**Natural Resource and Emergency Planning Policies Document**

**Charlotte County**

COMPREHENSIVE PLAN

ENV GOAL 2: PROTECT NATURAL RESOURCES Protect, conserve, enhance and manage native habitats and natural communities to ensure viable use continues for present and future generations of terrestrial and aquatic floral and faunal species and the enjoyment of the public. ENV Objective 2.1: Marine Protections To protect marine and estuarine habitats to ensure long-term viability and productivity of finfish, shellfish, other aquatic communities, seagrass and oyster bed resources. ENV Policy 2.1.1: Marine and Estuarine Protection The County shall implement protections to marine and estuarine resources as identified in the objectives and policies of the Coastal Planning element. ENV Objective 2.2: Regional Conservation Strategy To protect plant and animal diversity and distribution by protecting listed and imperiled plant and wildlife habitats, providing for habitat corridors, and preventing habitat degradation, isolation or fragmentation through a regional conservation strategy. ENV Policy 2.2.1: Protect State and Federal Lands

The County shall support the US Fish and Wildlife Service (USFWS), the SWFWMD, the SFWMD, the DOF, the FDEP, and the Florida Fish and Wildlife Conservation Commission (FFWCC) in protecting the environmental and recreational integrity of their wildlife management areas, parks, preserves, and reserves. Charlotte County shall accomplish this through review of development applications that may affect these areas, and the enforcement and implementation of development regulations to protect environmentally sensitive habitats, including but not limited to, upland, wetland and marine communities.

LOCAL MITIGATION STRATEGY (pp.???)

* **Goal 2**: in order to enhance hazard mitigation planning and subsequent mitigation actions, the Charlotte county Office of Emergency Management will take a proactive lead to ensure intra-governmental coordination within its own agencies and intergovernmental coordination between other agencies.
* *Objective 2.2:* Pre-establish and update a network of state and local contacts to coordinate Charlotte County needs.
* *Objective 2.3:* Implement *Natural Resource Emergency Response Plan*, directing natural resource staff to carry out the activities outlined therein.

**DeSoto County**

**COMPREHENSIVE PLAN (pp. ?, add link to document)**

**LOCAL MITIGATION STRATEGY (Page 69 of LMS Document, Add link to document)**

* **Goal 2:** In order to enhance hazard mitigation planning and subsequent mitigation

actions, the DeSoto County Emergency Management will take a proactive

lead to ensure intergovernmental coordination (before, during and after a

disaster) among municipal, county and public service groups.

* *Objective 2.1*: Implement a series of regularly scheduled on-going interagency disaster training programs and exercises.
* *Objective 2.2*: Computerize information systems between county departments and within the county emergency operations center to speed response, recovery and mitigation decisions.
* *Objective 2.3*: Increase the availability of computerized information to all county departments to speed response, recovery and mitigation decisions.
* *Objective 2.4*: Establish and protect the essential flow of information before, during and after a natural or manmade disaster
* *Objective 2.5*: Promote the coordination of appropriate regional and local plans and studies (i.e., Comprehensive Plans, Local Mitigation Plans and Redevelopment Plans).
* *Objective 2.6*: Establish and protect the essential flow of information before, during, and after a natural or manmade disaster.
* *Objective 2.7*: Encourage greater cooperation between, among and within all levels of Florida government through the use of appropriate inter local agreements and mutual participation for mutual benefit.
* *Objective 2.8*: Ensure that the State Hazard Mitigation Plan incorporates appropriate hazard mitigation measures as reflected in each state agency's functional plan.
* *Objective 2.9*: Ensure the development of comprehensive regional policy plans and local plans that implement and accurately reflect state goals and objectives reflected in Florida's Section 409 Hazard Mitigation Plan that addresses hazard-related problems, issues and conditions that are of particular concern in each region.

**Hardee County**

**COMPREHENSIVE PLAN (pp. ?, add link to document)**

**LOCAL MITIGATION STRATEGY (Page 68 of LMS Document, Add link to document)**

* **Goal 6** – Protection of **unique natural habitats and ecological systems** that naturally mitigate hazards.
* *Objective 6.1* – Conserve forests, wetlands, and other natural features to maintain the economic, aesthetic, and recreational values.
* *Objective 6.2* - Acquire, retain, manage, and inventory public lands to provide conservation and related public benefits including hazard mitigation.
* *Objective 6.3* - Promote the use of agricultural practices that are compatible with the protection of natural systems.
* *Objective 6.4* - Encourage multiple use of forest resources, where appropriate, to provide for watershed protection and erosion and maintenance of water quality.
* *Objective 6.5* - Protect and restore the ecological functions of wetland systems to ensure their long-term environmental, economic, and recreational values, including hazard mitigation practices.
* *Objective 6.6* - Develop and implement a comprehensive planning, management, and acquisition program to ensure the integrity of Hardee County’s waterways.
* *Objective 6.7* - Emphasize the acquisition and maintenance of ecologically intact systems in all land and water planning, management, and regulation.

**Hendry County**

**COMPREHENSIVE PLAN (pp. ?, add link to document)**

**LOCAL MITIGATION STRATEGY (Page 299 of LMS Document, Add link to document)**

**Goal 4:** Protect the local cultural, economic and **natural resources**

*Objective 4.1:* Support mitigation initiatives and policies that protect the local cultural, economic and natural resources.

*Objective 4.2:* Support the enhancement of natural resources wherein vulnerability to risk is reduced.

*Objective 4.3:* Seek mitigation opportunities wherein losses will be reduced and opportunity exists for responsible economic growth.

**Goal 6:** Foster interagency relationships for hazard mitigation across the county

*Objective 6.1:* Work to better integrate mitigation policies, programs and practices between local government agencies, public and private organizations for a comprehensive County wide approach to mitigation.

*Objective 6.2:* Coordinate effective partnerships between local government agencies for exemplary floodplain management of local government owned lands and facilities.

**Goal 7:** Create a disaster resistant community where feasibly possible.

*Objective 7.2:* Hendry County shall improve its ability to manage both small and large-scale disaster response and recovery events.

*Policy 7.2.1:* Hendry County shall require the **protection of natural resources** (such as environmentally sensitive lands) in order to maximize their mitigated benefits and to safeguard them from damage caused by natural disasters.

*Policy 7.2.6:* Hendry County shall examine and, where feasible, implement methods to address the County’s shortage of trained personnel for essential post-disaster functions. Methods to be examined can include, but may not be limited to, training volunteers, drawing personnel from non-impacted counties, and creating partnerships with private sector entities for temporary use of their personnel.

**Page 362 Hendry County Comprehensive Emergency Management Plan (CEMP)**

***Preparedness:***

1. Preparedness activities are in place to protect and reduce harmful effects to life and property by increasing emergency response capabilities, maximizing resource utilization, avoiding unnecessary and costly duplication of effort. Planning will take place under “blue skies” conditions when time exists to adequately consider all possible issues and appropriate response.

2. Preparedness will be conducted in a cooperative effort with all aspects of the local community involved, including local government, commercial interests, agriculture, special needs interests, and voluntary organizations.

3. Preparedness must involve a cooperative coordination with state and federal agencies which may play a role in responding to disasters in Hendry County, or request Hendry County to furnish mutual aid to other communities.

4. Preparedness will result in the development of: standard operating procedures, letters of agreement, memoranda of understanding, mutual aid agreements, check lists, and pre-established vendor agreements and contracts.

***Coordination with the State of Florida.***

Coordination with the State of Florida will take place through the Hendry County EOC. At Level III or Level IV, a request will be made to furnish a State Emergency Response Team (SERT) liaison to the Hendry County EOC, preferably a person familiar with Hendry County such as the FDEM Regional Coordinator. The Hendry County Emergency Management Director, or shift supervisor within the Hendry County EOC, is the primary point of contact for coordination with the SERT liaison.

***Coordination with the Federal Government.***

Coordination with the federal government will take place through the SERT liaison. Direct coordination between the federal government and Hendry County will take place with the approval of all three levels of government (Hendry County, State and Federal). Should direct contact be authorized, Hendry County may:

• Request a Federal liaison in the Hendry County EOC

• Assign a Hendry County liaison to Federal activities, such as a Joint Information Center or Disaster Recovery Center.

Due to the limited staff resource capabilities in Hendry County, it is recommended for the Federal authorities to furnish liaisons to Hendry County.

***Damage Assessment Functions.***

a. State and federal damage assessment efforts will require local assistance to be effective. Hendry County will be prepared to:

1. Provide logistical support in locating:

• Office and warehousing facilities;

• Office equipment, furniture and supplies;

• Accommodations for personnel; and

• Feeding locations, until commercial service can be contracted.

**P. 371**

Hendry County policies permit the hiring of temporary staff. Temporary personnel may be hired from the community at large, through inter-local mutual aid agreements, or through procurement of the services of a private contract vendor which furnishes temporary employees.

**P.372**

4. As a last resort, the State Mutual Aid Agreement may be implemented. Inspectors from larger, non-impacted counties may be loaned temporarily to Hendry County.

Pre-incident, the Hendry County Board of County Commissioners will appoint a Mitigation Task Force. The Mitigation Task Force will represent a cross section of the community. It will direct its activities to public awareness and education, seeking out mitigation activities to improve the community and to bridging the gap between the government and the private/resident sector.

**Polk County**

**COMPREHENSIVE PLAN (pp. ?, add link to document)**

**LOCAL MITIGATION STRATEGY (Page ? of LMS Document, Add link to document)**

**P.VII-3**

*Implementation Strategies*

1a Continue to engage additional local community stakeholders to participate in the LMS working group meetings.

**Goal 2:** MAINTAIN A HIGH STATE OF PREPAREDNESS/COORDINATION TO MITIGATE AND RESPOND TO DISASTERS GOAL 2: THROUGH PLANNING, EDUCATION, AND COORDINATION.

*Objective 2.1*: Optimize the effective use of all available resources by establishing public/private partnerships and encouraging intergovernmental coordination and cooperation.

*Objective 2.2*: Prevent and/or minimize losses from disaster events through education and regulation.

**p.VII-4**

*Objective 2.3:* Continue dissemination of flood information to the public, non-profit, and private sector.

*Objective 2.5*: Promote awareness and preparedness through the distribution of information on hazards and measures to mitigate them.

*Objective 2.6*: 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 2.7*: Educate the private sector about mitigation concepts and opportunities.

*Objective 2.9*: Work with government, nonprofit, and private sector entities to identify and implement opportunities for the incorporation of mitigation concepts and information into outreach efforts.

*Objective 2.10*: Inform and educate the public, nonprofit, and private sector about potential hazards and property protection measures.

*Objective 2.11*: Inform and educate the public, nonprofit, and private sector about the first response to disasters to promote better disaster preparation.

*Objective 2.12*: Strengthen continuity planning for local government, businesses, and community partners to avoid significant disruptions of services.

*Implementation Strategies*

2b: Educate departments and agencies to ensure continuity of operations and a full integration

of mitigation management functions.

**P.VII-15**

**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.

P. V-52

**Protecting Our Natural Floodplains**

Poor planning and development in floodplains can result in degradation of water quality, loss of habitats, loss of valuable property, erosion, and increase in severity and frequency of flood losses. Polk County and the municipalities’ comprehensive plans provides strategies to address the protection of natural floodplains. Water Quality Management Plans identify locations and projects on public lands that enhance natural systems, including natural floodplains. These enhancements provide a diversity of benefits, such as increasing wildlife habitat quality, attenuating stormwater flows, enhancing downstream water quality, and reducing erosion and sediment loading. The County and municipalities implement these measures through a variety of ways, including development of water quality management plans, policies intended to protect environmentally sensitive lands, as well as regulations aimed at protecting wetlands.

**Polk County CEMP**

Basic Plan p.11

**Water/Wastewater**

Potable water supplies in Polk County face a variety of hazards during a flood event. The first is possible contamination of the public utility and private wells that furnish potable water. Another hazard is loss of plant capacity resulting from floodwaters and the ability to properly dispose of sewage. This manifests through submerged sanitary sewers, septic systems, and wastewater treatment facilities. Periods of high saturation, like flood events, may reduce system efficiency. Septic systems submerged by floodwaters may pose health risks through the introduction of pathogenic organisms into the environment. The higher saturation associated with such events may result in septic drain field failures. Freeze events may lead to a drawdown of water as the agricultural industry uses water from wells to protect crops. If users draw enough water out of the aquifer, the water table may fall to a level where residents served by private wells no longer have access to water and well pumps may fail.

Basic Plan p.18

• The primary means of emergency notification for Emergency Management Division staff

members are:

o Cellular telephone system

o 800 MHz radio system

o E-mail

o Commercial telephone system/Fax system

• EOC staff/ ESF agencies will receive emergency notification through the most expedient

combination of the available notification systems. Under most circumstances, this will involve

initial notification through the telephone system, either cell phone or land line and e-mail, with

follow-up through the 800 MHz radio system.

Recovery planning and operations Page 8

**Debris Management and Removal**

• Roads and Drainage Division, in coordination with the Executive Policy Group, the

municipalities, and the Florida Department of Transportation, will set priorities for **post**

**disaster debris collection** and removal based on the needs determined by search and rescue

operations, restoration of major transportation routes, movement of traffic, and movement of

critical recovery supplies.

• Debris management training and implementation will be coordinated by Roads and Drainage,

as provided in Appendix 3: Public Works and Engineering (ESF 3). In accordance with existing

environmental regulations, existing landfills will be used as primary disposal sites. The establishment of burn sites and holding areas must be coordinated with the Florid Department of Environmental Protection (DEP).

• ESF 7 - Resource Support, maintains contingency contracts with commercial firms which

provide debris removal services. Maximum use of contract support will be employed.

• All Divisions involved in debris collection and removal and management are responsible for

maintaining appropriate records related to the cost of such operations and coordinating with

the Applicant’s Agent for submission of applications for available Federal Disaster Relief funds.

• All interagency issues will be resolved by the Executive Policy Group.

Recovery Planning and operations P. 10

**Restoration of Water and Wastewater Systems**

• The Utilities Division will coordinate initial recovery efforts for water and wastewater systems,

and will focus on **determining contamination to potable water supplies**. The Florida

Department of Health - Polk County (FDOH-Polk) will assist in determining any contamination

threat to public health.

• The Utilities Division will coordinate with all public utility water providers to assess damages

to facilities and recovery actions. Any assistance necessary from the Florida Department of

Environmental Protection (DEP) will be requested through the EOC to the State EOC (SEOC).

When State and local resources are inadequate to fully restore safe water supplies and/or

correct wastewater systems problems, assistance will be requested from FDEM.

• Each public utility will take action to restore damaged water and wastewater systems as soon

as possible after the storm. If there is a major disruption of water supply, ESF 11 - Food and

Water, will coordinate alternate sources of water (e.g., commercial tankers, bottled water,

National Guard resources, etc.).

Recovery Planning and Operations p.16

**Volunteer Resources**

**General**

Following a major disaster there will be many offers of volunteer assistance from individuals,

organizations and businesses. The County must be prepared to process volunteer offers, assess areas of

need and assign resources to the most critical areas of need. A Volunteer Coordinator will be assigned to

serve as the central coordinating point to process offers of volunteer assistance.

**Responsibility**

ESF 15 - Volunteers and Donations, will coordinate the management of disaster recovery volunteer

services. A Volunteer Reception Center (VRC) will be established at an appropriate location to receive,

screen and categorize volunteer services received directly or from sources outside the County.

Esf-2 Appendix Page 3.

• In preparation for a hurricane, some communications equipment and personnel may be

relocated or pre-positioned to facilitate response and recovery operations. The Emergency

Management Director, EOC Director, and other staff agencies will establish priorities and

relocation schedules based on an analysis of vulnerabilities and projected requirements.

ESF-3 Appendix P.2

The Roads and Drainage Division will:

o Develop and maintain the County’s Debris Management Plan for debris disposal to

include provisions for temporary holding areas and burn sites.

o Clear and repair damaged emergency access routes for movement of rescue equipment,

personnel, and relief supplies. Such routes include streets, roads, bridges, and other

critical transportation facilities.

o Coordinate road and bridge closures as necessary for public safety, and maintain current

status on roads and bridges. The Roads and Drainage Division will make emergency

repairs to traffic control devices and systems and will report damages to the Damage

Assessment Coordinator in the EOC within 24 hours following an emergency or disaster

event.

o Assess the effects of flooding on the drainage system and infrastructure within the

County; clear and make emergency repairs to ensure that the drainage system and

infrastructure are functioning.

**Utilities Division** - Provides technical assistance and maintain plans for the repair and

restoration of the County water plants, wastewater treatment facilities, pumping stations, and

collection and distribution pipeline systems. The Division will coordinate restoration of critical

public services and facilities, with a priority on potable water supply systems and water supplies

for firefighting. The Division will be prepared to conduct preliminary damage assessment on its

facilities and provide initial reports to the Damage Assessment Coordinator in the EOC within 24

to 36 hours.

ESF-3 Appendix P.5

When County and/or municipal water supply systems are disrupted, contingency sources of

water for drinking and firefighting will be identified as soon as possible. ESF 4 - Firefighting, will

be notified immediately when disruptions to the water distribution system become known.

Alternative sources will be identified at the closest practical location to the affected area. In

general, the following potential sources will be considered.

o County and municipal water systems that remain operational.

o County and municipal water systems that can temporarily supply water to affected

system.

o County and municipal sources that can be quickly modified to accept available couplings

and fittings.

o Natural bodies of water that can be used to supply fire service tanker units.

o Commercial sources of drinking water.

o When operational, County Staging Areas (CSAs) for donated supplies of potable water.

o Division of Forestry water distribution equipment can be obtained for both potable

water and firefighting.

o Resources of the Florida National Guard.

• Coordinate mobilization of personnel and resources and assignment of tasks to Mutual Aid

resources as they arrive in Polk County for support of ESF 3 operations.

• Maintain continuous status on the arrival, assignment, utilization, and demobilization of Mutual

Aid resources supporting ESF 3 activities.

ESF-7 Appendix P. 3

**Concept of Operations**

**Pre-Event Actions**

• When notified of EOC activation, ESF 7 will provide a representative to attend the activation

briefing and initiate shift operations. Other ESF 7 representatives will be placed on standby to

ensure a capability for continuous operations and augmentation of the ESF 7 staff in the EOC.

The Procurement Director will determine the ESF 7 staffing for initial operations and, in

coordination with the EOC, assess staff augmentation that may be required based on

anticipated response operations.

• Preliminary coordination will be made with Parks and Natural Resources Division and Roads and Drainage Division to review debris removal and monitoring contracts, sand bag acquisition, and distribution needs.

• At the EOC activation briefing, all ESF primary and support agencies will be requested to verify

resource lists and standing contracts for resources that may be needed to support response and

recovery operations.

• ESF 7 will review projected resource requirements to determine if supplies and equipment

available from County resources are sufficient to meet anticipated post-event demands. Where

shortfalls are anticipated, coordination for procurement from commercial sources may be

initiated.

ESF-7 Appendix P. 4

**Recovery Phase**

• ESF 7 will support recovery operations by augmenting its staff with sufficient operations and

administrative personnel to accommodate the increased level of activity anticipated during the

Recovery Phase.

ESF-8 Appendix P.4

**Protection and Restoration of Potable Water Supplies**

Protection and restoration of water treatment facilities is the responsibility of the County, municipal, and private operators. Operation of water treatment facilities is governed by applicable Federal, State and local regulations and procedures. Restoration of these facilities following a disaster will be in accordance with the disaster plans for each facility and the government or private entity operating the facility.

• Polk County Utilities maintains the list of public and private entities operating water treatment

facilities in Polk County and the emergency points of contact.

• FDOH-Polk will use an **independent contractor to conduct testing on both public and private**

**wells** to determine water purity. Information pertaining to status of water treatment facilities

will be collected by ESF 3 - Public Works and Engineering, and coordinated with ESF 8 for

assessment of potential public health hazards.

**Protection and Restoration of Sanitation Systems**

• The protection and restoration of wastewater and associated sanitation systems is the

responsibility of County, municipal, and private operators of such facilities. Operation of

wastewater treatment facilities is governed by applicable Federal, State and local regulations

and procedures. Restoration of these facilities following a disaster will be in accordance with the

disaster plans for each facility and the government or private entities operating the facilities.

• Information pertaining to status of wastewater treatment systems will be collected by ESF 3 -

Public Works and Engineering, and coordinated with ESF 8 for assessment of potential public

health hazards.

Appendix 10- Environmental Protection P.1-4

**Purpose**

This function is responsible for responding to incidents involving spills or releases of hazardous materials that pose a threat to the general public, emergency response personnel or the environment.

**Scope**

This Appendix applies to natural or manmade disasters or emergencies requiring the commitment of emergency response resources.

The term “hazardous materials” as applied within the context of this Appendix refers to all categories of chemicals and substances which may pose a threat to public health and safety if improperly used, handled or released.

**General Policies**

General responsibilities assigned to ESF 10 – Environmental Protection include:

• Protect the lives and safety of Polk County residents through rapid and appropriate response to hazardous materials incidents.

• Maintain an incident management system to manage all emergency incidents involving

hazardous materials. The system structure will be in accordance with National Fire Protection

Association (NFPA) Standard 1561 and consistent with the guidelines established by the National

Incident Management System (IMS).

• Maintain written plans and procedures for addressing the requirements of hazardous materials incidents. Plans and procedures will be developed and maintained in accordance with the guidelines established in NFPA Standard 471 (Recommended Practice for Responding to

Hazardous Materials Incidents) and NFPA Standard 472 (Standards for Professional Competence

of Responders to Hazardous Materials Incidents).

• In coordination with Emergency Management, maintain planning information on all facilities in

Polk County, that use, store, manufacture or transport Extremely Hazardous Substances (EHS).

Such information will be maintained using the Computer Aided Management of Emergency

Operations (FM) (CAMEOFM) software and will be available for immediate use by the Incident

Commander.

• Maintain all equipment at the highest possible level of readiness through a continuing program of preventive maintenance, timely repairs, and training.

• Provide support in accordance with the provisions of existing mutual aid agreements.

ESF 10 Appendix - Page 2 Polk County 2022 Comprehensive Emergency Management Plan (CEMP) January 11, 2022

**APPENDIX 10: ENVIRONMENTAL PROTECTION (ESF 10)**

• Coordinate activities of all supporting local and State agencies and facility representatives

participating in hazardous materials response operations.

**Responsibilities**

**Primary Agency**

• **The Fire Rescue Division** is the lead agency for ESF 10 and has primary responsibility for conduct or coordination of hazardous materials response operations in Polk County.

o Participate in regional planning activities as a member of the Local Emergency Planning

Committee (LEPC), District 7.

o Provide periodic updates and summaries of the database to Emergency Management as

needed in support of planning and reporting requirements.

o Provide the Mobile Command Vehicle (MCV) and other associated equipment, when

requested by the Incident Commander, in support of hazardous materials response

operations.

**Supporting Agencies**

• **Florida Department of Health-Polk County (FDOH-Polk)** will provide support in response to

incidents involving bio-hazardous materials. Support provided will normally consist of assistance

in identification of bio-hazardous materials and coordination of clean-up operations with the

Polk/Hardee Biomedical Waste Coordinator.

• **Waste and Recycling Division** performs Small Quantity Generator inspections that do not fall

under Sara Title III inspections.

• **Emergency Management Division** is responsible for maintaining the Hazardous Materials

Emergency Database and monitoring compliance with the provisions of Title III, Superfund

Amendment and Reauthorization Act (SARA) of 1986. The Division will accomplish the following

in support of ESF 10:

o Maintain the Hazardous Materials Emergency Database using the CAMEOFM software.

o Update the database periodically, in accordance with guidance provided by the Florida

Division of Emergency Management (FDEM).

**Situation**

Disaster conditions are defined as any significant natural disaster, emergency condition, or other

incident of such magnitude and severity as to require a coordinated commitment of local resources.

Such events can require assistance from agencies outside the County to augment local lifesaving and other response and recovery efforts.

The requirement to respond to a hazardous materials incident can be generated by fires or other emergencies at fixed facilities or transportation related accidents. Response agencies are subject to dispatch to any point in the County.

ESF 10 Appendix - Page 3

Polk County 2022 Comprehensive Emergency Management Plan (CEMP) January 11, 2022

**APPENDIX 10: ENVIRONMENTAL PROTECTION (ESF 10)**

**Planning Assumptions**

• The most likely event that will produce a major or catastrophic disaster is a hurricane of

Category 3 strength or higher which impacts the Central Florida area.

• A major or catastrophic disaster will require the activation of the EOC.

• Activation of the EOC will require continuous staffing of most ESFs for a minimum of seven days.

• The EOC may activate in support of emergencies for which other departments or agencies are

assigned Incident Management responsibility. Such events include, but are not limited to:

o Wildfire

o Civil disturbance

o Public health emergencies

o Domestic Security/Terrorist events

o Major hazardous materials releases

• All facilities having EHS on site are identified through reports required under the provisions of

SARA Title III. Information pertaining to chemical inventories, quantities and storage locations is

sufficiently accurate for advance planning. However, all such information must be confirmed

with facility representatives in the event of an emergency.

• Most major industrial facilities have containment systems and emergency response crews that

are adequately trained to handle common emergencies.

• The proximity of pipelines to rail-beds in Polk County presents a high probability of fire

associated with railroad accidents.

• The Polk County Hazardous Materials Emergency Response Team is adequately trained and

equipped to handle most hazardous materials incidents anticipated in Polk County.

**Concept of Operations**

The Fire Rescue Division maintains a Hazardous Materials Emergency Response Team that is trained and

equipped to respond to most types of hazardous materials incidents. The team is activated and

deployed on the request of the Incident Commander.

Municipal fire departments will request support from the Hazardous Materials Emergency Response

Team through the Emergency Communications Center.

All operations of the Fire Rescue Division, to include Hazardous Materials incident response, are

conducted in accordance with NFPA standards that are incorporated in the Polk County Fire Department

SOP. The Incident Command System (ICS) provides structure and coordination to the management of

emergency events. The system is designed to meet the requirements pertaining to each incident based

on the size, complexity, and operating environment. The organization of command and control, logistics,

and operational procedures will be governed by the ICS and applicable NFPA standards for hazardous

materials response operations and will be consistent with NIMS guidelines.

General guidelines for first responders are contained in the U.S. Department of Transportation

Emergency Response Guidebook. The Emergency Response Guidebook has been distributed to each

emergency response unit and will be used in conjunction with appropriate agency SOPs.

Containment and clean-up of spills will be accomplished in accordance with the Polk County Fire

Services Division SOP. Procedures for decontamination of personnel and equipment are the responsibility of the Hazardous Materials on scene Incident Commander.

ESF-15 appendix P. 1-4

**Purpose**

This function is responsible for coordination and management of volunteers and donated relief supplies received after a disaster or emergency in Polk County.

**Scope**

This Appendix applies to natural or manmade disasters or emergencies requiring commitment of

emergency response resources.

Coordination and management activities of ESF 15 include tracking, consolidation, and distribution of donated relief supplies and goods made available to Polk County. ESF 15 also will serve as the central coordination agency for registration, classification, and assignment of volunteers. These activities will be conducted in close coordination with existing volunteer and disaster relief agencies serving Polk County.

**General Policies**

General responsibilities assigned to ESF 15 – Volunteers and Donations include:

• Establish and operate a Volunteer Reception Center (VRC) that will maintain information on

individuals and groups volunteering for disaster relief and recovery work in Polk County. This

function will be closely coordinated with ESF 6 - Mass Care.

• Coordinate with ESF 14 - Public Information for development of media releases and other public information activities pertaining to distribution points and instructions for volunteers.

• Coordinate with all support agencies on dissemination of information and instructions

pertaining to reception of relief supplies, donated goods, and volunteers. Polk County will not

accept unsolicited or monetary donations.

• Maintain an inventory of laptops and cell phones that can be used during recovery operations.

• Develop and maintain inventories of donated relief supplies and goods identified as available

through local disaster relief agencies.

ESF 15 Appendix - Page 2

Polk County 2022 Comprehensive Emergency Management Plan (CEMP) January 11, 2022

**APPENDIX 15: VOLUNTEERS AND DONATIONS (ESF 15)**

**Responsibilities**

**Primary Agency**

• **Volunteer Polk** is the lead agency for ESF 15 and has primary responsibility for coordination and management of donated relief supplies, goods, and volunteers for disaster and emergency relief and recovery.

• ESF 15 may coordinate volunteer staffing to support points of distribution (PODs).

**Supporting Agencies**

• **American Red Cross** will coordinate emergency assistance for individual families, donated

goods, and volunteers.

• **United Way of Central Florida** will coordinate with ESF 15 when the EOC is activated. This

contact will assist in ensuring that the 211 Information and Referral Service has the most current

information available on disaster relief and recovery activities, relief supplies, donated goods,

and volunteers. United Way of Central Florida is the designated agency to whom the public shall

be directed for all monetary donations (including gift cards) contributed for disaster relief.

• **Community Emergency Response Team (CERT)** will work in support with ESF 15 by referring

available CERT members to serve where needed.

**Situation**

Disaster conditions are defined as any significant natural disaster, emergency condition, or other

incident of such a magnitude and severity as to require a coordinated commitment of local resources.

Such events can require assistance from agencies outside the County to augment local lifesaving and other response and recovery efforts.

**Planning Assumptions**

• The most likely event that will produce a major or catastrophic disaster is a hurricane of

Category 3 strength or higher which impacts the Central Florida area.

• A major or catastrophic disaster will require the activation of the EOC.

• Activation of the EOC will require continuous staffing of most ESFs for a minimum of seven days.

• The EOC may activate in support of emergencies for which other departments or agencies are

assigned Incident Management responsibility. Such events include, but are not limited to:

o Wildfire

o Civil disturbance

o Public health emergencies

o Domestic Security/Terrorist events

o Major hazardous materials releases

• Significant mutual aid support and disaster relief resources are not expected to be available for ESF 15 Appendix - Page 3

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**PENDIX 15: VOLUNTEERS AND DONATIONS (ESF 15)**

at least 72 hours after the storm.

• A significant portion of the equipment and personnel normally available from local sources will

be unavailable because of the storm.

**Concept of Operations**

**Pre-Event Actions**

• When notified of an EOC activation, Volunteer Polk, as the lead agency for ESF 15, will provide a representative to attend the activation briefing and will initiate shift operations, as required.

• Volunteer Polk staff will receive appropriate training on the role of volunteer organizations

during disasters.

**Response Phase**

• When EOC operations have been initiated, ESF 15 will provide personnel to the EOC.

**Recovery Phase**

• Upon a determination that a major or catastrophic disaster or emergency has occurred, ESF 15

will initiate VRC operations. A telephone number will be designated for the VRC and announced

through ESF 14 - Public Information.

• The preferred method of managing non-affiliated volunteers will be virtual, utilizing Volunteer

Polk’s online management software. If necessary, a VRC site location will be selected based on

need and availability of locations.

o In coordination with ESF 6 - Mass Care and ESF 14 - Public Information, ESF 15 will

develop public information announcements that will provide instructions for private

individuals and groups desiring to donate items, services, and/or money.

o Individuals and groups seeking to make monetary donations will be referred to United

Way of Central Florida.

o Individuals or groups offering volunteer services will be directed to the Polk County

website.

• In coordination with ESF 6 - Mass Care, the ESF 15 Volunteer Coordinator will maintain

information on availability of volunteers, organized by general skill/trade categories. The

Volunteer Coordinator will receive requests from ESFs, municipalities, and other disaster relief

agencies for volunteer resources. Such requests will be filled from available volunteer lists or

coordinated with ESF 6.

• When private sector support is required to fill resource shortfalls, ESF 15 will, in coordination

with ESF 14 - Public Information, develop appropriate public information releases soliciting the

items or services needed and providing instructions on donating such resources. When contract

support is required, such action will be initiated by ESF 7 - Resource Support or Procurement.

• County staging areas (CSAs) will be used as staging and transshipment points only. Relief

supplies will not be distributed to the general public at these facilities. Supplies will be

distributed to the general public at local distribution points that have been designated by

ESF 15 Appendix - Page 4

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County or municipal officials.

• Volunteer Polk will serve as the central coordination point for both unaffiliated volunteers and

organized volunteer groups arriving in Polk County. Volunteers will be encouraged, through all

available public information means, to advise Volunteer Polk of their presence.

**Lee County CEMP**

Section 3- Post Disaster Redevelopment Plan P.2

**OBJECTIVE 2.1**: Electrical Power, Communication, Water, and Waste Water Service Restoration 12

• To establish the following community service and facility restoration priorities. 13

**POLICY 2.1.1:** The following priorities shall govern customer power and communication service 14 restoration once damaged electrical transmission systems, substations, and distribution systems 15 are restored.

Priority # 2

Water Treatment and Pumping Facilities, Special Care Centers, Nursing Home Facilities having no 23 emergency power, LE and Fire Stations having no emergency power, the Southwest Florida 24 International Airport, Page Field, Staging Areas and Distribution Centers requiring emergency 25 power, and County/State Detention Centers (The Jail, Stockade). 26

Priority # 3

Waste Water Treatment Plants and Lift Stations, general telephone service, Solid Waste Facilities, 28 medical facilities having emergency power, nursing homes having emergency power, LE and Fire 29 Stations having emergency power, public shelters still housing evacuees and the homeless, Adult 30 Congregate (Assisted) Living Facilities, facilities serving as DRCs for Federal Disaster Relief, and 31 Public and Private Facilities necessary for Resource Management and Distribution Activities 32 (government facilities handling emergency purchasing, designated grocery store/restaurant 33 outlets).

Section 3- Post Disaster Redevelopment Plan P.3

**POLICY 2.1.2:** The following procedure shall govern water service restoration:

• Valve off major leak areas.

• Identify high damaged areas.

• Assess and provide service to meet critical customer needs (i.e., emergency response and recovery facilities, *RSW*, hospitals, nursing homes, emergency public shelters, kidney dialysis patient facilities, and other identified emergency response facilities).

• Establish emergency water sites as necessary.

• Establish priorities and repair damaged facilities in the following order: trunk mains, 1distribution mains, service connections.

• Re-pressurize water system as necessary.

• Establish water potability.

**POLICY 2.1.3:** The following procedure shall govern wastewater service restoration:

• Assess damages to system (wastewater treatment plants, lift stations, electrical support systems, to include evaluating the need to take lift stations off line in flooded evacuated areas to avoid damage to property when power

• Work with private franchises providing service to determine extent of damaged facilities and priorities in reestablishing service.

• Closely coordinate recovery operations with municipalities in determining and repairing any damages to waste treatment plants.

• Determine need and provide emergency service to emergency response and recovery facilities, RSW and Page Field, and hospitals.

• Repair damaged facilities in the following sequence: treatment plants first, then lift stations starting with those closest to the treatment plants.

• Reestablish wastewater service to franchise areas as power and water service is restored.

Logistics and Resource Management Section 9 P.1-24

**Mutual Aid**

A primary method of acquiring outside resources during disasters is through the use of Mutual Aid agreements with partner agencies. This could include participation in the Statewide Mutual Aid Agreement (SMAA), the Emergency Management Assistance Compact (EMAC) or other agreements with nongovernmental organizations (NGOs) or local agencies and jurisdictions. When appropriate, fire and law enforcement entities can request aid through the Florida Fire Chiefs Association and the Florida Sheriffs Association, respectively.

Florida Statutes authorize the Florida Division of Emergency Management (FDEM) to solicit mutual aid from local counties and municipalities. However, the final decision to provide or receive mutual aid resides with the local jurisdiction. Once agreement is reached, all parties will be provided with a Mission Number. This will usually come through the State’s incident management system but may be provided through other mechanisms depending on the nature of agencies involved. Regardless of other assurances, a mutual aid mission is not official until the Mission Number is received from FDEM.

If the mutual aid request is made outside of the SMAA or EMAC system, such as a NGO or local jurisdiction agreement, the request must be in accordance with a pre-existing, current mutual aid agreement that has been approved by the appropriate authorities. The request and acceptance of the mutual aid must be made by both parties in writing, and by authorized designees per the standing agreement.

Once a mutual aid mission is accepted, the resources providing the aid are subject to the operational control of the local agency managing the incident. Accurate records must be maintained for reimbursement of expenses. Allowable expenses and required documentation should be discussed prior to accepting a mission and/or deploying resources.

Logistics and Resource Management P. 10

LCEM will work with GeoDivisions, Municipalities, and other partners to establish prioritization of volunteer resource allocation and determine areas of greatest need. The resources available at the VRC will be utilized to assist requesting organizations and individuals with unmet needs. Volunteer assignments will be based on the following priorities:

1. Assisting those in life threatening situations;

2. Maintaining emergency response capabilities in governmental, public safety, and other support agencies;

3. Assisting special needs residents who are not in life threatening situations;

4. General population response and recovery assignments.

Debris Management Annex D-1 P.1-3

Lee County maintains a FEMA reviewed Debris Management Plan1 that describes the process used to remove and dispose of debris caused by a Major or Catastrophic Disaster Incident. The Plan identifies organizations and their roles. It also covers Plan Activation, Execution of Operating 5 Procedures, and Checklists to assist in Plan implementation.

**Lee County Natural Resources Department:**

• Waterway Debris Clearance Operations are guided by the following priorities:

o Clear debris from boat ramps that provide quick access to inaccessible barrier or coastal islands.

o Clear the Mantanzas Pass Channel (if blocked) to open up a deep-water channel for portage operations to barrier and coastal islands.

o Provide temporary portage and ferry service to Sanibel and Captiva Islands should the Sanibel Causeway be damaged or destroyed.

o Provide temporary aids to identify navigable waters and hazardous areas.

o Remove damaged or abandoned vessels from the water.

o Clean and snag drainage ways to reduce threat from storm-water flooding.

o Arrange for disposal of all debris recovered from waterway debris clearance operations.

**Broward County Climate Action Plan**

P.6

Natural Systems: Climate change will endanger our critical natural infrastructure and ecosystems. Natural Systems CCAP actions concentrate on increasing the resilience of parks, natural areas, shorelines and reefs by reducing plastic and other pollution and building natural adaptation capacity

Water Resources: Rising sea levels threaten Broward’s drinking water supply by forcing saltwater into our underground freshwater aquifer. The CCAP actions safeguard the water supply through conservation, reuse, and adaptation; including future climate conditions in planning; and promoting green infrastructure and flood mitigation.

P.11

6. Engage technical support of state and federal agencies

Engage the support of state and federal agencies, such as the National Oceanic and Atmospheric Administration (NOAA), the United States Geological Society (USGS), the Federal Emergency Management Agency (FEMA), the United States Department of the Interior (DOI), the United States Army Corps of Engineers (USACE), the Environmental Protection Agency (EPA), the Department of Energy (DOE), the Florida Department of Transportation (FDOT) and the Florida Department of Environmental Protection (FDEP) that can provide technological and logistical support and work with state, county and local planning bodies to develop regional scenarios for planning, vulnerability assessments and adaptation strategies.

P.27

71. Research water resources adaptive technologies. Participate in combined academic/private sector collaborative research programs on resilient adaptation technologies for the region’s water resources, including expanded use of sensors and other innovative technologies to monitor hydraulic and hydrologic conditions that influence infrastructure and system performance.

p.28

79. Maintain beaches. Continue the appropriate use of beach nourishment and sand bypassing at Broward County’s Port Everglades and the Hillsboro Inlet. Target application of erosion control structures, such as seawalls, dunes, groins and breakwaters. Revisit redevelopment policies with the objective of providing additional coastal buffer areas between developed areas and the shoreline.

82. Advance sanitary sewer connections. Pursue funding and finance strategies to aid and accelerate sanitary sewer connections. Support economic evaluations relating to the shared community benefits that might support the distribution of costs across a customer base. For any new septic tanks or major renovations that require heavy equipment (backhoes, etc. on site), require connection to the sewer. Partner with municipalities to incentivize sewer connection.

83. Phase-out septic systems where necessary to protect public health and water quality. Perform an assessment to determine the current number of households with septic systems and current sewer system loads. Identify funding strategies and provide subsidies for phasing out septic systems. Explore the reuse of septic tanks to store rainwater/reuse water for irrigation, etc.

P.29

84. Explore partnerships to achieve water management needs. Explore collaborative opportunities involving public and private lands for coordinated redevelopment strategies to meet water management needs and objectives.

85. Engage the private sector in resilience initiatives. Partner with the private sector and business leadership on economic resilience initiatives, including implementation of recommendations identified in the 2020 Business Case for Resilience for Southeast Florida and a shared communications strategy.

86. Convene a countywide forum for coordinated resilience planning. Host an annual Resilience Roundtable with government, tribal and business leadership to foster the ongoing coordination of countywide resilience planning, share information and resources, and develop joint priorities and strategies focused on resilience planning, communications and investments.

89. Develop a resilience dashboard. Develop a countywide dashboard of resilience planning tools, goals and projects to aid in the shared monitoring, tracking, and communication of the state and scale of resilience planning and investments on a county-wide basis, including both mitigation and adaptation needs

p.34

98. Increase natural area ecosystem resilience. Increase natural area ecosystem resilience through regional wildland fire management, exotics removal and the expansion of short-hydroperiod wetlands. Provide education and outreach to local communities promoting fire programs, secure County support, increase resources for invasive plant management and develop a rapid response.

100. Prioritize areas for living shorelines. Coordinate across the County to construct, re-vegetate and maintain coastal dunes along 80% of the oceanfront shoreline. Identify and prioritize areas for developing living shorelines, including identifying certain areas of potential retreat and restoration.

p.35

103. Assess non-point-source pollution transport and fate across the County to the ocean. Study the transport of nutrients and analytes identified in the Florida Department of Environmental Protection offshore water quality monitoring program that are likely to have an impact on the marine ecosystem and corals and use this data to inform reduction strategies and management.

104. Reduce point-source pollution to protect coastal water quality. Encourage the enhancement and improved management of stormwater treatment systems and tightening of wastewater collection systems. Support the cessation of the use of ocean outfalls by 2025. Support exploration of potentially increasing deepwater injection well capacity to reduce emergency wastewater releases during, and after storms.

p.38

114. Update mapping and monitoring of the soil saturation zone. Coordinate with appropriate agencies on the technical evaluation and remapping of the soil saturation zone to better understand the potential for contaminant mobilization and changes in hydrology affected by reduced soil storage. Partner with municipalities and academic institutions to evaluate the influence of changes in soil saturation on site-specific conditions.

115. Evaluate the impacts of flooding of contaminated sites. Evaluate the environmental and public health impacts of flooding and sea-level rise on brownfields and other contaminated sites.

116. Monitor the effects of water table rise on water quality. Organize ambient and targeted water quality monitoring efforts to identify and evaluate trends in bacterial concentrations and nutrients in freshwater and coastal water systems associated with changes in the groundwater table on septic system performance and any related public health and environmental impacts.

118. Undertake an integrated evaluation of monitoring efforts. Undertake a comprehensive review of the various hydrologic and environmental monitoring networks as part of an integrated data assessment to help inform and improve monitoring data investments, data use and interpretation.

**Broward County Climate Change Element**

P.9

POLICY CC2.7 Broward County shall update the assessment of public investments and infrastructure at risk from sea level rise and other climate change related impacts every 5 years. Specifically, the County shall analyze vulnerability to facilities and services, including but not limited to: buildings; water and wastewater treatment plants, transmission lines and pumping stations; storm water systems; roads, rail, bridges, and all transportation and transit infrastructure; power generation facilities and power transmission infrastructure; critical airport and seaport infrastructure; hospitals; city halls; and police and fire stations.

POLICY CC2.10 Broward County shall maintain a “Future Conditions Map Series,” including a Future Conditions Average Wet Season Groundwater Elevation Map and a Future Conditions 100-yr Flood Elevation Map, in order to incorporate new planning and design standards to account for predicted changes in groundwater and flood levels due to sea level rise and potential increases in rainfall and ensure the resiliency of current and future infrastructure investments.

p.10

POLICY CC2.13 Broward County shall evaluate opportunities to protect coastal investments and infrastructure, as necessary and feasible, from the impacts of climate change. Specifically, the County will maintain shoreline protection and erosion control by:

1. Continuing the appropriate use of beach nourishment and pursuit of sand bypassing;

2. Facilitating the installation and maintenance of native beach dune vegetation along appropriate areas of beach;

3. Revisiting redevelopment policies with the objective of providing additional coastal buffer area between developed areas and the shoreline; and

4. Considering hard structures, such as seawalls, only when alternative options are unavailable.

p.11

POLICY CC2.16 Broward County shall continue to pursue the source reduction, reuse, recycling, and recovery model of waste management, consistent with the Solid Waste Element of the Broward County Comprehensive Plan, in order to meet the State of Florida goal of recycling seventy-five percent of municipal solid waste (including net waste combusted) by 2030; work towards the zero waste by 2030 goal established in the Broward County Climate Change Action Plan; and continue to provide the environmental and social benefits of lowering GHG emissions, producing alternative energy, and reducing toxins in our land and water.

POLICY CC2.19 Broward County shall encourage local municipalities to develop policies to improve resilience to coastal and inland flooding, salt water intrusion, and other related impacts of climate change and sea level rise in their Comprehensive Plans, Sustainability Action Plans, Vision Plans, Storm Water Master Plans, Adaptation Action Areas Plans, Climate Change Plans, and other city-wide plans.

OBJECTIVE CC3 – Protect and Enhance Natural Systems and Water Resources Protect local and regional natural systems and water resources from the impacts of climate change and enhance their ability to adapt or transition to new conditions through collaborative research, restoration and reforestation, and sustainable land use planning.

p.13

POLICY CC3.11 Broward County shall establish policies and regulations in Countywide Hazard Mitigation Plans to protect coastal ecosystems from contamination caused by inundation, structural failure, or abandonment of residential, industrial, and municipal assets resulting from sea level rise, storm events, or other climate related impacts.

POLICY CC3.12 Broward County should support the efforts of State environmental and planning agencies to jointly develop, assess, and recommend a suite of planning tools and climate change adaptation strategies for local municipalities to maximize opportunities to protect the beach and dune systems, coastal wetlands, and other coastal resources from the impacts of sea level rise.

p.14

POLICY CC4.8 Broward County shall create and maintain the Broward County Green Infrastructure Map Series to illustrate elements of green infrastructure identified as critical for meeting the County’s goals for GHG reduction, renewable energy production, aquifer protection and surface water management, coastal habitat protection, enhanced green spaces, healthy food access, and other resource protection and health and safety goals shared by the greater Broward community.

POLICY CC4.9 Broward County shall identify opportunities to expand green infrastructure through the development review process by protecting natural resources and encouraging implementation of environmentally-friendly development techniques that minimize impacts to natural resources and water quality and further the County’s goals of GHG reduction, habitat and species diversity, safe and walkable urban environments, equitable access to services and healthy food, and the attainment of a climate resilient community.

**Lee County Climate Change Resiliency Strategy**

p.67

4. Protect coastal resources, marine resources, and dune systems from the adverse effects of development.

 9. Prohibit development and other activities which disturb coastal dune systems, and ensure and promote the restoration of coastal dune systems that are damaged.

(b) The element shall contain one or more specific objectives for each goal statement which address the requirements of paragraph 163.3177(6) (g) and Section 163.3178, F.S., and which:

Protect beaches or dunes, establish construction standards which minimize the impacts of man-made structures on beach or dune systems, and restore altered beaches or dunes;

p.68

(c) The element shall contain one or more policies for each objective and shall identify regulatory or management techniques for:

1. Limiting the specific impacts and cumulative impacts of development or redevelopment upon wetlands, water quality, water quantity, wildlife habitat, living marine resources, and beach and dune systems;

2. Restoration or enhancement of disturbed or degraded natural resources including beaches and dunes, estuaries, wetlands, and drainage systems; and programs to mitigate future disruptions or degradations;

3. General hazard mitigation including regulation of building practices, floodplains, beach and dune alteration, stormwater management, sanitary sewer and septic tanks, and land use to reduce the exposure of human life and public and private property to natural hazards;

4. Hurricane evacuation including methods to relieve deficiencies identified in the hurricane evacuation analysis, and procedures for integration into the regional or local evacuation plan;

5. Post-disaster redevelopment including policies to: distinguish between immediate repair and cleanup actions needed to protect public health and safety and long-term repair and redevelopment activities; address the removal, relocation, or structural modification of damaged infrastructure as determined appropriate by the local government but consistent with federal funding provisions and unsafe structures; limiting redevelopment in areas of repeated damage;

P.71

Adopt soft defense strategies, such as establishing aquatic vegetation beds, using natural or artificial breakwaters, and beach nourishment, where appropriate (for example, shorelines that are more undeveloped and where a seawall would inhibit wetland migration and damage natural defense systems).

What Lee County Government Can Do to Increase Climate Change Resilience against Coastal Erosion and Sea Level Rise:

Allow shoreline hardening where appropriate.

Allow beach nourishment where appropriate.

P.72

Create dunes to protect shorelines.

Create marsh.

Fortify dikes.

Identify, protect and adapt protections of ecologically important areas/critical habitat.

Encourage natural breakwaters where appropriate

Plant submerged aquatic vegetation and other vegetation.

Prevent or limit groundwater extraction from shallow aquifers to protect coast from subsidence and saltwater intrusion.

Prohibit development or engineering "solutions" to block migration of wetlands.

Promote wetland accretion by introducing sediment and prohibiting hard shore protection.

Protect barrier islands that shelter beaches.

Protect water quality for fisheries and reefs.

Protect and restore natural defenses such as salt marshes, sand dunes, and natural vegetation.

Remove hard protection or other barriers to shoreline retreat and replace shoreline armoring with living shoreline protections.

Use natural and artificial breakwaters to reduce wave energy.

p.86

p.110

What Lee County Government Can Do to Increase Climate Change Resilience for Natural Systems and Resources

Create dunes.

Develop GIS-based decision-making/visualization tools.

Developing programs that facilitate species migration (for example, planting foods and providing shelter for birds whose habitat is covered with water).

Establish migration routes for wildlife.

Restore mangroves

Plant submerged aquatic vegetation.

Seagrass protection and restoration.

P.122-123

What Lee County Government Can Do to Increase Climate Change Resilience with Education and Outreach

Climate policy integration where federal, state, and local governments work collaboratively.

**Punta Gorda Adaptation Plan (2019)**

p.28

c. Monitoring i. Initiate surveillance and monitoring of sea level rise related to storm surge early warning systems and ensure adequate response/evacuation plans. ii. Establish a series of permanent monitoring stations to continuously measure the absolute changes in sea level rise in coastal areas and characterize the dynamics of estuarine storm surges, astronomical tides and water flow.

p.50

GOAL 2B.7: Coastal Resilience: To increase the City’s resilience to the impacts of climate change and sea level rise by developing and implementing adaptation strategies and measures in order to protect human life, natural systems, economic resources, property, and infrastructure.

Objective 2B.7.1: Punta Gorda will develop and implement adaptation strategies for areas vulnerable to coastal flooding, tidal events, storm surge, flash floods, stormwater runoff, salt water intrusion and other impacts related to climate change or exacerbated by sea level rise, with the intent to increase the City’s comprehensive adaptability and resiliency capacities.

 Policy 2B.7.1.1: Identify public investments and infrastructure at risk to sea level rise and other climate related impacts.

p.51

Objective 2B.7.2: The City will consider identifying and designating Adaptation Action Areas (AAAs), as provided by Section 163.3164(1), Florida Statutes. The City will develop specific adaptation strategies for properties located in AAAs.

Policy 2B.7.2.1: Considerations for AAA designation may include, but not be limited to: a. Areas which experience tidal flooding, or flooding due to extensive rainfall b. Areas which have a hydrological connection to coastal waters c. Locations which are within areas designated as evacuation zones for storm surge d. Other areas impacted by stormwater/flood control issues Measurement: Identify and designate areas within the City which are at risk from coastal flooding and prioritize funding for infrastructure and adaptation planning for these AAAs.

Policy 2B.7.2.2: As a basis for the designation of AAAs, the City will utilize the best available data and resources in order to identify and understand the risks, vulnerabilities and opportunities to formulate timely and effective adaptation strategies. Measurement: After each Climate Adaptation Plan update, re-evaluate City’s areas at risk from coastal flooding and assess their possible inclusion as AAAs.