SECTION V – MITIGATION PLAN

44 Code of Federal Regulations

44 CFR §201.6(c)(3): A mitigation strategy that provides the jurisdiction's blueprint for reducing the potential losses identified in the risk assessment, based on existing authorities, policies, programs and resources, and its ability to expand on and improve these existing tools.

(i) A description of mitigation goals to reduce or avoid long-term vulnerabilities to the identified hazards.

(ii) A section that identifies and analyzes a comprehensive range of specific mitigation actions and projects being considered to reduce the effects of each hazard, with particular emphasis on new and existing buildings and infrastructure. All plans approved by FEMA after October 1, 2008, must also address the jurisdiction's participation in the NFIP, and continued compliance with NFIP requirements, as appropriate.

(iii) An action plan describing how the actions identified in paragraph (c)(3)(ii) of this section will be prioritized, implemented, and administered by the local jurisdiction. Prioritization will include a special emphasis on the extent to which benefits are maximized according to a cost benefit review of the proposed projects and their associated costs.

(iv) For multi-jurisdictional plans, there must be identifiable action items specific to the jurisdiction requesting FEMA approval or credit of the plan.

Overview

The intent of the Hardee County 2025 Local Mitigation Strategy (LMS) is to provide Hardee County, its municipalities, and participants goals to serve as guiding principles for future mitigation policy and project administration. The LMS provides an analysis of mitigation techniques to meet those goals and reduce the impact of identified hazards. The LMS is comprehensive, strategic, and functional:

- *Comprehensive:* The LMS includes a thorough review of likely hazards and identification of far-reaching policies and projects intended to reduce future impacts of hazards, and to assist the County and jurisdictions in achieving compatible economic, environmental, and social goals.

- *Strategic:* The LMS ensures that policies and projects proposed for implementation are consistent with pre-identified, long-term planning goals.

- *Functional:* The LMS links proposed mitigation actions to identified hazards and assigns specific departments or individuals responsible for implementation with target completion deadlines. When necessary, the mitigation strategy identifies funding sources that may assist with project implementation.

The first step in updating the LMS is the identification of countywide mitigation goals and objectives. These represent broad statements participants achieve through the implementation of more specific mitigation actions. Actions include hazard mitigation policies and implementation strategies (such as the regulation of land in known hazard areas through a local ordinance), and mitigation projects

that seek to address specifically-targeted hazard risks (such as the acquisition and relocation of a repetitive loss structure).

The second step involves identification, consideration, and analysis of available mitigation measures to achieve the identified mitigation goals. This is a long-term, continuous process sustained through development and maintenance of the LMS. The LMS Working Group will continue to consider alternative mitigation measures as it identifies future mitigation opportunities, as data and technology improve, as mitigation funding becomes available, and as LMS maintenance occurs over time.

The third step in updating the LMS is the selection and prioritization of specific mitigation actions for Hardee County and its jurisdictions through the Mitigation Action Plan (MAP). The MAP represents an unambiguous and functional plan of action. The MAP is the most essential outcome of the mitigation planning process.

The MAP includes a prioritized list of proposed hazard mitigation actions (policies and projects) for Hardee County and its jurisdictions and partners to carry out. Each mitigation action includes those departments or individuals assigned responsibility for implementation, potential funding sources, and an estimated target date for completion. This serves as an important tool for monitoring success or progress over time. The cohesive collection of actions listed in the MAP can serve as an easily-understood menu of mitigation policies and projects for local decision makers who want to quickly review the recommendations and proposed actions of the LMS.

In preparing the updated MAP, participants considered overall hazard risk and capability to mitigate the effects of hazards as recorded through the risk analysis process, and the ability to meet the adopted mitigation goals and unique needs of the community. The following factors serve as the basis for the prioritization of proposed mitigation actions:

- Benefits to the population;
- Health and safety considerations;
- Environmental impact;
- Consistency with other plans and programs;
- Reduced risk of future property damage;
- Support for essential or critical services;
- Probability of receiving funding for implementation;
- Feasibility of implementation;
- Community Rating System;
- Repetitive Loss Mitigation; and
- Benefit Cost Ratio (conducted prior to submitting a project for grant consideration).

Mitigation Goals and Objectives

The goal of local governments is to promote the health, safety, and welfare of the public. The purpose of the LMS goals and objectives is to reduce or avoid long-term vulnerabilities to residents and infrastructure within Hardee County.

The LMS Working Group reviewed and updated the goals and objectives of the LMS based on conditions and priorities in the County. Unless specifically stated, the goals and objectives cover multiple hazards and address the needs of all jurisdictions. Unless otherwise stated, the term "County", as used in the following goals and objectives, represents Hardee County, its municipalities, and partners.

TABLE V-1:
HARDEE COUNTY MITIGATION GOALS AND OBJECTIVES

GOAL 1:	**REDUCE THE LOSS OF LIFE, PROPERTY, AND WELFARE OF THE PUBLIC FROM THE EFFECTS OF IDENTIFIED NATURAL AND HUMAN CAUSED HAZARDS.**
Objective 1.1:	Maximize the protection of the public's health, safety, and welfare and protection of cultural, economic, and natural resources from potential natural and human caused hazards.
Objective 1.2:	Ensure new development and redevelopment complies with all applicable Federal, State, and local regulations.
Objective 1.3:	Require the protection of natural resources (such as environmentally sensitive lands) to maximize their mitigative benefits and to safeguard them from damage from natural and human caused disasters.
Objective 1.4:	Ensure that government regulations and requirements exist to protect public safety and property.
Objective 1.5:	Maintain plans for the safe evacuation of all vulnerable county residents.
Objective 1.6:	Ensure mitigation measures are effectively incorporated in the comprehensive system of coordination planning, management, and land acquisition.
Objective 1.7:	Employ mitigation strategies such as demolition, reconstruction, acquisition, wind retrofit, flood proofing, and elevation to reduce vulnerability.
Objective 1.8:	Continue to identify potentially vulnerable areas and support smart growth and development in Hardee County.
Objective 1.9:	Seek mitigation opportunities that reduce economic losses and promote responsible growth
GOAL 2:	**PROTECT UNIQUE NATURAL HABITATS AND ECOLOGICAL SYSTEMS THAT NATURALLY MITIGATE HAZARDS.**
Objective 2.1:	Conserve forests, wetlands, and other natural features to maintain the economic, aesthetic, and recreational values.
Objective 2.2:	Acquire, retain, manage, and inventory public lands to provide conservation and related public benefits including hazard mitigation.
Objective 2.3:	Promote the use of agricultural practices that are compatible with the protection of natural systems.
Objective 2.4:	Encourage multiple use of forest resources, where appropriate, to provide for watershed protection and erosion and maintenance of water quality.
Objective 2.5:	Protect and restore the ecological functions of wetland systems to ensure their long-term environmental, economic, and recreational values, including hazard mitigation practices

Objective 2.6:	Develop and implement a comprehensive planning, management, and acquisition program to ensure the integrity of Hardee County's waterways.
Objective 2.7:	Emphasize the acquisition and maintenance of ecologically intact systems in all land and water planning, management, and regulation.
GOAL 3:	**REDUCE VULNERABILITY OF CRITICAL FACILITIES AND PUBLIC FACILITIES TO NATURAL AND HUMAN CAUSED HAZARDS.**
Objective 3.1:	Harden existing and proposed critical facilities, in regards to location and construction.
Objective 3.2:	Develop and maintain energy preparedness plans that will be both practical and effective under circumstances of disrupted energy supplies.
Objective 3.3:	Incorporate hazard mitigation measures in any rehabilitation or reuse of existing public infrastructure.
GOAL 4:	**MAINTAIN A HIGH STATE OF PREPAREDNESS/COORDINATION TO MITIGATE AND RESPOND TO DISASTERS THROUGH PLANNING, EDUCATION, AND COORDINATION.**
Objective 4.1:	Implement disaster training programs and exercises.
Objective 4.2:	Maintain a network of state and local contacts to coordinate Hardee County needs.
Objective 4.3:	Protect the essential flow of information before, during, and after a disaster.
Objective 4.4:	Encourage cooperation and participation between and among all agencies and local jurisdictions in mitigation planning.
Objective 4.5:	Ensure the Hardee County Hazard Mitigation Plan incorporates appropriate hazard mitigation measures as reflected in the Comprehensive Emergency Management Plan (CEMP) and/or Standard Operating Procedures.
Objective 4.6:	Increase the level of coordination of mitigation management concerns, plans, and activities at the municipal, County, State, and Federal levels of governments in relation to all hazards.
Objective 4.7:	Optimize the effective use of all available resources by establishing public/private partnerships and encouraging intergovernmental coordination and cooperation
Objective 4.8:	Prevent and/or minimize losses from disaster events through education and regulation.
Objective 4.9:	Strengthen continuity planning for local government, businesses, and community partners to avoid significant disruptions of services.
Objective 4.10:	Continue to analyze, review and update Hardee County post-disaster, recovery, and mitigation plans.
GOAL 5:	**INCREASE PUBLIC AWARENESS AND PARTICIPATION IN HAZARD PREPAREDNESS, RESPONSE, MITIGATION, AND RECOVERY.**
Objective 5.1:	Develop and maintain a comprehensive, multi-media/multi-lingual public education campaign on emergency preparedness, response, mitigation and recovery.
Objective 5.2:	Establish coordinated information and procedures for public information officers and media working in disasters.
Objective 5.3:	Promote awareness and preparedness through the distribution of information on hazards and measures to mitigate them.

Capacity to Implement Hazard Mitigation Activities

This section examines the capacity of Hardee County municipalities to implement hazard mitigation activities. Due to differences in land area, population, and funding, municipalities have varying capability levels to implement hazard mitigation activities.

General Hazard Mitigation Alternatives

The following local resources provide guidelines, tools, and codes as well as a designated source for funding to promote and achieve mitigation activities. These mitigation alternatives are general in nature and apply to all identified hazards.

Prevention

All municipalities in Hardee County have comprehensive plans and land development codes that address land use planning. In addition, all municipalities follow the Florida Building Code. Hardee County (unincorporated) participates in the Community Rating System (CRS).

Natural Resource Protection

All local governments including Hardee County can develop and implement natural resource protection programs to minimize the impacts of natural hazards while enhancing the local and regional environment. The Southwest Florida Water Management District has played a major role in the acquisition, preservation, and restoration of the County's natural resources.

Emergency Services

Hardee County and its jurisdictions actively participate in emergency services. Reverse 911/Alert Hardee provides warning messages. The Hardee County website and Emergency Management Facebook page provides hazard preparation information. Intergovernmental coordination provides the extension of services and cooperation between jurisdictions. Hardee County and its jurisdictions are members of the Central Florida Local Emergency Planning Committee (LEPC), which is responsible for preparing a regional hazardous materials emergency response plan. The LEPC serves as a repository for regional hazardous materials information and performs outreach functions to increase hazardous materials awareness. The following county-wide documents address emergency management: Hardee County Comprehensive Emergency Management Plan, Hardee County Local Mitigation Strategy, Central Florida Region Economic Analysis and Disaster Resiliency Study, and Statewide Regional Evacuation Study for the Central Florida Region.

Figure V.1: Central Florida LEPC Logo

Natural floodplains help provide storage for surface runoff, recharge our aquifers, improve water quality, support a biologically diverse population, and many other functions. Protecting these natural resources is an essential element of a successful floodplain management plan. Activities to protect natural resources include:

- Adopting and implementing floodplain management policies that reduce impact to natural systems;
- Preserving natural areas;
- Restoring natural areas;
- Protecting wetlands;
- Preventing pollution of natural systems;
- Improving water quality; and
- Preventing erosion and sedimentation in water ways.

Public Information and Awareness

Public information activities advise residents, property owners, potential property owners, and visitors about the hazards, ways to protect people and property from the hazards, and the beneficial functions of natural floodplains. The intent of these programs is to motivate people to take precautionary steps on a pre-disaster basis, and to develop awareness. Hardee County and its jurisdictions implement these activities using a variety of mediums, including electronic, audio/visual, and printed media. Activities identify target audiences and deliver specific messages about the risks that affect them. These audiences include residents, as well as managers of local, state, and federal agencies. Public information activities may include:

- Flyers / door hangers;
- Real estate disclosure programs;
- Map information;
- Education programs;
- Mailings;
- Social media;
- News media;
- Billboards;
- Public outreach events; and
- Technical assistance.

Comprehensive Plans

Hardee County and the municipalities have adopted comprehensive plans and land development codes. The comprehensive plans address land use and public infrastructure planning over a long-range timeframe. Comprehensive plans and land development codes regulate development by dividing municipalities into zones or districts and establishing specific development criteria for each. These development criteria include provisions for the area's known hazards. Vulnerable lands are those associated with known hazards such as areas subject to flooding, dam failure, wildland fire, and land subsidence. Proper planning includes recommendations for use of these known vulnerable land areas, such as parks, greenways, wildlife refuges, and other open space uses protected from future development. Similarly, land development codes should include separate zones or districts with appropriate development criteria for known vulnerable land areas.

Land Development Codes

Hardee County and the municipalities have adopted land development codes, including subdivision regulations. These regulations address how entities can subdivide land into individual lots and establish certain standards for the location and construction of buildings and associated infrastructure (i.e., roads, sidewalks, utility lines, stormwater management facilities, etc.). Land development codes include municipal-specific, hazard mitigation-related development criteria for the location and construction of buildings and other infrastructure in known hazard areas to avoid future damages and minimize existing problems. Examples of hazard mitigation-related development criteria include watershed-specific stormwater management regulations, hazard-specific building and infrastructure location limitations, and a requirement to incorporate various pre-defined, municipal-specific hazard mitigation/prevention measures into all development plans. Use of conservation subdivision design principles may be employed to mitigate potential impacts of natural hazards. Conservation subdivision design principles involve clustering homes to avoid known hazard areas (i.e., steep slopes, floodplains, etc.) and environmentally sensitive resources (i.e., wetlands, critical wildlife habitats, etc.), thereby developing the most suitable land while permanently establishing a network of protected open spaces.

Florida Building Code

The Florida Building Code regulates construction, renovation, and alteration of new and existing structures by establishing minimum building standards and providing for routine inspections by a certified building code inspector. The Florida Building Code includes standards for hazard-resistant construction including use of fire-resistant building materials, construction practices to promote wind resistance, use of waterproof or water-resistant building materials and building elevation in known flood hazard areas, and use of foundation and structure anchoring specifications in known floodwater velocity areas.

Geographic Information Systems (GIS) and Mapping

Geographic Information Systems (GIS) apply computer technology to hazard mitigation planning by linking data to maps. GIS provides a complete assessment resource for mitigation planning and other planning studies through the updating of detailed property information, socioeconomic data, critical facilities inventories, and hazard locations, among other relevant information. Jurisdictions in Hardee County may utilize the resources of other agencies to address their mapping needs.

Flood Insurance Rate Map (FIRM) information provides flood hazard information to inquirers. Residents and business owners who are aware of potential hazards can take steps to avoid future problems and reduce their exposure to flooding. Real estate agents and potential homebuyers can determine the location of a particular property in a known flood hazard area and whether lenders may require flood insurance. The Southwest Florida Water Management District is a Cooperating Technical Partner with FEMA.

Capital Improvement Plans

Capital Improvement Plans (CIPs), housed in the Capital Improvement Elements of local government comprehensive plans, outline allocation of funds for public acquisition of open space lands, capital expenditures for emergency service facilities, improvements to retrofit or relocate

vulnerable critical facilities, and other capital improvements. The CIP directs the programming of capital improvements over a 5- or 10-year period, with funding identified. Municipalities should include the capital expenditure requirements of high-priority projects within a hazard mitigation plan in the CIP.

Stormwater Management

Stormwater management involves the effective management of stormwater runoff from developed areas, which minimizes local and regional drainage problems and associated flooding hazards. Stormwater management practices that promote infiltration work toward the minimization of drought impacts by contributing to the base flow of local streams and watercourses. Land development codes of Hardee County and the municipalities include stormwater management regulations, which require developers to construct on-site stormwater management facilities that collect, convey, and store surface water runoff.

Vulnerability Assessment

Section 380.093 Florida Statutes specifies the requirements and guidance for conducting vulnerability assessments across the State of Florida. The Vulnerability Assessment determines the vulnerability of geographical areas and critical assets within Hardee County and its municipalities to current and future flood conditions. The first Hardee County VA will be completed after the adoption of this document. As recommended by the Florida Department of Environmental Protection, the Hardee County VA will be incorporated as an Appendix into the next update of the LMS.

Hardee County Adaptation Action Areas (AAA)

Section 163.3177(6)(g)(10), Florida Statutes, provides the requirements of Adaptation Action Areas (AAA). The Florida Department of Environmental Protection oversees the review of the Adaptation Action Areas. At the time of this update, Hardee County is creating their first AAA, which will be incorporated as an Appendix into the next update of the LMS. AAAs are identified and prioritized based on the critical assets, exposure and sensitivity analysis and on each flood scenario from the Vulnerability Assessment flood modeling with the intention to improve resilience to flooding.

Emergency Response Planning

Implementation of property protection measures (i.e., relocation, elevation, or floodproofing) may not be technically or fiscally feasible in certain situations. This is most often the case for larger flood-prone business and industry buildings where relocation is undesirable and retrofitting techniques may be too costly or not technically feasible. One alternative to implementing physical property protection measures is to develop an emergency response plan specific to a business or industry. An emergency response plan is a guiding document that identifies and describes emergency preparation and response procedures for pre- and post-disaster implementation to minimize hazard impacts. Emergency response planning can serve to minimize impacts to structures and their contents for a specific business or industry would constitute a property protection measure.

Education and Outreach Programs

Education and outreach programs are the first step in the process of orienting property owners to property protection measures and assisting them in designing and implementing a project. These programs encourage people to seek out more information and take steps to protect themselves and

their properties. These programs are particularly suitable for those hazards that lack mitigation measures such as extreme heat, lightning, and tornadoes. Outreach projects may vary with the type of identified hazard and the targeted audience. FEMA requires Hardee County, as a participant in the CRS, to provide outreach materials to Repetitive Loss Areas. This outreach identifies the various techniques for flood mitigation, as well as funding opportunities that may be of benefit to the owner.

In addition, there may be a coordinated annual outreach to the community-at-large through County or municipal Hurricane Expos. Hardee County's website contains information and detailed updates during severe weather and other hazard events. Other approaches may include:

- Mass mailings or newsletters to all residents;
- Notices directed to floodplain residents;
- Displays in public buildings or shopping malls;
- Newspaper articles and special sections;
- Radio and TV news releases and interview shows;
- Presentations at meetings or relevant local organizations;
- Floodproofing open houses;
- Website notices with hyperlinks to other sources of information; and
- Hazard warning including a comprehensive disaster warning system linking a variety of systems into a network to advise the public of emergency situations. This system includes the Alert Hardee System, which provides time-sensitive messages including emergency notifications and other community events from Hardee County to designated mobile phones, email addresses, text messages, home, business phone, TTY and more.

The earlier and more accurate the warning, the greater the number of people who can take protective actions. Multiple or redundant systems are most effective; if people do not hear one warning, they may still receive the message from another part of the system. Depending on the circumstances, distribution of additional warning messages occurs through:

- NOAA weather radio;
- Mobile public address systems;
- Social media;
- Telephone trees;
- Internet weather-related sites;
- Municipal/County/State Internet sites;
- Door-to-door contact;
- Reverse 911/ Alert Hardee; and
- Integrated Public Alert and Warning System.

Long-Term Recovery Plan

In the aftermath of Hurricane Ian, a partnership emerged between Hardee County and its three municipalities (the City of Bowling Green, the City of Wauchula, and the Town of Zolfo Springs), with assistance from the Federal Emergency Management Agency's (FEMA's) Recovery Support Functions (RSFs); together they prepared this Long-Term Recovery Plan (LTRP). Hardee County's Long-Term Recovery Plan was designed with an emphasis on comprehensive recovery and long-term resilience, integrating input from diverse partners to achieve an all-encompassing and holistic approach. The document identifies recovery projects related to infrastructure systems, economic

opportunities, natural and cultural resources, community projects, housing, health and social services.

Identification and Analysis of Mitigation Activities and Initiatives

In formulating the LMS, the LMS Working Group considered a wide range of activities to help achieve the mitigation goals, in addition to addressing any hazard concerns. The goals and objectives identify mitigation Initiatives. The mitigation alternatives provide a link to the goals and objectives and address the risk and vulnerabilities of hazards identified by the risk assessment. These activities apply to new and existing buildings and infrastructure. Incentives for implementing hazard mitigation initiatives relate to loss reduction, public welfare, or public safety. Disincentives relate to lack of funding, staff, or resources.

Mitigation Techniques

In general, all activities considered by the LMS Working Group fall under one of the following six broad categories of mitigation techniques: prevention; property protection; natural resource protection; structural projects; emergency services; and public awareness and education. Appendix D identifies mitigation activities throughout the County.

Prevention

The goal of prevention activities is to minimize the potential development of new hazard problems and to keep existing hazard problems from becoming worse. Prevention measures include mitigation actions to alleviate those known areas of concern to ensure the issue does not continue. Prevention activities typically include government programs or regulatory actions that influence the development of land and construction of buildings. They ensure that future land development projects do not increase local and/or regional hazard risks. They are particularly effective in reducing a community's future vulnerability, especially in areas where development has not occurred, or capital improvements have not been substantial. Typically, local building, zoning, planning, and/or code enforcement officials administer prevention measures, programs, or requirements. Prevention activities include:

- Comprehensive plans;
- Land use planning/zoning efforts;
- Subdivision and land development ordinances;
- Capital Improvement Plans;
- Building codes;
- Floodplain development regulations;
- Stormwater management;
- Drainage system maintenance;
- Open space preservation;
- Operations and maintenance procedures;
- Subsurface investigation requirements;
- Detailed plans and targeted studies;
- Community Rating System programs; and

Figure V.2: Example Stormwater maintenance

Property Protection

Property protection measures minimize an existing structure's vulnerability to a known hazard rather than mitigating or controlling the hazard itself. Property protection measures involve improvements or modifications to both public and privately-owned property to help them better withstand the impact of a hazard. Projects require the coordination (and often cost-sharing) with the respective property owners. Some measures do not affect the appearance or use of the structure, which make them appropriate for historical sites or landmarks. Frequently, implementation of a property protection measure requires acquiring a local building permit. Examples of property protection measures include:

- Acquisition;
- Relocation;
- Building elevation;
- Critical facilities protection;
- Retrofitting (e.g., wind proofing, floodproofing seismic design techniques, etc.);
- Safe rooms, shutters, shatter-resistant glass;
- Brush/scrub removal; and
- Insurance.

Natural Resource Protection

Natural resource protection activities implemented as hazard mitigation measures are varied in scope, purpose, and outcome. The preservation and restoration of natural areas, environmentally-sensitive resources, or the overall quality of locally-significant features play a major role in reducing damages caused by hazard events by preserving or restoring natural areas and their protective functions. Areas include floodplains, wetlands, steep slopes, and wildland parks, recreation, or conservation agencies and organizations often implement these protective measures. Examples of natural resource protection activities include:

- Floodplain protection;
- Watershed management;
- Riparian buffers;

- Forest and vegetation management (e.g., fire-resistant landscaping, fuel breaks, etc.);
- Erosion and sediment control;
- Wetland preservation and restoration;
- Habitat preservation; and
- Slope stabilization.

Structural Projects

The intent of structural mitigation projects is to lessen the impact of a hazard by modifying the progression of the hazard event through construction. Structural projects typically involve efforts to keep floodwaters and other natural hazards from impacting specific areas or structures. The Florida Building Code requires engineers to design the projects. The responsible agency's public works staff, or property owners manage or maintain the projects. From a flood hazard mitigation perspective, these projects control flows and water surface elevations and to reduce the overall impacts of flooding. In some cases, due to cost and environmental implications, structural projects may not provide full protection to individual properties. However, the design of projects like bridges and culverts may protect people and properties. Examples of structural project activities include:

- Reservoirs;
- Dams/levees/dikes/floodwalls;
- Diversions/detention/retention;
- Channel modification;
- Storm sewers;
- Firebreaks;
- Sinkhole abatement;
- Emergency water source development; and
- Safe rooms and community shelters.

Emergency Services

Emergency services measures protect people during and immediately following a hazard event. The County and municipalities have Emergency Operations Plans (EOPs) formally documenting their emergency preparedness and response planning. The County EOP identifies standard operating procedures for various emergency management personnel and establishes the location and operating conditions of the EOC. Adopting and implementing the EOP is a first step in providing local emergency services measures in response to a hazard event. Implementation of emergency services measures occur at the local, County, State, and/or Federal level, depending on the severity of the hazard event. These actions occur immediately prior to, during, or in response to a hazard event. Examples of emergency service activities include:

- Activation of warning and notification systems;
- Evacuation planning and management;
- Emergency response training and exercises;
- Critical facilities protection;
- Sandbagging for flood protection;
- Installing temporary shutters for wind protection; and
- Post disaster recovery and mitigation.

Public Education and Awareness

Public education and awareness activities advise the community and visitors about hazards, hazardous areas, and mitigation techniques they can use to protect themselves and their property. Examples of public education and awareness measures include:

- Outreach projects;
- Speaker series/demonstration events;
- Hazard map information;
- Real estate disclosure;
- Library materials;
- Educational programs for school children; and
- Hazard expositions.

Flood Hazard Mitigation Alternatives

Floodplain development regulations establish regulatory criteria for construction and/or alteration of buildings and other development activities in the 100-year floodplain, to minimize potential flood-related damages and ensure that new development does not exacerbate local flood hazards. Hardee County and all the municipalities participate in the National Flood Insurance Program (NFIP) and must adopt and enforce local floodplain development regulations that meet or exceed minimum NFIP standards and requirements. Floodplain construction standards are also part of the Florida Building Code. NFIP floodplain development regulations prohibit obstruction of the regulatory floodway and require builders of new buildings in the 100-year floodplain to protect buildings from damage from the base flood (i.e., 100-year or 1 percent annual chance flood). These regulations prevent loss of life and property as well as economic and social hardships that result from flooding.

Relocation or Moving of Structures

Relocation, or moving a building to higher ground, is a way to minimize potential flooding impacts. Removing buildings from the floodplain is not only the most effective flood protection measure available, but it also converts a problem area into a community asset with environmental benefits. Relocation is an alternative for large lots that include buildable areas outside the floodplain or where the owner has a flood-free lot available. Relocation may be expensive. While people can move almost any building, the cost increases for heavier structures such as those with exterior brick and stone walls, and for large or irregular-shaped buildings. There are factors that affect the feasibility of relocation, such as road width and grade, density of overhead utilities, and other related factors.

Acquisition of Buildings

Acquisition of buildings in a flood-prone area ensures the buildings will no longer be subject to flood damage. Government agencies may undertake acquisition, so the property owner does not bear the cost and the government agency may convert the use of the land to a public use, such as a park. Acquisition followed by demolition is most appropriate for buildings that are difficult to move, such as larger, slab-on-grade foundation or masonry structures, and dilapidated structures that are not feasible to protect. Responsible agencies must complete a cost-benefit analysis and investigate other less costly alternatives.

Elevation of Buildings

Elevation of a flood-prone building above the base flood elevation is often the best on-site protection strategy. In Flood Zone 'A', the property owner can raise the building to allow water to run underneath it. Alternatively, it may be possible to use fill to elevate the site on which the building sits. This approach is less expensive than relocation or acquisition and tends to be less disruptive to a neighborhood. Local floodplain regulations and the Florida Building Code require elevations for new and substantially-improved buildings in a floodplain.

Dam, Levee, and Floodwall Installation

Dams, levees, and floodwalls are similar in that they control flooding by restricting floodwaters from reaching/inundating protected areas. These are probably the best-known forms of structural flood control projects implemented in the United States. Just like any other engineering feature, exceeding the design capacity of a dam, levee, and/or floodwall may compromise its functional utility. Dams, levees, and floodwalls can give a false sense of security to the property owners they protect.

Bridge/Culvert Modifications

If undersized, bridge/culvert modifications at local stream and watercourse crossings can result in floodwater backing up upstream of the structure, causing significant flooding problems. From a flood hazard mitigation perspective, bridge/culvert modifications typically involve the replacement, enlargement, and/or removal of existing roadway bridges and culverts known to cause flooding problems. Replacing, enlarging, or removing these known problematic structures is an effective approach to mitigating flooding problems.

Figure V.3: Culvert modifications

Open Space Preservation

Open space preservation is keeping known hazard areas free of development and in a natural condition and is the best approach to minimizing or preventing potential flood damages. Preserving open space in an undeveloped floodplain not only prevents potential flood damage, but also allows for the full realization of the floodplain's natural and beneficial functions. These functions include floodwater storage/flood flow attenuation, surface water infiltration/groundwater recharge, removal/ filtering of pollutants and sediments from floodwater, habitat for flora and fauna, and recreational opportunities. Comprehensive plans and land development codes regulate open space preservation.

Wetland Protection

Floodplains and low-lying areas of a watershed require wetland protection. Many wetlands receive and store floodwaters, thus slowing and reducing stream flows. Wetlands serve as natural filters that help to improve water quality and provides habitat for many species of fish, wildlife, and plants. Local wetland protection codes and programs address gaps in Federal and State regulations.

River and Stream Corridor and Lake Restoration and Protection

River and stream corridor restoration and protection measures help restore the natural and beneficial functions of riparian zones to manage floods and filter runoff. Lakeshore protection measures are in place in many incorporated areas.

Best Management Practices

Best Management Practices (BMPs) are measures that reduce the volume of surface water runoff and associated nonpoint source pollutants from entering waterways. Surface water runoff transports nonpoint source pollutants, which include lawn fertilizers, pesticides, farm chemicals, sediments, and oils from both pervious and impervious urban and rural areas. Nonpoint source pollutants not only affect the quality of local water resources, but also their ability to carry and store floodwaters. Eroded soil from farmlands and construction sites deposit at locations where streams and rivers slow down and lose energy, such as when they enter a lake or confluence with another stream.

Uncontrolled surface water runoff contributes to local and regional flooding problems. From a hazard mitigation perspective, the identification and implementation of BMPs focuses on structural and non-structural erosion and sedimentation control and stormwater management facilities. Implementation of many BMP measures (structural and/or nonstructural) can address site-specific needs. New development can incorporate erosion and sedimentation control and stormwater management BMPs into retention and detention basins, drainageways, and other parts of new development.

Several local ordinances require specific BMPs and structural measures for industrial sites, mined lands, construction sites, farms, forested areas, and high-use public lands. Other engineering and construction standards include BMP guidelines to ensure that structures withstand various hazards.

Wind Mitigation Alternatives

Proper engineering and design of a structure increases its ability to withstand the lateral and uplift forces of wind. Recommended building techniques provide a continuous load path from the roof of the structure to the foundation. The LMS Working Group reviewed the following wind mitigation alternatives:

- Windproofing is the modification of the design and construction of a building to resist damage from wind events, and can help to protect the building's occupants from broken glass and debris. Windproofing involves consideration of aerodynamics, materials, and the use of external features such as storm shutters. The Florida Building Code requires windproofing in the design and construction of new structures, and recommends reinforcing existing structures. Improved methods for anchoring structures to foundations better protects mobile homes, which tend to be vulnerable to the effects of extreme wind events.

The Florida Building Code requires installers of mobile homes to tie the homes down to their pads. The Florida Building Code requires public facilities, critical infrastructure, and public infrastructure (such as signage and traffic signals) to be windproofed in vulnerable areas. However, windproofing is not a viable mitigation technique to protect against tornadoes or extreme hurricanes.

- Safe room and community shelter requirements for new housing construction and existing mobile home parks, apartment complexes, and other planned residential communities can offer protection and reduce the risk to life. ARC 4496 and FEMA 320 Taking Shelter from the Storm include minimum design criteria for the construction of these elements.

- Underground power lines can offer uninterrupted power during and after severe wind events and storms. Burying power lines can significantly enhance a community's ability to recover in the aftermath of a disaster; however, power lines are more expensive to install and repair if there were a problem and may be more vulnerable to flooding in some locations.

Figure V.4: Underground utilities

- Encouraging back-up power sources in areas where power line burial is not feasible may enable continuity of basic operations for businesses and facilities when there is a loss of power.

Fire Mitigation Alternatives

The following are mitigation alternatives to reduce vulnerability from wildfires reviewed by the LMS Working Group.

- An urban forestry program, where several cities nationwide have participated in formal programs to protect and maintain urban forests, is helpful for the mitigation of wildfires.

- The State uses firebreaks to limit the mobility of potential wildfires. Construction of a firebreak involves removing vegetation in a linear strip to significantly diminish the available fuel load. There may be locations in the County where construction of a firebreak may prove to be a feasible and prudent wildfire hazard mitigation measure, particularly in areas where

there is rural development adjacent to forested areas or limited access. This type of development scenario is particularly susceptible to wildfire hazards.

- Emergency water source development increases public water supply systems and the associated curbside hydrants for local firefighting needs. A solution for access to reliable water sources and the ability to efficiently pump water from those sources is the installation of dry hydrants at bridge and culvert crossings of local streams and watercourses.

Figure V.5: Prescribed burning

- State and Federal land management agencies' use of planned wildland fuels burning programs (prescription burning) is the best proven method to reduce hazardous wildland fuel accumulations. This process is routinely accomplished with the establishment of firebreaks and is conducted on State, Federal, and private lands where the accumulation of wildland fuels can pose a threat to neighboring communities. These carefully planned operations must meet specific weather conditions.

- Vegetation reduction is an efficient action to reduce the risk of wildfires. Vegetation-fuel management through tree and vegetation thinning or reducing the amount of herbaceous vegetation by chopping or mowing decreases the chances of fire propagation across the landscape by breaking up the horizontal and vertical continuity of fuel. This reduces fireline intensity, significantly lowers the risk of structure loss, and creates a safer situation in which to deploy suppression resources.

Sinkhole Mitigation Alternatives

Sinkhole abatement is the treatment of new and existing sinkholes to minimize potential damage to buildings, infrastructure, and other surface features. Sinkhole treatment is usually abatement after the sinkhole forms rather than prior mitigation. Abatement involves filling the surface feature with a mixture of materials including concrete, soil, grout, synthetic filter fabrics, and various sizes of crushed stone. Since no two sinkholes are alike, abatement can vary in the type and volume of materials utilized. Precautions, which are designed to reduce safety concerns and mitigate potential environmental impacts, include barricading the site to prevent personal injury, excavating the overlying soil to determine the appropriate abatement method and to expose a competent limestone ledge, and directing surface drainage away from the site to prevent reoccurrence.

The Favorability of Florida's Geology to Sinkhole Formation report from June 2017 outlined proposed mitigation measures within sinkhole-prone areas through proper planning, geotechnical site investigation, appropriate design, and proper maintenance of infrastructure. These include recommending building code changes to address the following sources of focused recharge (*Veni et al (2015)):*

- Roof runoff;
- Street drainage;
- Lawn irrigation systems;
- Effluent from septic tanks;
- Leaking plumbing below or beside buildings;
- Obsolete or unrepaired shallow irrigation wells;
- Unlined stormwater ponds;
- Leaking swimming pools; and
- Wastewater spray fields.

The following methods can mitigate karst activity in sensitive areas (*Gutierrez et al (2008))*

- Utilize geomembranes and geotextiles;
- Create efficient drainage systems and divert surface runoff;
- Remediate existing sinkholes;
- Grout cavities;
- Improve ground compaction by injection grouting to increase strength and weight bearing capacity of soils;
- Construct cutoff screens and grout curtains to arrest groundwater circulation;
- Construct engineered slabs;
- Reinforce foundations using beams;
- Incorporate tensile geogrids in subbase and embankments of roads and railways;
- Utilize oversized piers and pads and sacrificial piers for bridges;
- Instrument critical infrastructure with monitoring devices;
- Implement educational programs for policy and decision makers; and
- Install signage in existing hazard areas.

Mitigation is common practice for critical infrastructure such as power plants, landfills, water treatment facilities, highways, bridges, large reservoirs, pipelines, and transmission lines. A pre-construction geologic or geotechnical site investigation can be an effective mitigation tool to identify potential karst hazards. In addition to mitigation measures listed above, those tools include:

- Visual site inspection by a licensed professional geologist (to identify potential surface anomalies);
- Geophysical surveys (to investigate for anomalous zones below ground and test surface anomalies);
- Exploratory boreholes (to test geologic strength or investigate anomalies identified by geophysics); and
- Dynamic ground improvement (to compact and strengthen subsurface geology and to collapse unforeseen cavities), including:
    - Rolling surcharge;
    - Dynamic compaction; and
    - Vibratory compaction.

Selection of Mitigation Activities and Initiatives

Mitigation Activities – One-Time Projects and Ongoing Projects

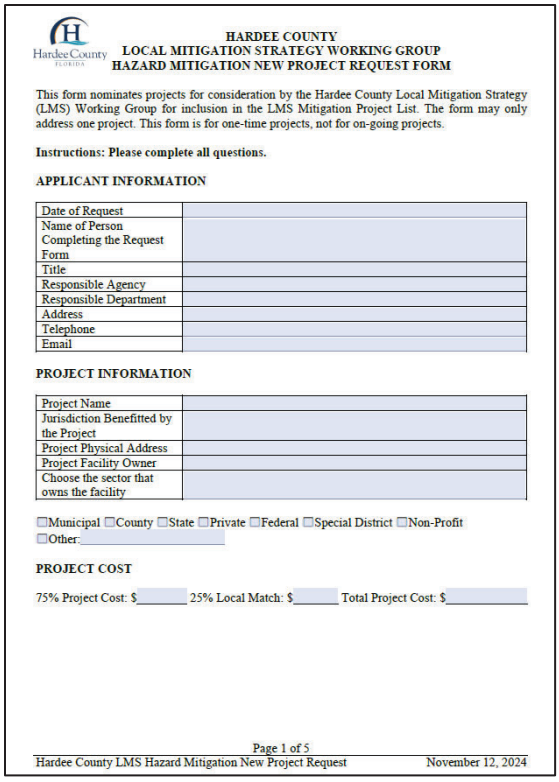
Mitigation activities include one-time projects and ongoing projects. One-time projects have a start and end date for completion. Ongoing projects repeat on a regular basis (daily, weekly, etc.). The selection of mitigation activities and initiatives described below relates to one-time projects. The *Mitigation Plan – Ongoing Projects* table identifies the ongoing mitigation activities of the LMS partners.

Project Status Verification

In keeping with FEMA requirements for MAP updates, the LMS Working Group evaluated the mitigation actions identified in the LMS to determine their 2025 implementation status. Each agency responsible for implementation of a mitigation action provided an update on implementation status (completed, deleted, or deferred), and milestones achieved or impediments to implementation of the actions. Appendix D includes the project status verification.

Mitigation Activity Project Submittal

As part of the 2020 LMS update, all jurisdictions and partners submitted project applications for new one-time projects listed in the MAP. Appendix D includes the project submittal form.



HARDEE COUNTY
LOCAL MITIGATION STRATEGY WORKING GROUP
HAZARD MITIGATION NEW PROJECT REQUEST FORM

This form nominates projects for consideration by the Hardee County Local Mitigation Strategy (LMS) Working Group for inclusion in the LMS Mitigation Project List. The form may only address one project. This form is for one-time projects, not for on-going projects.

Instructions: Please complete all questions.

APPLICANT INFORMATION

Date of Request	
Name of Person Completing the Request Form	
Title	
Responsible Agency	
Responsible Department	
Address	
Telephone	
Email	

PROJECT INFORMATION

Project Name	
Jurisdiction Benefitted by the Project	
Project Physical Address	
Project Facility Owner	
Choose the sector that owns the facility	

☐Municipal ☐County ☐State ☐Private ☐Federal ☐Special District ☐Non-Profit
☐Other:

PROJECT COST

75% Project Cost: $_____ 25% Local Match: $_____ Total Project Cost: $_____

Page 1 of 5
Hardee County LMS Hazard Mitigation New Project Request November 12, 2024

Figure V.6: Project submittal form

The following mitigation initiative types serve as the basis for proposed projects:

- *Floodproofing*: Any combination of structural and non-structural additions, changes, or adjustments to structures that reduce or eliminate flood damage to real estate or improved real property, water and sanitary facilities, structures, and their contents.

- *Wind retrofitting*: Structural modifications intended to reduce the vulnerability of and damage to buildings caused by wind and wind-driven rain intrusion before, during, or after a high wind event. Areas of vulnerability include roof and wall coverings, openings (windows and doors), and load path connections.

- *Stormwater management:* Program for controlling and directing storm water runoff so it does not overwhelm or negatively impact drainage and infrastructure control systems.

- *Floodplain management*: Operation of a community program of corrective and preventative measures for reducing flood damage. These measures take a variety of forms and generally include requirements for zoning, subdivision or building, and special-purpose floodplain ordinances.

- *Infrastructure hardening*: Strengthening and/or retrofitting critical structures, such as roads, bridges, drainage conveyances, etc., to reduce vulnerability to wind, rain, and flooding events.

- *Acquisition and demolition:* Purchase and/or destruction of damaged property that is not feasible to rebuild or retrofit to prevent similar damages to future structures built in the same location.

Mitigation Initiatives

The comprehensive "Hardee County Multi-Jurisdictional LMS Mitigation Initiatives" is based on ideas from the LMS Working Group and from the vulnerability analysis completed for structures within Hardee County (Risk Analysis Section). The list incorporates initiatives of the County, municipalities, Hardee County Public Schools, and participating agencies.

The entity ultimately responsible for the implementation and/or management of each initiative has sponsored the initiative through the completion and submission of a Hazard Mitigation New Project/Program Worksheet to assist with efficiency and precision of the ranking process. Appendix D includes a copy of the Hazard Mitigation New Project/Program Worksheet. The project submitter completed the cost estimates. A detailed explanation of the process used to determine the initiatives is in the Mitigation Cost-Benefit Review and Prioritization of the LMS.

The Deferred, Completed, or Deleted Projects Table in Appendix D includes a list of these projects to illustrate the changes from the last project list update. Some project sponsors deleted projects because the project became unnecessary, a private party assumed responsibility, or the project was not cost-feasible.

Evaluation and Prioritization of Mitigation Initiatives

To determine the most appropriate mitigation techniques for the communities in Hardee County, the LMS Working Group thoroughly reviewed and considered the findings of the *Hazard Analysis and Risk Assessment*. Other considerations included the effect of each mitigation action on overall risk to life and property, ease of implementation, degree of political and community support, general cost-effectiveness, and funding availability.

In evaluating proposed mitigation alternatives, the LMS Working Group considered the importance of the identified goals and objectives. Cost estimates are based on best available data, including similar projects completed in other communities, professional judgments using costing tools such as Means Residential Cost Data and Repair and Remodeling Cost Data, or by determining fair market values for goods or services. The cost estimates are a rough determination of the cost effectiveness of the mitigation projects and are not the basis to obtain services or grant funding. The LMS Working Group also considers the benefits of each project. Benefits included the number of people positively impacted including the benefit to special needs populations, savings in structural or operating costs, benefits to the environment, and benefits to the long-term effectiveness of the project. To assess the importance of each project, the LMS Working Group considered several factors including:

- Importance for community safety;
- Whether the project addressed critical facilities vulnerability;
- Number of buildings the project would help to protect;
- Amount of damages the project would help to prevent; and
- Cost effectiveness.

The LMS Working Group evaluates each proposed mitigation action to assess level of impact using the Hardee County Project Prioritization Form. This document enables the LMS Working Group to review each project against the criteria for ranking (see below). The LMS Working Group ranks the measure receiving the highest score as a high priority. In the event of ties, the LMS Working Group may list mitigation measures higher if the LMS Working Group perceives them to have the greatest benefit/cost or impact the greatest number of people. The LMS Working Group reviews the mitigation initiatives and prioritization score draft results during regular meetings. The score may change as priorities in Hardee County change and with the addition of new mitigation actions. Change is normal and healthy in the hazard mitigation process.

Mitigation actions include those that are general in nature and those specific to high-vulnerability hazards. Depending on the availability of funding for various types of projects, the LMS Working Group may consider applications for a project with a lower score. All projects submitted for funding will have an analysis completed that shows each project to be cost beneficial.

Cost-Benefit Review – Hardee County Project Prioritization Form

Since it is often impossible for entities to implement all mitigation actions identified in the LMS due to monetary and other limitations, the LMS Working Group is responsible for prioritizing proposed mitigation actions. Mitigation plans must prioritize projects with emphasis on maximization of benefits over costs. A cost-benefit review considers the benefits that would result from a mitigation action versus the cost.

The LMS Working Group uses the Hardee County Project Prioritization to review and prioritize mitigation projects. This method uses a point system to determine a priority ranking for each mitigation action, which allows the LMS Working Group to evaluate proposed actions quickly and in a systematic fashion. This form is located in Appendix D.

The LMS Working Group scores every subcategory with a favorable (3), neutral (2), or less favorable (1) ranking. Subcategories with numbers next to them indicate a weighted category, so the LMS Working Group multiplies its ranking by the number in parentheses. For example, a favorable (1) ranking for “Technically Feasible” would result in a score of 3, while an unfavorable (-1) ranking for “Authority to Implement” would result in a score of (-2). The sum of all the subcategories provided the priority ranking for that project, with higher rankings receiving higher priority.

Hardee County Multi-Jurisdictional Mitigation Action Plan

The Multi-Jurisdictional Mitigation Action Plan is a listing of the mitigation actions proposed by Hardee County and its jurisdictions and partners. It does not serve as a “grant wish list”. As described above, it includes ongoing and one-time projects. The LMS Working Group designed The Multi-Jurisdictional Mitigation Action Plan to address the hazards impacting the County with consideration for the adopted mitigation goals and objectives. The LMS Working Group will maintain it on a regular basis according to the LMS maintenance procedures established in Section III: Planning Process, Evaluation, and Maintenance. The Multi-Jurisdictional Mitigation Action Plan represents an unambiguous and functional

plan for action. The LMS Working Group has identified each proposed mitigation action as an effective measure (policy or project) to reduce hazard vulnerability.

The Multi-Jurisdictional Mitigation Action Plan includes two components that work together to outline the plan for mitigating the identified hazards, vulnerabilities, and risks. The two components include:

- Current Activities (Ongoing Projects): The ongoing (routine) projects and initiatives to mitigate potential hazards. These activities range from enforcing adopted Code requirements to street sweeping to keep stormwater systems free of garbage and debris.
- Future Initiatives (One-time Projects): An activity that involves the creation of a unique product or service that mitigates potential hazards.

Mitigation Action Plan Tables

The Hardee County Multi-Jurisdictional Mitigation Action Plan includes the *Deferred, Completed, or Deleted Mitigation Action Plan* table, the *Ongoing Projects* table, and the *Mitigation Initiatives* Table as described below.

- The *Mitigation Action Plan – List of Deferred, Completed, or Deleted Mitigation Projects* (Appendix D) table identifies the status of each project from the last adopted Mitigation Action Plan. The current Mitigation Action Plan Table includes all projects identified as "deferred" and "new".
- The *Mitigation Action Plan – Ongoing Projects* (Appendix D) table identifies initiatives each jurisdiction undertakes on an ongoing basis to mitigate against the identified hazards.
- The *Mitigation Action Plan – Mitigation Initiatives* (Appendix D) table is a listing of all ranked mitigation action items. The Mitigation Initiatives table includes documentation of the implementation of each mitigation measure, including the following information for each action item:
  - Funding sources;
  - Timeframe; and
  - Responsible agencies.

Funding Sources

The MAP – Mitigation Initiatives table identifies potential funding sources for the mitigation actions. Many of the mitigation actions are eligible for funding from more than one source. In these cases, the matrix includes a list of potential funding sources. Most Federal funding sources, such as FEMA, will require a percentage (usually 25 percent of the total project costs) from a local source.

Time Frame

One-time action items include short-term and long-term activities. Each action item includes an estimate of the timeline for implementation. Short-term action items are activities that agencies can implement with existing resources and authorities within one to two years. Long-term action items may require new or additional resources or authorities and may take between one and five years to implement. The MAP – Mitigation Initiatives includes the approximate timeframes for project implementation.

Responsible Agency

The responsible or lead agency is the agency with regulatory responsibility to address natural hazards, or that is willing and able to organize resources, find appropriate funding, or oversee activity implementation, monitoring, and evaluation. Responsible agencies may include local, County, or regional agencies, or partners are capable of or responsible for implementing activities and programs.