Fund (FHCF) is a tax-exempt trust fund created by the Florida Legislature in November 1993. Following Hurricane Andrew in August of 1992, numerous problems developed in the residential property insurance market and the availability of reinsurance for hurricanes became scarce and extremely expensive. Many insurers were forced to re-evaluate their exposure in Florida. State action was deemed necessary to maintain a stable property insurance market.

Section 215.555, Florida Statutes, created the FHCF with the purpose of providing a stable and ongoing source of reimbursement to insurers for a portion of their catastrophic hurricane losses in order to provide additional insurance capacity for the state. The FHCF operates as a public-private partnership, supporting the private sector's role as the primary risk bearer.

The FHCF plays a significant role in the provision of property insurance coverage for Florida residents. Eleven consecutive seasons with limited claims payment activity have given the FHCF an opportunity to accumulate sufficient reserves to prepare for future storms. The FHCF has significant financial resources as of the end of 2016, with an estimated fund balance of approximately \$13.8 billion. In addition to these resources, the FHCF also has \$2.7 billion available in pre-event bond proceeds from outstanding Series 2013A pre-event debt (\$1.5 billion outstanding) and Series 2016A pre-event debt (\$1.2 billion outstanding) providing additional liquidity for 2017 and subsequent seasons. Nonetheless, the FHCF might still need to rely on emergency assessments and/or post-event bonding to pay claims if a storm or storms of sufficient magnitude impacted Florida.

Hurricane Loss Mitigation Program

The Florida Division of Emergency Management created the Hurricane Loss Mitigation Program (HLMP) with a purpose aimed towards minimizing damages caused by hurricanes. The program began as an active response to the devastation brought by Hurricane Andrew, specifically to the insurance market in the State of Florida. With an annual budget of 10 million, provided by the Florida Hurricane Catastrophe Trust Fund, the program is funding activities that promote property resiliency through retrofits made to residential, commercial, and mobile home properties, the promotion of public education and public information, and through hurricane research activities.

The specific areas funded by the \$10 million appropriation include retrofits for existing public facilities, the Mobile Home Tie Down program administered by Tallahassee Community College, a hurricane

research program conducted by Florida International University, wind mitigation retrofit projects, and public outreach programs.

Up to \$3.4 million is to be used on improving community resiliency through the Hurricane Loss Mitigation Program Grant. Through partnering with local housing authorities and non-profit organizations, the Division has been able to promote wind and flood mitigation and provide hazard mitigation retrofitting to residential and commercial properties. Funded activities include retrofits, inspections, and construction or modification of building components designed to increase a structure's ability to withstand hurricane-force winds and flooding. The Retrofit Program utilizes the Florida Building Code as its standard for all retrofitting.

The shelter retrofit program receives \$3 million of the annual \$10 million appropriation. Funding permits shelter surveying and the mitigation of hurricane shelters in the state of Florida.

Of moneys provided to the Division, \$700,000 is allocated to Florida International University to be applied to research and outreach conducted by the International Hurricane Research Center. The IHRC is a multi-disciplinary research and education organization focused on a single mission: to reduce hurricane damage and loss of life through more effective mitigation. As a University entity, the IHRC conducts both basic and applied research. The IHRC research tries to answer fundamental questions in order to reduce the hurricane threat. The Center's current studies involve such areas as: household mitigation and evacuation, storm hazard and vulnerability mapping, long-term community recovery, and economic loss modeling.

\$2.8 million of the appropriation by the Legislature is used to inspect and improve tie-downs for mobile homes. Section 215.559, Florida Statutes, authorizes the Department to contract with Tallahassee Community College to administer the mobile home tie-down program.

The Mobile Home Tie-Down Program is a pilot project designed to demonstrate, test and raise awareness of new techniques to enhance manufactured home wind resistance. The goal is to reduce property damage from high wind events. A tie-down system is designed to secure the manufactured homes to the ground. Traditional tie-down systems use the longitudinal ground anchors and straps, which sometimes corrode and disintegrate. The new tie-down system include lateral foundation systems with longitudinal stabilizer devices or ground stabilizer plates wherever possible. Tie-down retrofit services provided through this program must comply with the Rules of the Department of Highway Safety and Motor Vehicles, Division of Motor Vehicles, Chapter 15C-1, General.

Competitive Evaluation

An evaluation committee consisting of subject-matter experts is established each fiscal year that funding becomes available. The evaluation committee uses a competitive scoring system that considers the project team, references, work plan/approach, needs, and project justification. Submitted proposals are evaluated and points are awarded by each reviewer independently. Projects are prioritized in descending order and funds are awarded until all funds have been expended.

Florida International University (FIU) continues to conduct hurricane research at their International Hurricane Research Center (IHRC) and investigation into better building materials, the effects of high wind speeds on construction, and research into other wind damage concepts.

Florida Communities Trust Fund

Florida Communities Trust Fund (FCT) is a state land acquisition grant program housed within the Department of Environmental Protection. Funding for FCT grants comes from the Florida Forever program. When Florida Forever funding is available, FCT's Parks and Open Space program receives 21 percent of the funds and FCT's Stan Mayfield Working Waterfronts program receives 2.5 percent of the funds.

The FCT was created to help implement the goals, objectives, and policies outlined in the conservation, recreation and open space, and coastal management elements of local comprehensive plans. It also helps local governments bring their comprehensive plans into compliance as well as conserve natural resources and resolve land use conflicts. The FCT has acquired over 85,000 acres of private lands to be placed in public trust free from future development. Many of these lands are in floodplains along the state's vast rivers and coastal lands.

The FCT makes grants available to local governments and non-profit environmental organizations through a competitive application cycle to help purchase parks, greenways, and open spaces identified in local comprehensive plans. Under this program, all local governments are required to provide a minimum 25 percent match, except small local governments (counties with a population fewer than 75,000 and cities with a population fewer than 10,000) who would qualify for a 100 percent grant.

Allocations of Florida Communities Trust Fund

Recent mitigation-related funds under the FCT Fund include:

- FY 10/11
 - Total projects acquired: All 10 projects acquired during FY 10/11 contained 100-year floodplains and/or coastal high hazard areas.
 - Florida Forever funds provided by FCT: \$17,137,643 for projects that contain 100-year floodplains and/or coastal high hazard areas.
 - Local matching funds provided: \$5,220,963 for projects that contain 100-year floodplains and/or coastal high hazard areas.
 - Total acres: 2,333 acres acquired for projects that contain 100-year floodplains and/or coastal high hazard areas.
- FY 11/12
 - Total projects acquired: six out of the seven projects acquired during FY 11/12 contained 100-year floodplains and/or coastal high hazard areas.
 - Florida Forever funds provided by FCT: \$4,901,150 for projects that contain 100-year floodplains and/or coastal high hazard areas.
 - Local matching funds provided: \$3,213,012 for projects that contain 100-year floodplains and/or coastal high hazard areas.
 - Total acres: 1,712 acres acquired for projects that contain 100-year floodplains and/or coastal high hazard areas.

Coastal Partnership Initiative Grant Program

The Coastal Partnership Initiative (CPI) grant program promotes the protection and effective management of Florida's coastal resources at the local level. The Florida Coastal Management Program (FCMP) makes National Oceanic and Atmospheric Administration (NOAA) funds available, on a competitive basis, to eligible local governments. Project must be feasible and completed within one year. The project is governed by Rule 62S-4 of the Florida Administrative Code.

Eligibility for Coastal Partnership Initiative Grant Program

Eligible local governments are defined as Florida's 35 coastal counties and all municipalities within their boundaries that are required to include a coastal element in their local comprehensive plan. Florida's public colleges and universities, regional planning councils, national estuary programs, and non-profit groups may also apply if an eligible local government agrees to participate as a partner. Each year in the fall FCMP publishes a notice of availability of funds in the Florida Administrative Register to solicit CPI applications from eligible entities. CPI grants provide support for innovative local coastal management projects in four program areas:

- **Resilient Communities:** The goal of this priority area is to help coastal communities prepare for and respond to the effects of climate change, natural hazards, and disasters. Project examples include conducting vulnerability analyses and risk assessments, developing post-disaster redevelopment plans and strategies, restoring coastal wetlands, developing energy strategies, and improving communities' resiliency to coastal hazards.
- **Coastal Resource Stewardship:** To promote stewardship and appreciation of fragile coastal resources, applicants may request funds for community-based projects that involve citizens, volunteers, and the local government. Project examples include dune and wetland restoration, exotic plant control, coastal clean-ups, and environmental awareness initiatives, events, and field trips.
- **Access to Coastal Resources:** Communities are encouraged to accommodate public access to coastal and marine resources while protecting fragile and overused environments. Access projects could include developing plans for land acquisition and management, developing site plans for nature trails, developing recreational surface water use policies, exotic species removal and restoration of native species, and small-scale capital improvements such as dune walkovers, boardwalks, and canoe/kayak launches.
- **Working Waterfronts:** Waterfront communities may wish to revitalize, renew, and promote interest in their waterfront districts. Some examples of projects include developing and implementing a vision plan for a waterfront district, developing architectural standards for waterfront areas, small construction projects such as a boardwalk, observation platform, welcome center, or information kiosk, restoring shorelines and wetlands, or implementing other measures that mitigate the effects of natural hazards.

Prioritization for Coastal Partnership Initiative Grant Program

CPI applications are reviewed by a technical evaluation committee with knowledge of coastal resource management. The highest rated projects will be considered for funding, subject to the availability of funds from NOAA. All applications are evaluated using the following criteria:

- Project Location
- Project Description
- Demonstrated need and benefit to coastal resource management
- Objectives, tasks, deliverables, and timelines that clearly relate to project
- Cost-effectiveness
- Technical feasibility

Allocations of Coastal Partnership Initiative Grant Program

Allocations for the past three fiscal years under the CPI program are the following:

- FY2014/2015 - \$229,610
- FY2015/2016 - \$ 89,817
- FY2016/2017 - \$ 39,760

Florida Small Cities Community Development Block Grant Program

The Florida Small Cities Community Development Block Grant Program provides federal funding for low income housing rehabilitation and community development. The program, regulated by the U. S. Department of Housing and Urban Development (HUD), assists smaller local governments to provide water and sewer infrastructure, housing rehabilitation opportunities for low income homeowners, commercial revitalization, and economic development projects.

Eligibility for Florida Small Cities Community Development Block Grant Program

The following communities are eligible to apply for funds:

- Non-entitlement cities with fewer than 50,000 residents
- Counties with fewer than 200,000 residents
- Cities that opt out of the urban entitlement program

Prioritization for Florida Small Cities Community Development Block Grant Program

To be eligible for funding, an activity must meet at least one of the following national objectives:

- Low-Moderate National Objective: at least 51 percent of the beneficiaries must be low and moderate income persons (total family income is at or below 80 percent of the area's median income).
- Slum and Blight National Objective: the area must be a slum or blighted area as defined by state or local law.
- Urgent Needs National Objective: the activity must alleviate existing conditions which pose a serious and immediate threat to those living in the area and are 18 months or less in origin. The

local government must demonstrate that it is unable to finance the activity on its own and that other funding is not available.

Allocations of Florida Small Cities Community Development Block Grant Program

Since 1983, the state has received \$18-35 million each year to assist eligible local governments with housing rehabilitation, neighborhood and commercial revitalization, and economic development activities.

Community Development Block Grant Disaster Recovery Initiative

Congress began allocating Community Development Block Grant (CDBG) Disaster Recovery funds to Florida following the 2004 Hurricane Season in response to unusual hurricane activity. Subsequent allocations for 2005 and 2008 storms assist with disaster relief, long-term recovery, restoration of infrastructure, and mitigation efforts in the most impacted and distressed areas.

Eligibility for Community Development Block Grant Disaster Recovery Initiative

CDBG Disaster Recovery funds are made available to states, units of local governments, and insular areas designated by the President of the United States as disaster areas. Communities must have significant unmet recovery needs and the capacity to carry out a disaster recovery. Disaster Recovery funds are most appropriate for long-term recovery needs. Grantees may use funds for recovery efforts that involve housing, economic development, infrastructure and prevention of further damage to affected areas.

Examples of eligible activities include restoration of affordable housing, rehabilitation, demolition, replacement, acquisition, new construction, transitional housing, emergency shelter facilities, and complementary housing activities.

Prioritization for Community Development Block Grant Disaster Recovery Initiative

Activities must meet at least one of three program national objectives:

- Benefit persons of low and moderate income.
- Aid in the prevention or elimination of slums or blight.
- Meet other urgent community development needs.

Allocations of Community Development Block Grant Disaster Recovery Initiative

The following are the allocation of funds from the CDBG Disaster Recovery for the 2004, 2005, and 2008 hurricane seasons:

- 2004 Hurricane Season- \$100,915,626 in grant funds was issued following Tropical Storm Bonnie and Hurricanes Frances, Ivan, and Jeanne.
- 2005 Hurricane Season- \$82,904,000 in grant funds was released following Hurricanes Katrina and Wilma. Disaster recovery funds were distributed to 20 Florida counties.
- 2008 Hurricane Season- \$107,680,530 in grant funds was released following Tropical Storm Fay and Hurricanes Gustav and Ike. Funds were directed to areas facing the greatest need.

The Weatherization Assistance Program

The Weatherization Assistance Program (WAP) provides grants to community action agencies, local governments, Indian tribes, and non-profit agencies to fund energy-saving repairs to low-income homes throughout the state. The grants may be used for insulation, weather stripping, water heater wraps, and the reduction of air infiltration. The program may also fund the repair or replacement of inefficient heaters and air conditioners.

Eligibility for the Weatherization Assistance Program

The total household income may not be more than 200 percent above the national poverty level. Preference is given to elderly (60 years-plus) or physically disabled residents, families with children under 12, and households with a high energy burden (repeated high utility bills).

Prioritization for Weatherization Assistance Program

The revised WAP allocation formula is based on three factors for each state:

- **Low-income population:** This number represents how many low-income households live in each state and is expressed as a percentage of the total for the country.
- **Climatic conditions:** These data are obtained from the heating and cooling degree-days for each state and deal proportionally with the energy needed for heating and cooling.
- **Residential energy expenditures by low-income households:** This number is an approximation of the financial burden that energy use places on low-income households in each state.

Allocations of Weatherization Assistance Program

WAP is funded each year by the United States Department of Energy and receives supplemental funding from the United States Department of Health and Human Services. The extent of services to be provided depends on available funding.

Local Funding

Local Mitigation Strategy (LMS) projects funded by grants usually require a local match for implementation. LMS projects span a wide range of mitigation issues including coordination/ integration of public and private sector mitigation projects, post-disaster planning, long-term redevelopment, and public education.

The following provides a synopsis of data obtained from reviewing each of the existing 67 LMS's to identify local funding sources that have been used in the past to fund local mitigation related projects. This list contains funding sources that have been used as a match for federal grant programs as well as to fund non-federally funded local projects.

Ad Valorem Tax

The ad valorem tax is levied based on the value of real and tangible personal property as of January 1 of each year and is intended to increase total revenue of local governments.

Stormwater Tax Assessment

The fee is based on the total amount of a property's impervious surface and has been used to prepare a stormwater program and fund a wide range of drainage improvements.

In-Kind Services

Services or equipment for projects provided by those in the community.

Impact Fees/ Development Exaction

Impact fees on new development such as 1) Water and Sewer Connection Fee; 2) Fire Impact Fee; 3) Law Enforcement Impact Fee; 4) Transportation Impact Fee; and 5) School Impact Fee are used for the purchase and construction of capital assets. (School impact fees may be remitted periodically to the County School Board).

Tourist Tax Local Option

A local tax is levied on most rents, leases or lets, and living accommodations in hotels, motels, apartments, houses, and mobile homes (contracted for periods of less than six months or less) in promotion of tourism and tourist-type activities.

Revenue Bonds

This is revenue derived from the issuance of long-term debt, such as bonds or commercial paper. Proceeds are deposited into capital projects funds and/or debt service funds.

Permit Fees

This is revenue derived from the issuance of local licenses and permits. Exceptions include occupational licenses and building permits.

State Revenue Sharing

Two tax sources are earmarked for sharing with counties: 2.9 percent of net cigarette tax collections; 41.3 percent of net intangible tax collections. Intangible tax collections provide 95 percent of total revenue shared with counties in this category.

Project Implementation**Project Management and Tracking***Prioritization*

The first step to determining how mitigation funds are to be distributed is to follow the prioritization method for each program. As described earlier in this section, different grant programs have different prioritization methods. In review, Florida uses the summarized information below to prioritize projects:

- Statewide mitigation and state agency projects are prioritized by the agency, the Mitigate FL, and the State Hazard Mitigation Officer (SHMO).

- FMA: levels of participation are low enough that all eligible projects are submitted to FEMA. Nevertheless, should popularity for the program increase, priorities are in place to guide project selection.
- HMGP Seven Percent and PDM Planning Grants: Should more projects than funding allows prove eligible, those scoring highest in the eligibility process will be submitted for funding.
- HMGP Project Grants: Funds are prioritized at the local level and confirmed by FDEM. Funds are distributed through a tiered prioritization process (described in FAC 27P-22) should local governments not use their entire allocation.
- HLMP: Projects are prioritized based on the project's RFP and benefit-cost ratio.
- PDM Project Grants: Projects are prioritized based on benefit-cost ratio and technical feasibility.

Application Review

All mitigation measures submitted to the state for funding consideration must be cost-effective, environmentally sound, and technically feasible. As such, the state completes a technical feasibility analysis for each eligible mitigation measure. This process is used by grant management staff at FDEM for all proposed project applications regardless of type of measure or funding source. Upon request, the state will provide technical assistance to the LMS Working Group or applicant to help complete the technical feasibility analysis.

All proposed projects are subject to a three-part screening process: Engineering Review, Benefit Cost Analysis to determine financial viability, and Environmental Review. The evaluations are performed simultaneously.

Engineering Review

This review establishes whether the project is feasible from an engineering standpoint and whether it will reduce damages as claimed. In other words, it is conducted to determine whether or not the proposed project's scope of work will actually resolve the identified problem. Additionally, this review involves whether the application contains sufficient information and data for input into the benefit-cost model.

The engineer performs a preliminary benefit cost analysis using the information provided in the application worksheet. He or she may suggest changes to the scope of work, to ensure a clear explanation of the problem and the solution and may request changes in an effort to make the project more efficient in reducing damage and loss. A site visit could take place to review and document existing conditions and/or to collect damage information for benefit cost analysis purpose to demonstrate the benefits of the project. Once the review is completed, the engineer prepares a report and forwards it to the project manager with a recommendation to fund or not the project.

For projects that are approved, scope of work and project cost changes will be review to ensure that the project remains feasible and cost effective. Interim and final inspections are performed and upon completion, a final report is written with a recommendation regarding scope of work completeness and requirement compliance for final payment.

Benefit-Cost Analysis

State staff conducts benefit cost analysis (BCA) for each mitigation project application. Staff members use FEMA approved benefit cost modules, which are based upon OMB Circular A-94, Guidelines and Discount Rates for Benefit Cost Analysis of Federal Programs.

BCA assesses whether the cost of investing in a mitigation project today (the cost) will likely result in sufficiently savings by reducing damages in the future (the benefits) to fund the project.

Benefits are mathematically divided by costs to produce the benefit-cost ratio. The benefit-cost ratio states whether and by how much benefits exceed project costs. If the cost of the project exceeds the benefits, the project will not be deemed cost-effective. A benefit-cost ratio of at least one is necessary for a project to be cost-effective.

Benefit-cost analysis will yield one of three outcomes:

- The project is cost-effective (BCR>1.0)
- The project is not cost-effective (BCR<1.0)
- Additional data is required

Benefit-Cost Analysis Exemptions

The following categories of mitigation measures are exempt from the FEMA policy on BCA:

- Five percent or Tornado Initiative projects: states that receive a presidential declaration are eligible to use up to five percent of available HMGP funding at their discretion. An additional five percent may be used to fund tornado projects at the state's request.
- Substantial Damage Waivers for acquisition of substantially damaged structures in the 100-year floodplain.
- Mitigation planning related grants.
- Alternative methodology for determining cost-effectiveness.
- Pre-calculated benefits for Acquisition and Elevation projects locate in a Special Flood Hazard Area.
- Pre-calculated benefits for residential wind retrofits.

Environmental Review

All projects that receive federal funding must comply with federal and state laws as well as executive orders. This is required by the National Environmental Policy Act (NEPA) and the National Historic Preservation Act (NHPA). State staff coordinates with FEMA Region IV environmental staff to review each project proposed for funding. Review reveals any adverse environmental, historical, or cultural impacts based upon the project's scope of work. Once the environmental review is completed, the recommended NEPA document and compliance documentation is submitted to FEMA.

State environmental specialists provide technical assistance to applicants before submission to avoid delays in the review process. Once the application is submitted to the state, an environmental specialist reviews each environmental section of the application for completeness to ensure all the necessary

documents and information is included for review. The environmental unit must sign off on all projects before they can be input into NEMIS or submitted to FEMA for final approval.

Environmental Categorical Exclusions

Projects that have been determined not to have significant impact on the environment are excluded from having a detailed environmental analysis in an Environmental Assessment or Environmental Impact Statement. A partial list of categorical exclusions (CATEX) is included below:

- Administrative Actions Associated with Grants Management.
- Federal Assistance for Property Acquisition and Demolition.
- Federal Assistance for Structure and Facility Upgrades.
- Federal Assistance for Relocation/Realignment of Structures and Facilities.
- Federal Assistance for Flood Hazard Reduction Actions.
- Federal Assistance for Construction or Installation of Structures, Facilities, or Equipment to Ensure Continuity of Operations.

Management

Effective program management is evidenced through efforts to continually improve efficiency, capability, and process. The state works diligently on its grants and program management to continually refine the application process and management tasks. The state continues to meet all mitigation grant application timeframes and submits complete, technically feasible, and eligible project applications with appropriate supporting documentation evidenced through passing Program Administration by States (PAS) program reviews that are evaluated by FEMA. The current application submission process allows extra time for state review of applications to ensure completeness, eligibility, and cost-effectiveness before forwarding to FEMA. Employees are cross-trained so that numerous staff members are familiar with the process and projects. FDEM mitigation staff also receives regular benefit-cost analysis training from FEMA.

The State of Florida has implemented an on-going technical assistance process to assist potential applicants with developing technically feasible and cost-effective projects. The state conducts application workshops in order to bring application materials, tools, and techniques to potential applicants. In addition to conducting training sessions and workshops, state staff provides ongoing individual training and assistance to potential applicants upon request. The state strongly urges applicants to work with the technical staff year round to develop the application and its technical elements. Such support includes demonstrations on appropriate benefit cost modules to ensure development of the best possible benefit cost ratio.

Tracking

The Bureau of Mitigation used planning grants to develop a grants management database called www.FloridaMitigation.org. The goal of this project was to design and develop an application that effectively manages the mitigation programs of the Bureau of Mitigation.

The system has been operational since January 1, 2009 and use of the old FERS tracking system was discontinued in June 2010. The comprehensive, completed product supports both programmatic and fiscal applications for entry, support queries, programmatic and fiscal reporting, and overall project management. FloridaMitigation.org is designed to address the following stated objectives:

- Provide a web-based system that provides the ability to effectively track project management objectives and maintain mitigation program budget and expenditures.
- Provide a direct data exchange to the State of Florida statewide accounting system (FLAIR). This data exchange downloads financial code data that reduces or prevents accounting entry errors.
- Provide detailed coordination between FEMA sub grant award projects and state contracting projects. There are many times that state contracting rules and procedures require that a single FEMA sub grant award be implemented utilizing multiple state contract awards. This provides data correlation between these different processes.
- Provide enhanced financial audit capabilities that included the ability to utilize direct data from FLAIR provided on a daily basis to reduce the time and effort of coordination between mitigation staff and Division of Accounting and Auditing staff.
- Provide a single database system that coordinates data between state staff located in Tallahassee and state staff located at the State Logistic Response Center (SLRC) in Orlando.
- Provide additional business process improvement analysis as well as effective exceptions and error reporting in order to improve quarterly reporting.
- Identify and rectify existing tracking and reporting errors as well as implement effective exception and error reporting on a systematic basis to ensure improved data accuracy.

This database allows Florida Mitigation Bureau staff to achieve maximum efficiency and accountability for every project that passes through its mitigation programs, as well as effectively utilize federal and state funds. This system also allows the State of Florida to provide more accurate data related to older programs that are being closed out, and allows timely response to findings and reconciliations that are required as we improve the reporting of current project activity.

The system currently manages HMGP projects from 2016 as well as non- disaster projects under the FMA, PDM, HLMP and unmet needs programs. There has also been a tremendous amount of work associated with data clean up and reconciliation. In addition, coordination of state contracting projects to sub-grant award projects and the project and financial reconciliation is an ongoing process.

Financial Reports

The Division's Finance Unit routinely submits Standard Form 425 to report the status of FEMA obligated funds. The mitigation section submits quarterly progress reports within 30 days of the fiscal quarter end to FEMA's Regional Office. The state submits two separate quarterly reports:

- Financial Report
- Project Progress Report

If an extension is needed, the section will follow proper procedures to file requests. These reports indicate the updated status and projected completion date for each funded project and pertinent notes on the project. The following is an overview of the process used by the state to compile and submit the quarterly progress reports:

- Quarterly reports must be submitted by sub-grantees at the end of each fiscal quarter. The report should document the activities, accomplishments, and failures to date for the project. The state's

standard Quarterly Report form is included as an attachment in DEM's Sub-grantee Agreement and also made available via the state's website at <http://www.floridadisaster.org/index.asp>.

- The sub-grantee quarterly reports are reviewed by state mitigation staff and used to update the appropriate fields in the state Quarterly Progress Report document that is submitted to FEMA.

The state monitors performance using identified project milestones and the project completion date. Interim revisions to existing quarterly reports will be made as needed or requested by the Regional Office.

Closeout Process

Florida has a history of closing out mitigation grant applications, including financial reconciliation, within the period of performance. If needed, DEM follows proper procedures for filing extensions. The state completes all post-award activities within 90 days from project completion, even if the project comes in before the performance period ends. The following process is used to close-out all federal hazard mitigation projects:

1. State mitigation staff use quarterly reports, on-site visits, and interim inspections to monitor mitigation project progress.
2. The sub-grantee submits a formal request for a final inspection upon work completion.
3. State mitigation staff inspects the project site and provides a report indicating whether the sub-grantee has met all scope of work requirements.
4. If any outstanding documentation is needed, state mitigation staff informs the sub-grantee. Documentation should be received at the state office in a timely manner.
5. The Project Closeout Checklist is accessed and project completion data is entered with:
 - FEMA Project Number
 - Project Name
 - Sub-grantee Name
 - Sub-grantee FIPS Code
 - DEM Agreement Number
 - Obligated Budget Amounts
 - Final Project Cost Amounts
 - Project Completion Date
 - Final Inspection Date
 - Project Cost Overrun/Underrun Amount
6. The Project Closeout Checklist is signed and dated by the project manager and attached to the closeout documentation as required:
 - Final project photographs with date
 - Final inspection report
 - Environmental report
 - Completion letter from Sub-grantee
 - Certificate of Acceptance
 - Signed design plans
7. Any other project specific closeout documentation for the final inspection report is attached to the Project Close-out Checklist.

8. The final Request for Payment is forwarded to the mitigation finance section along with the closeout documents.
9. Upon final payment, the state mitigation finance manager drafts a letter to FEMA requesting that the project be closed.
10. The state mitigation finance manager prepares a closeout spreadsheet based upon the FEMA obligated award amount and the final total project cost.
11. The closeout letter and closeout spreadsheet are attached to the closeout documentation package and are forwarded to the State Hazard Mitigation Officer for signature along with the final payment request.
12. A closeout spreadsheet is maintained by the mitigation finance staff. This spreadsheet is updated with the project number, project name, date of the closeout letter sent to FEMA and date that the closeout/de-obligation letter is received back from FEMA.

Records of Performance

Federal Mitigation Grants

FDEM strives to ensure that projects are successfully implemented and closed within the approved period of performance. The federal HMA programs include:

- Flood Mitigation Assistance Program (FMA)
- Severe Repetitive Loss Program (SRL)*
- Repetitive Flood Claims Program (RFC)*
- Pre-Disaster Mitigation (PDM)
- Hazard Mitigation Grant Program (HMGP)

*Note – as of 2013 the SRL and RFC grant programs were combined into FMA.

Since 1992, the state has managed the HMGP for 46 presidentially declared disasters. Of the 46 presidentially declared disasters, 13 occurred between the years of 2004 and 2009 and six occurred between the years of 2012 and 2016. As of 2017, the state has closed out 32 of the 46 HMGP grants awarded since 1992. Management of the sub-grantee applications for each of the 12 open events is ongoing. The state, in partnership with FEMA, conducted joint reviews of projects submitted for funding consideration under 2004 events: DR-1539, DR-1545, DR-1551 and DR-1561 and independently for all other disasters.

Federal non-disaster grant programs listed above follow the same procedures as the HMGP. In cases where extenuating circumstances prevent project completion in the approved time period, the state follows proper procedures to request a time extension. Time extensions on projects may or may not affect the overall period of performance of the grant.

As of August 31, 2017, the following annual grant packages are currently open:

- 5 PDM
- 6 FMA
- 2 RFC
- 2 SRL

Target closeout dates as well as the total number of projects funded for these programs are available in *Appendix M: State Managed Projects*.

Project Evaluation

The state assesses the effectiveness of completed mitigation actions. It documents the estimated losses avoided for each action in two ways:

- Final inspection/ Benefit Cost Analysis (BCA)
- Post-disaster mitigation assessments of project performance

Final Inspection/ Benefit-Cost Analysis

As each project concludes, the state engineering staff performs a final inspection to ensure it was completed in accordance with the approved scope of work and associated design specifications. The state records estimated benefits from completed projects as submitted in the BCA described above. If a cost overrun occurs, an additional BCA will be conducted prior to final inspection to ensure the project was cost effective.

Post-Disaster Mitigation Assessments

In accordance with 44 CFR 201.5(b)(2)(iv), the State of Florida has developed a system and strategy by which it will conduct an assessment of completed mitigation actions and includes a record of the effectiveness (actual cost avoidance) of each mitigation action. This system and strategy, called Loss Avoidance Assessment, is intended to contribute part of the requirements to maintain a FEMA approved Enhanced SHMP.

The state studied loss avoidance assessment methodologies, past FEMA loss avoidance studies, and other sources to determine methods for streamlining existing processes. This was done to identify ways to complete comprehensive analyses using existing staff and without adding significantly to the cost of mitigation.

Losses avoided can be calculated for one event or multiple events and over the life of the project. Thus, in addition to calculating losses avoided by a single project for a single event, Florida may be able to provide the net present value of a mitigation project or the net present value, in investment terms, of all mitigation projects in the State of Florida available for analysis. Such analyses may help guide decision-making and identify best practices.

Florida Severe Storms, Tornadoes, Straight-line Winds and Flooding event from 2014 and Hurricanes Hermine and Matthew from 2016 are the most recent events for which the State of Florida conducted loss avoidance assessments.

Once projects are completed and grants are closed out, FDEM accounts for them and analyzes them if they are impacted by a disaster event that receives a major disaster declaration by conducting loss avoidance reports.

Loss avoidance reports are conducted by using knowledge of completed mitigation projects and GIS software. A real disaster event is modeled using HAZUS and GIS software and the nature, extent, and severity of damages are recorded. Then the known mitigation projects in the areas impacted by the

disaster are analyzed to determine the mitigation present versus mitigation absent scenarios. The difference between the damages with and without the mitigation projects represents the “losses avoided.” Then the cost of the mitigation projects are adjusted to normalize the losses avoided. The difference between those two values is the return on investment (ROI). The paragraphs below summarize the loss avoidance reports that FDEM completed between 2012 and 2017. The actual loss avoidance reports are also included as *Appendix N: Loss Avoidance Report Tropical Storm Debby*; *Appendix O: Loss Avoidance Report Florida Severe Storms, Tornadoes, Straight-line Winds, and Flooding*; *Appendix Q: Loss Avoidance Report Hurricane Hermine*; *Appendix R: Loss Avoidance Report Hurricane Matthew*.

Tropical Storm Debby, June 2012

In 2012, Tropical Storm Debby impacted 50 projects, which cost \$18.9 million (in 2012 dollars) to implement. Without the mitigation projects, the damages would have cost \$21.9 million, which means the total losses avoided was over \$3 million which is 116% ROI. This a remarkably high ROI, especially considering that most of the projects were completed just one year earlier.

Florida Severe Storms, Tornadoes, Straight-line Winds, and Flooding, April – May 2014

In 2014, Severe Storms, Tornadoes, Straight-line Winds, and Flooding impacted 33 projects, which cost \$18.4 million (in 2015 dollars) to implement. Without the mitigation projects, the damages would have cost over \$24 million, which means the total losses avoided was \$5.6 million, which is a 132% ROI.

When these results are combined with previous loss avoidance results of some of the same projects, the 33 projects analyzed have avoided losses of \$33.2 million from Major Disaster Declaration events since 2008.

Hurricane Hermine, September 2016

Hurricane Hermine impacted 31 projects, which cost \$9.8 million (in 2016 dollars) to implement, in 2016. Without the mitigation projects, damages would have cost \$20.7 million, which means the mitigation projects led to \$10.9 million losses avoided, which is an 82% ROI. One drainage project alone cost only \$1 million and avoided \$18 million in damages from Hurricane Hermine.

Hurricane Matthew, October 2016

Hurricane Matthew hit Florida in 2016 and impacted 40 projects, which cost \$19.2 million (in 2016 dollars) to implement. Without the mitigation projects, the damages would have cost \$81.1 million, which means the mitigation projects led to \$61.9 million in losses avoided, which is a 97% ROI. In Volusia County alone, \$3.3 million in damages and relocation costs were avoided due to 22 building modification and wind mitigation projects. Another major mitigation success was that the drainage projects that were impacted by storm surge or riverine flooding during Hurricane Matthew were able to convey water more swiftly than it would have receded on its own.

Complete Timeline

The timeline found in Figure 111 is illustrative and empirically based. It begins after a Presidential Declaration has been issued. Its primary purpose is to illustrate the general progression, timing, and interaction of various participating entities. The timeline should not be viewed as definitive in stage length nor with regard to agencies involved in the process. In practice, the selection and implementation of

mitigation measures are contingent on a number of variables. These variables may include the nature and severity of the event, quality and sophistication of the sub-grantee’s personnel, availability and requisite parts, material, and environmental issues.

Figure 111: Mitigation Project Lifespan

	1 – 6 Months	7 – 12 Months	12 – 42 Months		Within 90 Days of Project Completion
	Step 1: Funding Availability	Step 2: Application	Step 3: Contract Development	Step 4: Progress Monitoring	Step 5: Completion and Evaluation
Deadlines	<ul style="list-style-type: none"> • Administrative Plan • Request State Management Costs • Receive 3 Month Estimate • Receive 6 Month Lock-In • Applicant Briefing • Open Funding Cycle 	<p>12 Month Deadline for:</p> <ul style="list-style-type: none"> -Review -Submission to FEMA 	<p>FEMA Review</p> <p><i>Contract length is typically two years</i></p>		<p>Post-Project evaluation should be finished within 90 days of project completion, even if this is prior to project performance period end.</p>
Planners/Project Managers	<p>Mitigation programs are promoted year round. As funding becomes available, the state:</p> <ul style="list-style-type: none"> • Publishes a Notice of Funding Availability (NOFA) • Promotes the program and/ or holds grant application workshops in impacted communities • Where applicable, the state conducts applicant briefings and/ or offers technical assistance to applicants • Coordination with LMS working groups • Oversee county allocations/budgets 	<ul style="list-style-type: none"> • Applications are developed by sub-grantee. {This includes concurrence with Local Mitigation Strategy priorities} • eGrant/Hard copy applications are submitted to the state for eligibility and completeness review • Enters project information into NEMIS • Submits hard copy to FEMA along with BCA and environmental report • Initiates Administrative Rights procedures for denied projects • Provides quarterly reports to FEMA 	<ul style="list-style-type: none"> • FEMA obligation and contract generation. • The project manager forwards the obligation report, budget, and scope of work for contract development • Contract is sent to sub-grantee for signature • Signed contract is routed for internal signature • Project manager distributes executed contract to appropriate stakeholders • Provide technical assistance 	<ul style="list-style-type: none"> • Planners review, evaluate, recommend supplemental funding, scope changes, time extension requests • Project manager monitors progress • Request, review and file quarterly reports • Conduct field monitoring • Obtain reports and updates • Engage applicant and offer technical assistance as needed • Maintain awareness of project deadlines and period of performance • Conduct interim inspection/ site visit with Technical Support Unit 	<ul style="list-style-type: none"> • Applicant requests final inspection • Technical Support Unit conducts final inspection and reports to project manager • If project is completed, final payment request, closeout documentation, final payments is submitted and file is closed • Quality control officer reviews all payments made to applicant throughout the project implementation period

	1 – 6 Months	7 – 12 Months	12 – 42 Months		Within 90 Days of Project Completion
	Step 1: Funding Availability	Step 2: Application	Step 3: Contract Development	Step 4: Progress Monitoring	Step 5: Completion and Evaluation
Engineers	Participates in applicant briefings to provide engineering technical assistance as requested	<ul style="list-style-type: none"> Review the application scope of work for feasibility, cost effectiveness, the degree to which the proposed solution solves the existing problem Performs preliminary site visits Renders requested technical assistance that may be needed 		<ul style="list-style-type: none"> Technical Support Unit and project manager conduct joint interim inspection/ site visit Monitors during construction phase 	Conducts final inspection
Environmental Specialists	Participates in applicant briefings to provide environmental technical assistance as requested	<ul style="list-style-type: none"> Review for compliance under the National Environmental Policy Act Identify applicable cultural, historic or economic significance State Clearing House facilitated review Provides technical assistance and consults with agencies regarding permitting process Environmental site visits Information entered into NEMIS 		Monitors for environmental compliance	Conducts final review of project
Grants Specialists	<ul style="list-style-type: none"> Assists Program Manager with disaster budgets for the Hazard Mitigation Grant Program funds allocated to regular, five percent projects, and planning Technical assistance Generates contracts 			<ul style="list-style-type: none"> Assists Project Manager with processing payments, advances, contract modifications, supplemental funding requests, time extension requests Request close out documentation, and requests for final payment Monitors compliance with OMB Circulars and relevant CFRs 	

END OF DOCUMENT