

## SECTION VI: MITIGATION PLAN

### SECTION VI – MITIGATION PLAN

44 Code of Federal Regulations	
<b>44 CFR §201.6(c)(3):</b>	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.
<b>44 CFR §201.6(c)(3)(i):</b>	A description of mitigation goals to reduce or avoid long-term vulnerabilities to the identified hazards.
<b>44 CFR §201.6(c)(3)(ii):</b>	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.
<b>44 CFR §201.6(c)(3)(iii):</b>	An action plan describing how the actions identified in paragraph (c)(2)(ii) of this section will be prioritized, implemented, and administered by the local jurisdiction. Prioritization shall 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.
<b>44 CFR §201.6(c)(3)(iv):</b>	For multi-jurisdictional plans, there must be identifiable action items specific to the jurisdiction requesting FEMA approval or credit of the plan.

### Introduction

The intent of the Mitigation Strategy is to provide Polk County, its municipal jurisdictions, and the Polk County School Board with the goals that will serve as the guiding principles for future mitigation policy and project administration, along with an analysis of mitigation techniques deemed available to meet those goals and reduce the impact of identified hazards. It is comprehensive, strategic, and functional in nature:

- In being *comprehensive*, the development of the strategy included a thorough review of all hazards and identifies far-reaching policies and projects intended to not only reduce the future impacts of hazards, but also to assist the county and municipalities achieve compatible economic, environmental and social goals.
- In being *strategic*, the development of the strategy ensures that all policies and projects proposed for implementation are consistent with pre-identified, long-term planning goals.
- In being *functional*, the mitigation strategy links each proposed mitigation action to established priorities and assigns specific departments or individuals responsible for their implementation with target completion deadlines. When necessary, funding sources are identified that can be used to assist in project implementation.

The first step in updating the Mitigation Strategy includes the identification of countywide Mitigation Goals and Objectives. Mitigation goals and objectives represent broad statements that participants achieve through the implementation of more specific mitigation actions. These actions include both hazard mitigation policies (such as the regulation of land in known hazard areas through a local ordinance), and hazard mitigation projects that seek to address specifically targeted hazard risks (such as the acquisition and relocation of a repetitive loss structure).

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The second step involves the identification, consideration, and analysis of available mitigation measures to help achieve the identified mitigation goals. This is a long term, continuous process sustained through the development and maintenance of this Plan. The Local Mitigation Strategy (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 Plan maintenance occurs over time.

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

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

In preparing the updated Mitigation Action Plan for Polk County, officials considered the 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 the proposed mitigation actions:

- Population Benefited
- 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
- Benefit Cost Ratio (to be conducted prior to submitting a project for grant consideration)

### Mitigation Goals and Objectives

The primary goal of all local governments is to promote the public health, safety, and welfare of its citizens. The purpose of the LMS's goals and objectives are to reduce or avoid long-term vulnerabilities to current and future citizens and infrastructure within Polk County.

The LMS Working Group reviewed and updated the goals and objectives of the Polk County LMS based on the current conditions and priorities in the County. The LMS Working Group developed six specific goals and associated objectives to guide its work and focus the efforts and resources to reduce hazard

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related losses and damages in the future. Unless specifically stated, the goals and objectives cover multi-hazards and address the needs of all of the jurisdictions. Unless otherwise stated, the term “County”, as used in the following goals and objectives, represents Polk County, its seventeen municipalities, and the Polk County School Board.

**TABLE 6-1:  
POLK COUNTY MITIGATION GOALS AND OBJECTIVES**

**GOAL 1: PROTECT THE HEALTH, SAFETY, AND WELFARE OF THE PUBLIC**

Objective 1.1: Inform and educate the public about potential hazards and property protection measures.

Objective 1.2: Inform and educate the public about the first response to disasters to promote better disaster preparation.

Objective 1.3: Ensure new development and redevelopment complies with all applicable federal, state, and local regulations.

Objective 1.4: Provide sufficient shelter space to satisfy in-County demand.

**GOAL 2: MAINTAIN HIGH STATE OF PREPAREDNESS/COORDINATION TO MITIGATE AND RESPOND TO DISASTERS.**

Objective 2.1: Assist business and industry in the preparation of Hazardous Materials Plans.

Objective 2.2: Maintain a capability to respond to hazardous material incidents.

Objective 2.3: Provide a capability to reduce residential hazardous material waste.

Objective 2.4: Support programs under the Emergency Planning and Community Right-To-Know Act.

Objective 2.5: Continue to develop the capacity to mitigate, prepare, respond, and recover from all hazards.

**GOAL 3: REDUCE THE COST OF DISASTER RESPONSE AND RECOVERY**

Objective 3.1: Develop and implement guidelines for post-disaster redevelopment.

Objective 3.2: Advocate property acquisition or retro-fitting for repetitive loss properties.

Objective 3.3: Establish and implement a plan for post-disaster temporary housing.

Objective 3.4: Efficiently manage all local disasters.

Objective 3.5: Conserve and protect historical and cultural resources to minimize the effects of disasters on these resources.

Objective 3.6: Assist and encourage new economic development and post-disaster redevelopment through the encouragement of public-private partnerships, economic diversification, and development.

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**TABLE 6-1:  
POLK COUNTY MITIGATION GOALS AND OBJECTIVES**

<b>GOAL 4: ENCOURAGE THE PROTECTION OF NATURAL RESOURCES FROM POTENTIAL NATURAL, MAN-MADE, AND TERRORIST ACTS.</b>	
Objective 4.1:	Partner with the State and other agencies in the acquisition of lands and/or development rights for environmental protection.
Objective 4.2:	Protect and restore wetlands and critical upland habitats.
Objective 4.3:	Limit discharge and protect natural resources from toxic substances and harmful pollutants.
Objective 4.4:	Provide and encourage preservation of open space.
Objective 4.5:	Preserve and encourage planting of native vegetation.
<b>GOAL 5: REDUCE PROPERTY DAMAGE CAUSED BY FLOODING.</b>	
Objective 5.1:	Identify and address local flooding conditions.
Objective 5.2:	Continue dissemination of flood information to the public.
Objective 5.3:	Maintain and improve existing drainage systems to regulate management of storm water runoff.
Objective 5.4:	Protect the function of natural drainage features and surficial aquifer recharge areas.
Objective 5.5:	Protect and preserve wetlands, floodplains, and riverine systems to reduce the County's flood hazard exposure and maintain economic, aesthetic, and recreational values.
<b>GOAL 6: REGULATE AND PRIORITIZE THE CONSTRUCTION AND/OR ENHANCE THE PROTECTION OF CRITICAL FACILITIES AND INFRASTRUCTURE.</b>	
Objective 6.1:	Maintain or improve critical evacuation routes
Objective 6.2:	Prioritize and retrofit existing critical facilities and infrastructure.
Objective 6.3:	Encourage capital improvement expenditures for critical infrastructure.

### Capacity to Implement Hazard Mitigation Activities

This section examines the capacity of Polk County and the participating jurisdictions to implement hazard mitigation activities. Due to differences in land area, population, and funding, each of the jurisdictions have varying capability levels to implement hazard mitigation activities. The Town of Hillcrest Heights and the Village of Highland Park each have less than 300 people and are dependent on the County for some services, including school planning.

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### 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, thereby reducing the effects of future disasters in Polk County. These mitigation alternatives are general in nature and apply to all identified hazards.

#### **Prevention:**

All the jurisdictions in Polk County have adopted Comprehensive Plan and Land Development Codes that address land use planning. In addition, all the jurisdictions follow the Florida Building Code. Several of the jurisdictions have dedicated stormwater management systems with dedicated funding sources to address stormwater impacts and maintenance. The City of Lakeland and Polk County (unincorporated) participate in the Community Rating System.

#### **Natural Resource Protection:**

Polk County, as with all local governments, has the ability to develop and implement a natural resource protection program that will 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. The Avon Park Air Force Range (APAFR) plays a large role in natural resource protection in the southeastern portion of the County.

The Avon Park Air Force Range consists of approximately 106,000 acres of land of which 82,000 acres are open to the public for recreation. The APAFR, located in southeast Polk County, is the largest United States Air Force training range on the East Coast. Nearly 100,000 acres of the range are open to public access when military activities allow. Public recreation activities include hunting, fishing, camping, and hiking and nature study areas. Cattle grazing leases encompass more than 96,000 acres and timber sales take place on approximately 40,000 acres of rangeland. The Air Force engages in land management activities that protect endangered species and their habitats, manage forest lands for timber production, provide cattle grazing through leases with local cattlemen and protect cultural resources and wetlands.



*Figure 6.1: APAFR logo*

APAFR's land management program includes the protection and management of threatened and endangered species and their habitat, protection of wetlands and other outstanding natural areas, cattle grazing, production, and harvesting of timber and public recreation, as well as identification and protection of cultural resources.

On the east side of Frostproof is the 26,000 acre Lake Wales Ridge State Forest. The Lake Wales Ridge State Forest consists of four separate tracts, which contain outstanding examples of naturally-functioning ecosystems. It provides a habitat for 24 plant species and 19 animal species currently having federal or state status as threatened or endangered. Today, the scrub ecosystem that thrives on the Ridge may have the highest concentration of rare and endangered plants in the continental United States. The Division of Forestry utilizes a multiple use management system for the Lake Wales Ridge State Forest, which allows for outdoor recreation pursuits while managing the forest resources. The Nature Conservancy's Tiger Creek Preserve, which is 4,805 acres of protected lands, is located to the

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north and east of Frostproof. Tiger Creek Preserve is named after the pristine blackwater stream that forms the spine of this sanctuary. Almost the entire stream has been protected, as well as its surrounding hardwood swamps, hammocks, oak scrub, pine flatwoods, sandhill, and longleaf pine/wiregrass habitat. Rare animals and plants live in the preserve—some found nowhere else on earth.

### **Emergency Services**

Polk County and its jurisdictions actively participate in emergency services. The use of Reverse 911 provides for warning systems. Polk County provides hazard preparation information on their website. Several locations throughout the county serve as sandbag fill sites that provide sand and bags for filling. Intergovernmental coordination provides for the extension of services and cooperation between jurisdictions in the County. Polk County and its jurisdictions are members of the Local Emergency Planning Committee (LEPC) District 7, 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. In addition, the following county-wide plans address emergency management: Comprehensive Emergency Management Plan, Polk County Post Disaster Redevelopment Plan, Polk County Community Wildfire Protection Plan, Economic Analysis and Disaster Resiliency Study, and Statewide Regional Evacuation Study for the Central Florida Region.

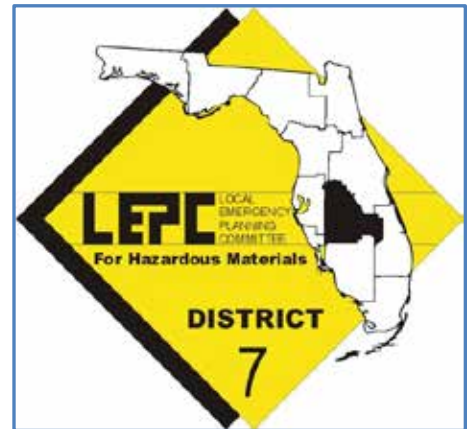


Figure 6.2: LEPC District 7 logo

### **Public Information and Awareness**

Public information activities are directed at the entire county to include not only the citizens and the business owners, but visitors also. These programs are developed to motivate people to take precautionary steps on a pre-disaster basis, and to develop awareness.

### **Comprehensive Plans**

Polk County and the incorporated cities have adopted Comprehensive Plans and Land Development Codes. The Comprehensive Plans are developed over a long-range timeframe through land use and public infrastructure planning. Both the Comprehensive Plans and Land Development Codes regulate development by dividing the jurisdictions into zones or districts and establishing specific development criteria for each. As such, these development criteria include provisions for the area's known natural hazards. Vulnerable lands would be those associated with known hazards such as areas subject to flooding, dam failure, wildland fire, and areas subject to land subsidence. Proper planning should include appropriate recommendations for the use of these known hazard areas, such as parks, greenways, wildlife refuges, and other open space uses protected from future development. Similarly, the Land Development Codes should include separate zones or districts with appropriate development criteria for these known hazard areas.

### **Land Development Codes**

Polk County and the incorporated cities have adopted Land Development Codes, including subdivision regulations. These codes regulate how land can be subdivided into individual lots and establish certain standards/criteria for the location and construction of buildings and associated infrastructure (i.e., roads, sidewalks, utility lines, stormwater management facilities, etc.). As such, Land Development



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Codes include jurisdiction-specific, hazard mitigation related development criteria for the location and construction of buildings and other infrastructure in known hazard areas in an effort to avoid future damages and minimize existing problems. Examples of some 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, jurisdiction-specific hazard mitigation/prevention measures into all development plans. Along these same lines, the mandatory use of conservation subdivision design principles may also be employed to minimize/mitigate the potential impacts of natural hazards. Conservation subdivision design principles involve clustering homes/development in a proposed subdivision 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 appropriate land while permanently establishing a network of protected open spaces.

### **Florida Building Code**

The Florida Building Code regulates the 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. As such, the Florida Building Code includes specific standards for hazard-resistant construction. Examples of some hazard mitigation-related building standards include requiring the use of fireproof/resistant building materials, specifying particular construction practices to promote wind resistance, specifying the use of waterproof/resistant building materials and building elevation in known flood hazard areas, and requiring certain foundation and structure anchoring specifications in known floodwater velocity areas.



Figure 6.3: Florida Building Code

### **Geographic Information Systems (GIS) and Mapping**

Geographic Information Systems (GIS) apply computer technology to hazard mitigation planning by linking data to maps. Detailed property information, socioeconomic data, critical facilities inventoried, and hazard locations, among other relevant information, can be continuously updated to provide a complete assessment resource for mitigation planning and other planning studies. Not all of the jurisdictions in Polk County have direct access to GIS software, but utilize the resources of other agencies to address their mapping needs.

Flood Insurance Rate Map information provides many benefits by providing hazard information to inquirers. Residents and business owners who are aware of potential hazards can take steps to avoid future problems and/or reduce their exposure to flooding. Real estate agents and potential homebuyers can determine if a particular property is located in a known flood hazard area and whether flood insurance may be required by their lender. The Southwest Florida Water Management District is a Cooperating Technical Partner with FEMA and is in the process of updating the FIRM Maps for Polk County.

### **Capital Improvement Plans**

Capital Improvement Plans (CIP) can recommend the 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 is usually tied to a comprehensive

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plan and indicated the programming of capital improvements over a five or six year period, with funding identified. The capital expenditure requirements of high priority projects within a hazard mitigation plan should be included 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. In addition, stormwater management practices that promote infiltration work towards the minimization of drought impacts by contributing to the base flow of local streams and watercourses. Stormwater management regulations, which are incorporated into the land development codes of Polk County and the incorporated cities, require developers to construct on-site stormwater management facilities that will effectively collect, convey, and store surface water runoff.

Stormwater utilities exist throughout the County to fix stormwater pollution and flooding problems. The Stormwater utilities assess property owners a fee based on the amount of impermeable surface in a particular type of development. All the jurisdictions in Polk County have a storm water utility in place to address these problems, except:

- City of Davenport
- Village of Highland Park
- Town of Hillcrest Heights
- Town of Lake Hamilton
- City of Lake Wales

### *Emergency Response Planning*

In certain situations, the implementation of physical property protection measures (i.e., relocation, elevation, or floodproofing) may not be technically or fiscally appropriate. This is most often the case for larger floodprone business and industry buildings, where relocation is undesirable and retrofitting techniques may be too costly or not technically feasible. As such, alternatives to physical property protection measures must be explored. One alternative to implementing physical property protection measures is to develop an emergency response plan specific to the particular business or industry. An emergency response plan is a guiding document that identifies and describes specific emergency preparation and response procedures to be implemented on a pre- and post-disaster basis in order to minimize potential hazard impacts. As such, emergency response planning can serve to minimize potential impacts to both the structure and its contents/inventory. In this manner, emergency response planning for a particular 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 are designed to 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 specific mitigation measures such as extreme heat, lightning, and tornadoes. Outreach projects can vary with the type of



Figure 6.4: Hurricane Expo Advertising



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identified hazard and the audience you are trying to reach. Polk County and the City of Lakeland, as participants in the Community Rating System, are required to provide outreach materials to our 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(s).

In addition, there is a coordinated annual outreach to the community at large through the Hurricane Expo. The Polk County website also contains information as well as detailed updates during severe weather or other hazard events. Other approaches can include the following:

- 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
- Hazard warning, to include a comprehensive disaster warning system, ties a variety of systems into a network to advise the public of emergency situations. This system includes the Code Red Emergency System, which can use either voice activated or canned messages, the use of live broadcasts from the EOC, as well as special public information messages on local television and radio stations.

The earlier and more accurate the warning, the greater the number of people who can implement protective measures. 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, additional means of warning the public are done through the use of the following:

- 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/ Code Red
- Integrated Public Alert and Warning System (IPAWS)

### ***Post Disaster Redevelopment Plan***

Polk County's Post Disaster Redevelopment Plan (PDRP) identifies policies, operational strategies, and the responsibilities for implementation of this plan for decision making. Elements of the plan include, but are not limited to, repair, and replacement of housing, the resumption of local business, and economic redevelopment.

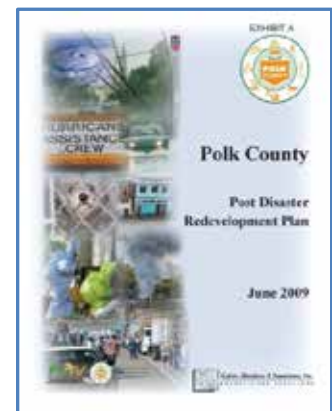


Figure 6.5: PDRP Plan

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### Identification and Analysis of Mitigation Activities and Initiatives

In formulating the Mitigation Strategy for Polk County, the LMS Working Group considered a wide range of activities to help achieve the established mitigation goals, in addition to addressing any specific and targeted hazard concerns. 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 building structures, as well as new and existing 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 (6) broad categories of mitigation techniques: Prevention, Property Protection, Natural Resource Protection, Structural Projects, Emergency Services, and Public Awareness and Education.

##### **Prevention**

The goal of preventative activities is to minimize the potential development of new hazard problems and to keep existing hazard problems from becoming worse. Preventative measures also include mitigation actions to alleviate those known areas of concern to ensure that the issue does not continue to remain. 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 natural hazard damage potentials. 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 preventative measures.

Examples of prevention activities include:

- Comprehensive plans
- Land use planning/zoning efforts
- Subdivision and land development ordinances
- Capital improvement plans (CIP)
- Building codes
- Floodplain development regulations
- Stormwater management
- Drainage system maintenance
- Open space preservation
- Operations and maintenance procedures
- Subsurface investigation requirements
- Geographic Information Systems (GIS)
- Detailed plans and targeted studies
- Community Rating System programs
- Community Wildfire Protection Program guidance



*Figure 6.6: Stormwater Management*

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### **Property Protection**

Property protection measures minimize an existing structure's vulnerability to a known hazard, rather than trying to modify or control the hazard itself. Property protection measures involve improvements or modifications to both public and privately owned property to help them better withstand the forces of a hazard and must be coordinated (and often cost-shared) 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 the purchase of a local building permit.

Examples of property protection measures include:

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



*Figure 6.7: Building Relocation*

### **Natural Resource Protection**

Natural resource protection activities that are implemented as hazard mitigation measures can be multiple 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 significant role in reducing local and regional damages caused by natural hazard events by preserving or restoring natural areas and their protective functions. Such 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
- Slope stabilization

### **Structural Projects**

The intent of structural mitigation projects is to lessen the impact of a hazard by modifying the environmental natural 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. Engineers are usually required to design the projects and public works staff or property owners manage or maintain them. From a flood hazard mitigation standpoint, these projects are designed to control flows and water surface elevations and to reduce the overall impacts of flooding. In some cases, due to costs and possible environmental implications, some structural projects may not

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provide full protection to individual properties. However, the design of projects such as bridges and culverts protect numerous 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
- Safe rooms and community shelters



*Figure 6.8: Firebreaks*

### **Emergency Services**

Emergency services measures protect people during and immediately following a natural hazard event. The County and municipalities have Emergency Operations Plans (EOPs) formally documenting their emergency preparedness and response planning. The local EOP identifies standard operating procedures for various emergency management personnel and establishes the location and operating conditions of the Emergency Operations Center (EOC). As such, adopting and implementing the EOP is a critical 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 are taken immediately prior to, during, or in response to a hazard event. Examples of emergency service activities include:

- Warning systems
- Evacuation planning and management
- Emergency response training and exercises
- Critical facilities protection
- Sandbagging for flood protection
- Installing temporary shutters for wind protection
- Post disaster recovery and mitigation

### **Public Education and Awareness**

Public education and awareness activities advise residents, elected officials, business owners, potential property buyers, 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
- Hazard expositions

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### ***Flood Hazard Mitigation Alternatives***

Floodplain development regulations establish regulatory criteria for the construction and/or alteration of buildings and other development activities in the 100-year floodplain in an effort to minimize potential flood-related damages and ensure that new development does not exacerbate local flood hazards. Polk County and all the incorporated cities, except the Village of Highland Park and the Town of Hillcrest Heights, 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 new buildings being constructed in the 100-year floodplain to be protected from damage to the base flood (i.e., 100-year or 1 % annual chance flood). NFIP floodplain development regulations are intended to 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 sure way to minimize potential flooding impacts. Removing buildings from the floodplain is not only the most effective flood protection measure available, but is also a way to convert a problem area into a community asset and obtain environmental benefits. Relocation is preferred for large lots that include buildable areas outside the floodplain or where the owner already has a new flood-free lot available. Relocation can be expensive, however. While almost any building can be moved, the cost goes up for heavier structures, such as those with exterior brick and stone walls, and for large or irregularly shaped buildings. There are also a number of 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 that they will no longer be subject to damage. The major difference is that acquisition is undertaken by a government agency so the cost is not borne by the property owner, and the land is converted 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 worth protecting. Benefit-cost should be assessed and other, less costly alternatives might also be investigated.

### ***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 building could be raised 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 much less expensive than relocation or acquisition, and tends to be less disruptive to a neighborhood. Elevation is required by local floodplain regulations, as well as by the Florida Building Code, for new and substantially improved buildings in a floodplain, and is commonly practiced in flood hazard areas nationwide.

### ***Dam, Levee, and Floodwall Installation***

Dams, levees, and floodwalls are similar in that they control flooding by restricting floodwaters from reaching/inundating protected areas. Dams, levees and floodwalls are probably the best-known forms of structural flood control projects that have been implemented in the United States. It is important to note, however, that just like any other engineering feature, if the design capacity of a dam, levee,



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and/or floodwall is exceeded; its functional utility becomes compromised. As such, dams, levees, and floodwalls can give a false sense of security to the property owners that they protect.

### **Bridge/Culvert Modifications**

Bridge/culvert modifications, if undersized, at crossings of local streams and watercourses can result in floodwater backing up upstream of the structure causing significant flooding problems. Therefore, from a flood hazard mitigation standpoint, bridge/culvert modifications typically involve the replacement, enlargement, and/or removal of existing roadway bridges and culverts that are known to cause flooding problems. Replacing, enlarging, or removing these known problematic structures goes a long way in minimizing flooding problems.



*Figure 6.9: 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 natural and beneficial floodplain 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. The adopted Comprehensive Plans and Land Development Codes regulate open space preservation.

### **Wetland Protection**

Wetland protection is needed in floodplains and low-lying areas of a watershed. Many wetlands receive and store floodwaters, thus slowing and reducing downstream flows. They also serve as a natural filter, which helps to improve water quality and provide habitat for many species of fish, wildlife, and plants. As such, local wetland protection codes and programs are developed to address these gaps in the federal and state regulations.

### **River/Stream Corridor and Lake Restoration and Protection**

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

### **Best Management Practices**

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



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sedimentation will gradually fill in channels and lakes, reducing their ability to carry or store floodwaters.

In addition, uncontrolled surface water runoff contributes to local and regional flooding problems. From a hazard mitigation perspective, the identification and implementation of BMPs is focused on structural and non-structural erosion and sedimentation control and stormwater management facilities. Many BMP measures (structural and/or nonstructural) can be implemented on a site to address specific site needs. Both erosion and sedimentation control and stormwater management BMPs can be incorporated into retention and detention basins, drainageways, and many other parts of new developments.

Depending on local ordinances, specific BMPs and structural measures are already required on industrial sites, mined lands, construction sites, farms, forested areas, and high-use public lands. Other BMP guidelines are included in engineering and construction standards designed to ensure that structures are able to 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. Building techniques that provide a continuous load path from the roof of the structure to the foundation are generally recommended.

The following are wind mitigation alternatives reviewed by the LMS Working Group.

- Windproofing is the modification of the design and construction of a building to resist damages from wind events, and can help to protect the building's occupants from broken glass and debris. Windproofing involves the consideration of aerodynamics, materials, and the use of external features such as storm shutters. These design considerations are required in the design and construction of a new structure and recommended to reinforce an existing structure. Mobile homes, which tend to be vulnerable to the effects of extreme wind events, can be better protected by improved anchoring to the foundation. Mobile homes are required by the Florida Building Code to be tied down to their pads in order to prevent them from being destroyed. Public facilities, critical infrastructure, and public infrastructure (such as signage and traffic signals) are required by the Florida Building Code to be windproofed in vulnerable areas. However, windproofing is not a viable mitigation technique to protect against tornadoes or extreme hurricanes.
- Safe room/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. There are minimum design criteria to which these



*Figure 6.10: Tie-downs for Windproofing*

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elements must be constructed as found in ARC 4496 and FEMA 320 Taking Shelter from the Storm.

- Buried 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, they are more expensive to install and repair if there were a problem and may be more vulnerable to flooding in some locations.
- Encouraging back-up power sources in areas where burial is not feasible will enable the continuity of basic operations for businesses and facilities when there is a loss of power.



Figure 6.11: Underground Utilities

### Fire Mitigation Alternatives

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

- An urban forestry program, where a number of cities nationwide have participated in formal programs to protect and maintain urban forests, is especially helpful for the mitigation of wildfires.
- Firebreaks have been used by the State 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 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 is used to increase public water supply systems and the associated curbside hydrants for local firefighting needs. One solution for access to reliable water sources and the ability to efficiently pump water from those sources is the installation of dry hydrants at various bridge and culvert crossings of local streams and watercourses.
- Prescription Burning. The use of planned wildland fuels burning programs has been used by the state and Federal land management agencies as the best proven method to reduce hazardous wildland fuel accumulations. This process is routinely accomplished in coordination 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



Figure 6.12: Prescribed Burning

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communities. These are carefully planned operations that must meet specific weather conditions and are thoroughly coordinated with county or jurisdictional fire agencies.

- Chopping and Mowing/Vegetation Reduction. Mitigation of the fuel component is one of the most efficient ways to reduce the risks of wildfire occurrence. Vegetation-fuel management through such things as tree and vegetation thinning or reducing the amount of herbaceous vegetation 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 physical treatment of new and existing sinkholes in an effort to minimize potential damage to buildings, infrastructure, and other surface features. Sinkhole treatment is usually a matter of abatement after the fact rather than prior mitigation. Sinkhole 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 significantly in the type and volume of materials that are used. Regardless of the size and nature of the sinkhole, however, certain precautions should be taken when dealing with structural sinkhole abatement. These 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 a recurrence.

## **Selection of Mitigation Activities and Initiatives for Polk County**

### **Project Status Verification**

In keeping with FEMA requirements for plan updates, the LMS Working Group evaluated the mitigation actions identified in the Polk County LMS plan to determine their 2015 implementation status. Each agency responsible for implementation of a mitigation action provided an update on the implementation status (completed, deleted, or deferred) and milestones achieved or impediments to implementation of the actions. Based on the information provided, the LMS Working Group determined those mitigation actions that have been completed, partially completed, or otherwise no longer meets the priorities of the community. Appendix C includes the results of the project status verification.

### **Mitigation Activity Project Submittal**

As part of the 2015 Update, all participating jurisdictions and partners submitted project applications for new projects or to have existing projects carried forward on the Polk County Mitigation Action Plan. The project submittal form is included in Appendix C.

The image shows a form titled "POLK COUNTY LOCAL MITIGATION STRATEGY WORKING GROUP HAZARD MITIGATION NEW PROJECT/PROGRAM WORKSHEET". The form includes instructions for completion and several sections for data entry:

- Applicant Information:** Includes fields for Date of Application, Name of Person Completing Form, Title, Employer, Address, Telephone, and Email.
- Project/Program Information:** Includes Project/Program Name (or name of facility), Entities Impacted by Project, and Facility type (Physical Address, Facility Owner, and What sector owns the facility: Municipal, County, State, Federal, Special District, Non-Profit, or Private).
- Project Description/Narrative:** A section for describing the proposed mitigation initiative, including existing hazards, frequency of occurrence, community vulnerability, and explanation of how the initiative mitigates the hazard.

At the bottom, it indicates "Page 1 of 2" and "Polk County LMS Hazard Mitigation New Project Worksheet Updated: 2011".

Figure 6.13: Project Submittal Form

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

- *Flood proofing:* Any combination of structural and non-structural additions, changes, or adjustments to structures, which 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.
- *Storm water management:* Program for controlling and directing storm water runoff to 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. from 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 in order to prevent similar damages to future structures built in the same location.

### Mitigation Initiatives

The comprehensive "Polk County Multi-jurisdictional LMS Mitigation Initiatives" is based on ideas from the LMS Working Group and from the vulnerability analysis completed for structures within Polk County (See the Risk Analysis Section). The list incorporates the initiatives of the County, jurisdictions, and School Board. The sponsor column identifies the sponsor of each initiative.

As part of the 2015 update of the LMS document, the entity that will ultimately be responsible for the implementation and/or management of each initiative has sponsored the initiative through the completion and submittal of a Hazard Mitigation New Project/Program Worksheet to assist with efficiency and precision of the ranking process. A copy of the Hazard Mitigation New Project/Program Worksheet is located in Appendix C. The sponsor for the project completed the cost estimates for these projects. A detailed explanation of the process used to determine the initiatives is located in the Mitigation Cost-Benefit Review and Prioritization of this LMS document.

The LMS Working Group did not rank projects from the 2014 project list that were either completed or not carried forward through the submittal of a Hazard Mitigation New Project/Program Worksheet. The Deferred, Completed, or Deleted Projects Table in Appendix C includes a list of these projects to illustrate the changes from the last project list update. Some projects were deleted because the need for the project became unnecessary, a private party assumed responsibility, or due to cost issues.

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### Evaluation and Prioritization of Mitigation Initiatives

In order to determine the most appropriate mitigation techniques for the communities in Polk County, the LMS Working Group thoroughly reviewed and considered the findings of the *Hazard Analysis and Risk Assessment* to determine the best activities for their respective communities. Other considerations included the effect of each mitigation action on overall risk to life and property, its ease of implementation, its degree of political and community support, its general cost-effectiveness, and funding availability (if necessary).

In evaluating the 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 that have been 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 only used for a rough determination of the cost effectiveness of the mitigation projects and are not used as a means to obtain services or grant funding. The benefits of each project were also considered. Benefits included the number of people positively impacted, including the benefit to special needs populations, the savings in structural or operating costs, benefits to the environment, and benefits to the long-term effectiveness of the project. In order to assess the importance of each project, the LMS Working Group considered several factors including the following:

- Importance for community safety
- Whether or not the project addressed vulnerability of critical facilities
- Amount of buildings the project would help to protect
- Amount of damages the project would help to prevent
- Cost Effectiveness

The LMS Working Group evaluates each of the proposed mitigation actions to assess level of impact using the Social, Technical, Administrative, Political, Legal, Economic, and Environmental (STAPLEE) cost-benefit review format. The STAPLEE format enables the Working Group to review each project against the criteria for ranking (See below). The measure receiving the highest score is ranked as high priority. In the event of ties, the mitigation measures perceived to have the greatest benefit/cost or impact the greatest number of people may be listed higher. The LMS Working Group reviews the mitigation initiatives and prioritization score draft results during regular Working Group meetings. However, the score may change in the future as priorities in Polk County change and as additional mitigation actions are added. This change is normal and healthy in the hazard mitigation process.

These mitigation actions include both those that are general in nature and those that are specific to high-vulnerability hazards. As such, depending on the availability of funding for various types of projects, applications for a project with a lesser score may be considered by the LMS Working Group. All projects submitted for funding will have to have an analysis completed that shows each project to be cost beneficial.

#### **Cost-Benefit Review – STAPLEE**

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 the proposed



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mitigation actions. Mitigation plans must prioritize projects with special 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 Polk County LMS uses the Social, Technical, Administrative, Political, Legal, Economic, and Environmental (STAPLEE) cost benefit review method in reviewing and prioritizing all the included 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. FEMA developed the STAPLEE method and criterion and the LMS Working Group amended the criterion and weighting to address issues specific to the County. These amended criteria require the LMS Working Group to assess each mitigation activity based on the STAPLEE constraints and opportunities for implementing the particular mitigation item in the community. As part of the LMS Update process, the LMS Working Group reviewed the STAPLEE system and recommended the addition of criterion. Figure 6.1 provides an illustration of the STAPLEE Action Evaluation table and Table 6-2 includes the criteria assessed with STAPLEE.

<b>STAPLEE ACTION EVALUATION TABLE</b>																											
STAPLEE Criteria Considerations																											
1= Favorable      0=Neutral      -1=Less Favorable																											
Multiply by number in parenthesis																											
Category	Entity	Project Description	S (Social)			T (Technical)			A (Administrative)			P (Political)			L (Legal)			E (Economic)		E (Environmental)							
			Community Acceptance	Effect of Segment of Population	Effect of Community (2)	Technically Feasible (3)	Long-term Solution	Expenses Required & Available (2)	Reasonable Timeframe	Secondary Impacts	Capability to Implement	Funding Allocated	Community Provide Mentions (2)	Politically Acceptable	Local Champion	Public Support	Authority to Implement (2)	Comply with Environmental Regulations (2)	Legal Side Effects/Parking	HOA Bylaw/Deed Restrictions	Potential Legal Challenge	Reasonable Cost (2)	Burden on Economy	Contributes to Economic Goals (2)	Additional Jobs (2)	Impact Proscopians/Welfare (2)	Natural Environment

Figure 6.14: STAPLEE Action Evaluation Table

### TABLE 6-2: CRITERION FOR STAPLEE ACTION EVALUATION TABLE

Category	Criterion*	Description
Social	Community Acceptance:	<i>Is the proposed action socially acceptable to the community?</i>
	Effect on Segment of Population:	<i>Are there equity issues involved that would mean that one segment of the community is treated unfairly?</i>
	Effect on Community (2):	<i>Will the action cause social disruption?</i>
Technical	Technically Feasible (3)	<i>Will the proposed action work?</i>
	Long-term Solution:	<i>Does it solve a problem or only a symptom?</i>
	Create more Problems:	<i>Will it create more problems than it solves?</i>
	Reasonable Timeframe:	<i>Can the project be completed in a timely fashion?</i>



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**TABLE 6-2:  
CRITERION FOR STAPLEE ACTION EVALUATION TABLE**

Category	Criterion*	Description
Administrative	Capability to Implement:	<i>Does the Community have sufficient funding, staff, and technical support available to implement the action?</i>
	Funding secured and allocated:	<i>Does the Community have funding secured and allocated for the project?</i>
	Community Provide Maintenance (3):	<i>Will the Community be able to provide long-term maintenance for the project?</i>
Political	Politically Acceptable:	<i>Is the action politically acceptable?</i>
	Local Champion:	<i>Is there a local champion for the project to lead the effort?</i>
	Public Support:	<i>Is there public support both to implement and to maintain the project?</i>
Legal	Authority to Implement (2):	<i>Is the community authorized to implement the proposed action?</i>
	Side Effects/Taking: Are there legal side effects?:	<i>Could the activity be construed as a taking?</i>
	Comply with Environmental Regulations (3):	<i>Does the activity comply with environmental regulations? Will the activity require environmental permits?</i>
	HOA Bylaws/Deed Restrictions:	<i>Does the project meet HOA Bylaws/Deed Restrictions?</i>
	Potential Legal Challenge:	<i>Will the activity be challenged?</i>
Economic	Reasonable Cost (2):	<i>Do the benefits exceed the costs?</i>
	Burden Economy:	<i>What burden will this action place on the tax base or local economy?</i>
	Contributes to Economic Goals (2):	<i>Does the action contribute to other community goals, such as capital improvements or economic development?</i>
	Additional Jobs (2):	<i>Does the action promote the addition of jobs in the Community or the County?</i>
Environmental	Impact Floodplain/Wetland (3):	<i>Will the action influence floodplains or wetlands?</i>
	Natural Environment:	<i>Will the action influence the natural environment?</i>
	Environmental Regulatory Approvals (2):	<i>Will the action need environmental regulatory approvals?</i>
	Utility and Transportation Systems:	<i>Will the action influence utility and transportation systems?</i>

\* Numbers in parenthesis represent the weighted points.

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Every subcategory was scored with a favorable (1), neutral (0), or less favorable (-1) ranking. Subcategories with numbers next to them indicate a weighted category, so its ranking was multiplied 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. The STAPLEE Action Evaluation Table is located in Appendix C.

### Polk County Mitigation Action Plan

#### Proposed Mitigation Actions

This section includes the listing of the mitigation actions proposed by Polk County and its participating jurisdictions and partners. It has been designed to achieve the mitigation goals and objectives and will be maintained on a regular basis according to the plan maintenance procedures established in Section VIII: Plan Maintenance and Evaluation.

As described in the previous section, the Mitigation Action Plan, or MAP, represents an unambiguous and functional plan for action. Each proposed mitigation action has been identified as an effective measure (policy or project) to reduce hazard vulnerability for Polk County.

The Mitigation Action Plan (Table 6-3) is a listing of all the ranked mitigation action items for Polk County and the LMS Plan partners. The action items are organized within the following matrix, which lists all of the multi-hazard and hazard specific action items included in the mitigation plan. The Mitigation Action Plan includes documentation of how each mitigation measure will be implemented, including the following information for each action item:

- Funding Sources,
- Timeframe, and
- Responsible Agencies.

#### *Funding Sources*

Potential funding sources have been identified for the mitigation actions. Many of the mitigation actions are eligible for funding from more than one source. In these cases, a list of potential funding sources was included on the matrix. Most federal funding sources, such as FEMA, will require a percentage (usually 25 percent of the total project costs) from a local source. Appendix F includes more detailed information about the potential funding sources.

#### *Time Frame*

Action items include both short and long-term activities. Each action item includes an estimate of the timeline for implementation. Short-term action items are activities which agencies are capable of implementing 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. Approximate timeframes for project implementation have been included in the Action Plan.

#### *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

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regional agencies, or partners in the LMS that are capable of or responsible for implementing activities and programs.

### Multi-jurisdictional Mitigation Action Plan

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 and Future Activities
- Polk County Multi-jurisdictional LMS Mitigation Initiatives

### *Current and Future Activities*

Some of the hazards identified and analyzed through Sections IV and V

#### Climate Change

Many of the Comprehensive Plans of the jurisdictions of Polk County include strategies and requirements for energy efficient land use patterns and for greenhouse gas reduction strategies. The Local Mitigation Strategy recognizes that with a changing climate, there is the potential for an increasing risk of environmental impacts and that future mitigation and adaptation strategies should be considered. As further study is made to the impacts climate change will have on Polk County, the LMS Working Group will review them and update the LMS Plan as necessary.

#### Extreme Temperatures

Polk County and the partner jurisdictions work to educate the public about the dangers of extreme temperatures and what they can do to mitigate the impacts. The American Red Cross opens cold weather shelters throughout the County and private groups in Lakeland provide shelter, including, the Salvation Army, Lighthouse Ministries, and Talbot House.

#### Dam/Levee Failure

The National Dam Inventory has not released information specific to dams in Polk County to the LMS Working Group for their review and analysis. When this information is released, the LMS Working Group will update the LMS Plan to reflect the updated maps and impacts.

#### Epidemics

The Polk County Property Appraiser's Office, working in conjunction with the Florida Department of Agriculture and Consumer Services to enforce the Citrus Health Response Program (CHRP). The purpose of the program is to manage the impact of citrus canker and citrus greening in commercial citrus groves. To accomplish that purpose, this program declares citrus canker, citrus greening, and the Asian citrus psyllid to be plant pest and nuisances. The program also sets forth procedures for establishing quarantine areas, identifying regulated articles, decontaminating regulated articles, and regulating the movement of citrus nursery stock from areas quarantined for citrus greening. (Rule: 5B-63.001 F.A.C.)

#### Flood

Local land development codes address stormwater runoff rates by prohibiting post-development discharge rates from exceeding predevelopment conditions for storms with recurrence frequencies up to a 25-year event. The Southwest Florida Water Management District (SWFWMD) is scheduled to release preliminary Flood Insurance Rate Maps (FIRMs) in the spring. Upon completion of the FIRMs and adoption by all the local governments, the LMS Working Group will update the LMS Plan to reflect the updated maps and impacts.

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### Fog

Mitigation for fog incidents occurs through warning systems including tv, radio, websites, Facebook posts, and signs and lights on roads warning of high fog potential areas.

### Hazardous Materials Incidents

Polk County and its jurisdictions participate in the District 7 Local Emergency Planning Committee (LEPC) whose responsibilities include collecting information about hazardous materials in the community and making this information available to the public upon request. The LEPC is also tasked with developing an emergency plan to prepare for and respond to chemical emergencies in the community. Ways the public will be notified and actions the public must take in the event of a release are part of the plan.

### Hurricanes and Tropical Storms

Polk County, its jurisdictions, partners, and private businesses provide educational information to the public regarding hurricane impacts and preparedness. The annual Hurricane Expo is one form of educational component. The American Red Cross opens hurricane shelters as needed. Land Development Codes and building codes require construction of buildings to withstand hurricane force winds.

According to FEMA, as part of a major effort to modernize HAZUS, new functional enhancements will be implemented in the flood module and the underlying code of HAZUS will be re-architected to align with current practices. Upon final update of the HAZUS model, the LMS Working Group will update the LMS Plan to reflect the updated impacts, as necessary.

### Sinkholes

The Florida Department of Environmental Protection is in the process of developing a state-wide map that is color-coded by category of sinkhole vulnerability at a scale of around 1 kilometer. The project is projected to be completed by 2016. Upon issuance of this updated sinkhole vulnerability, the MS Working Group will update the LMS Plan to reflect the updated maps and impacts.

### ***Polk County Multi-jurisdictional LMS Mitigation Initiatives***

The current mitigation activities proposed for the Polk County Multi-jurisdictional LMS Plan are included in Table 6-3 in Appendix C.