





Unit Overview

Unit 0: Preparation, Housekeeping, & Introductions

Terminal Objective:

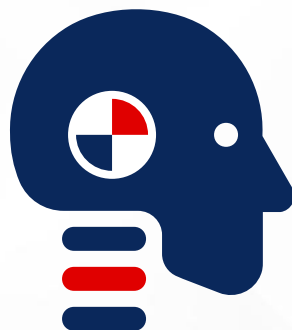
Prepare learners for successful engagement

Supporting Objectives:

- ☐ Complete pre-course assessment
- ☐ Learn what is at stake and the value of mitigation
- ☐ Facilities, conduct, & safety procedures
- ☐ Conduct introductions



Pre-course Assessment





Mitigation Success Story

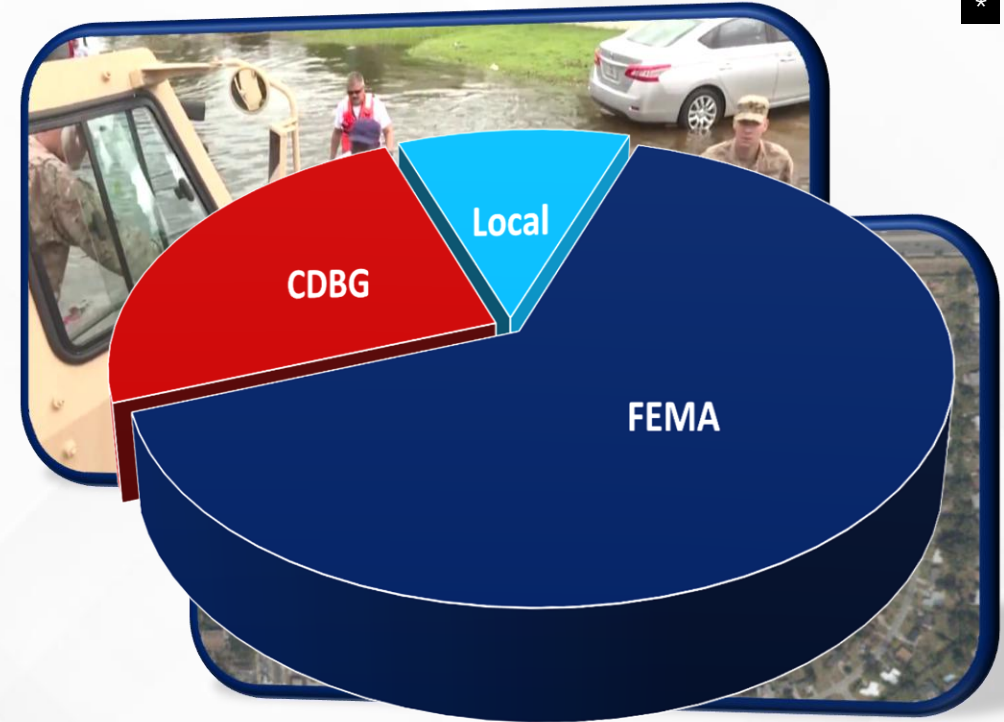
After Hurricane Irma, Orange County initiated a \$23.2 million drainage improvement project in Orlo Vista.

Key features:

- Excavation of three existing ponds
- New pump station and force main
- Increased storage capacity
- Modified pump station

Funding:

- FEMA HMGP grant: \$17.4 million (75%).
- Community Development Block Grant -Disaster Recovery: \$2.5 million.
- Orange County contribution: \$3.3 million.



* Images sourced from Orange County Government



Mitigation Success Story



Hurricane Ian (2022)

Project was bid for construction in 2022, just prior to Hurricane Ian, which struck Central Florida on September 28th, 2022.



Hurricane Milton (2024)

- Rainfall: 9.46 inches in 34 hours
- Result: Substantial reduction in flooding
- Return on Investment
- Community reaction

* Images sourced from Orange County Public Works



Instructors

INSERT
PICTURE

INSERT NAME

INSERT TITLE

INSERT NAME

INSERT TITLE

INSERT
PICTURE



Course Goal

Gain a foundational understanding of Mitigation concepts, focused on the Local Mitigation Strategy (LMS), to enhance community resilience and reduce long-term disaster impacts



Course Objectives

- Understand what mitigation is and what it means in Florida
- Determine the mitigation requirements of an emergency manager
- Identify local roles and responsibilities for an effective mitigation strategy and working groups
- Understand the components/procedures of the Mitigation Planning Process
- Understanding assets in the planning area and components of a hazard profile
- Understanding the purpose of mitigation goals, project types, and elements of the project list
- Determining methods of project prioritization and potential funding sources
- Discuss various documentation styles for capturing data in the LMS
- Identify Mitigation Plan maintenance schedule and tasks
- Apply all learned content to a post-disaster scenario



Schedule

Day 1

- Units 1-5

Course Times

- Start time 08:30 AM
- Pre-Test 08:45 AM
- Lunch ≈ 12:00 PM
- End Time 04:30 PM

Day 2

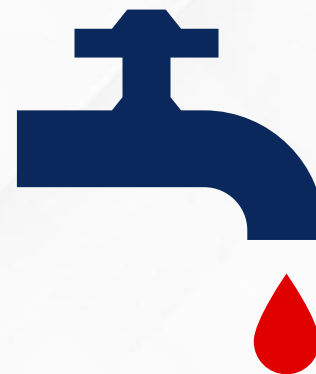
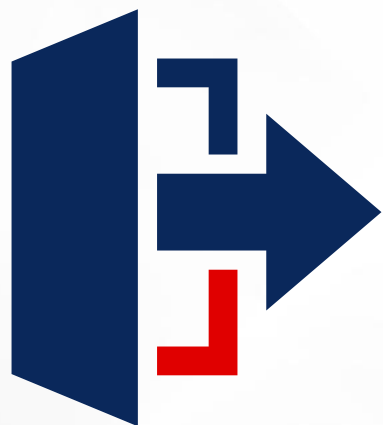
- Units 6-10

Course Times

- Start time 08:30 AM
- Final Exam 12:30 PM
- End Time ≈ 01:00 PM



Housekeeping





Housekeeping

Engagement



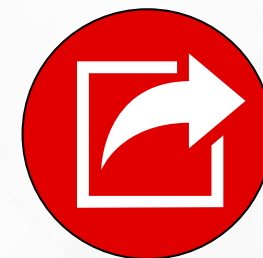
Individual Activity



Group Activity



Resource





Introductions

- Name
- Position/Organization
- Mitigation Experience





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Unit Overview

Unit 1: Introduction and Course Overview

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Understand what mitigation is and what it looks like in Florida

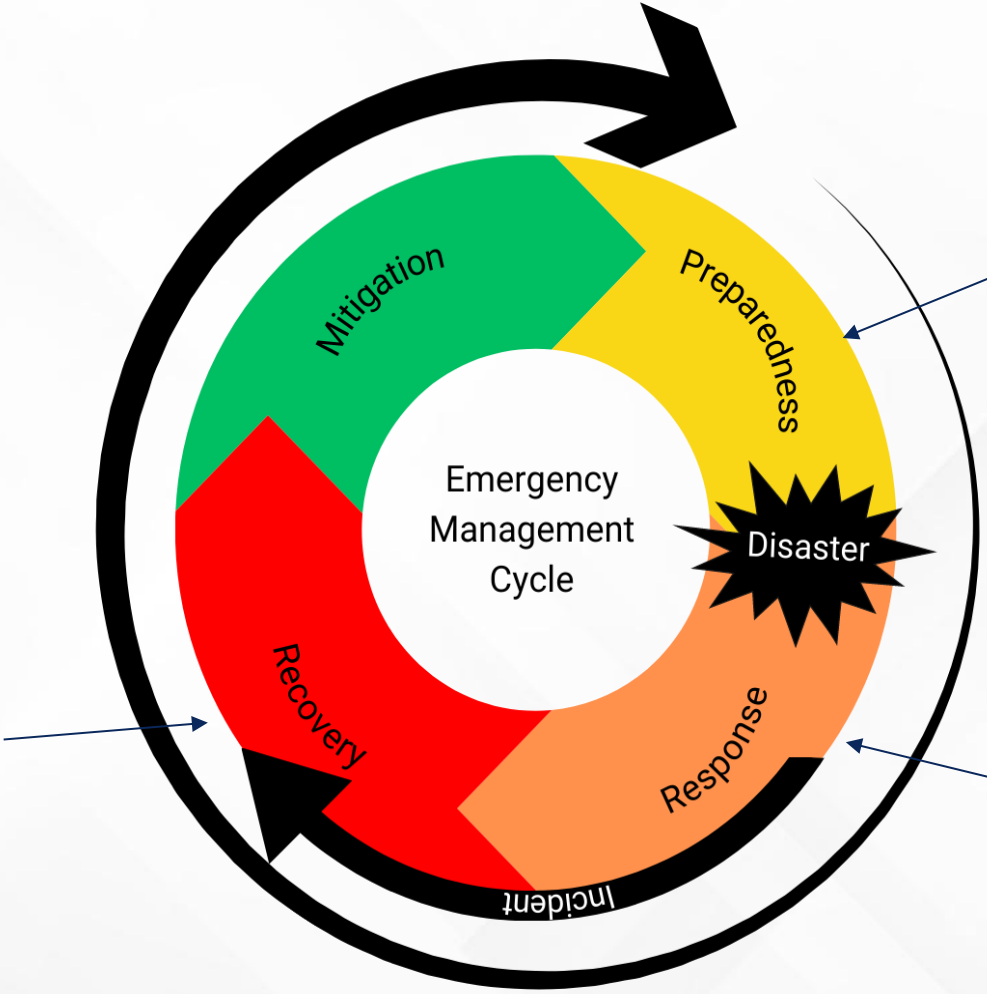
Supporting Objective:

- ☐ Identify and explain how mitigation differs from preparedness, response, and recovery within the emergency management cycle
- ☐ Discuss characteristics of resilient communities
- ☐ Learn how the state can support local mitigation



Emergency Management Cycle

Restoring affected community to its pre-disaster or improved state. Can be short-term, addressing immediate needs like restoring utilities and housing, or long-term, focusing on rebuilding infrastructure and economy.



Developing plans, procedures, and resources to effectively respond to emergencies. Includes training, exercises, and establishing communication systems.

Activated when a disaster occurs. Focuses on immediate actions to save lives, protect property, and meet basic human needs.



What Makes Them Different?

Preparedness

Emergency evacuation drills;
creating emergency contact
lists; establish Memorandums
of Agreement/Understanding
for mutual aid; Comprehensive
Emergency Management Plans

Response

Evacuate affected areas;
establish emergency shelters;
deploy emergency responders;
develop response plans

Recovery

Financial assistance to
homeowners/businesses;
repair damaged infrastructure;
services for affected
individuals; post-disaster
recovery plans

Mitigation

Risk Reduction: structure
elevation; restore floodplain;
implement zoning regulations;
hazard mitigation plans



Mitigation

What is mitigation?





Mitigation

Actions taken to reduce or eliminate long-term risk to people and property.





Mitigation

Hazard Mitigation

\$1.00



Future Benefits

\$11.00





Resilience

What is resilience?





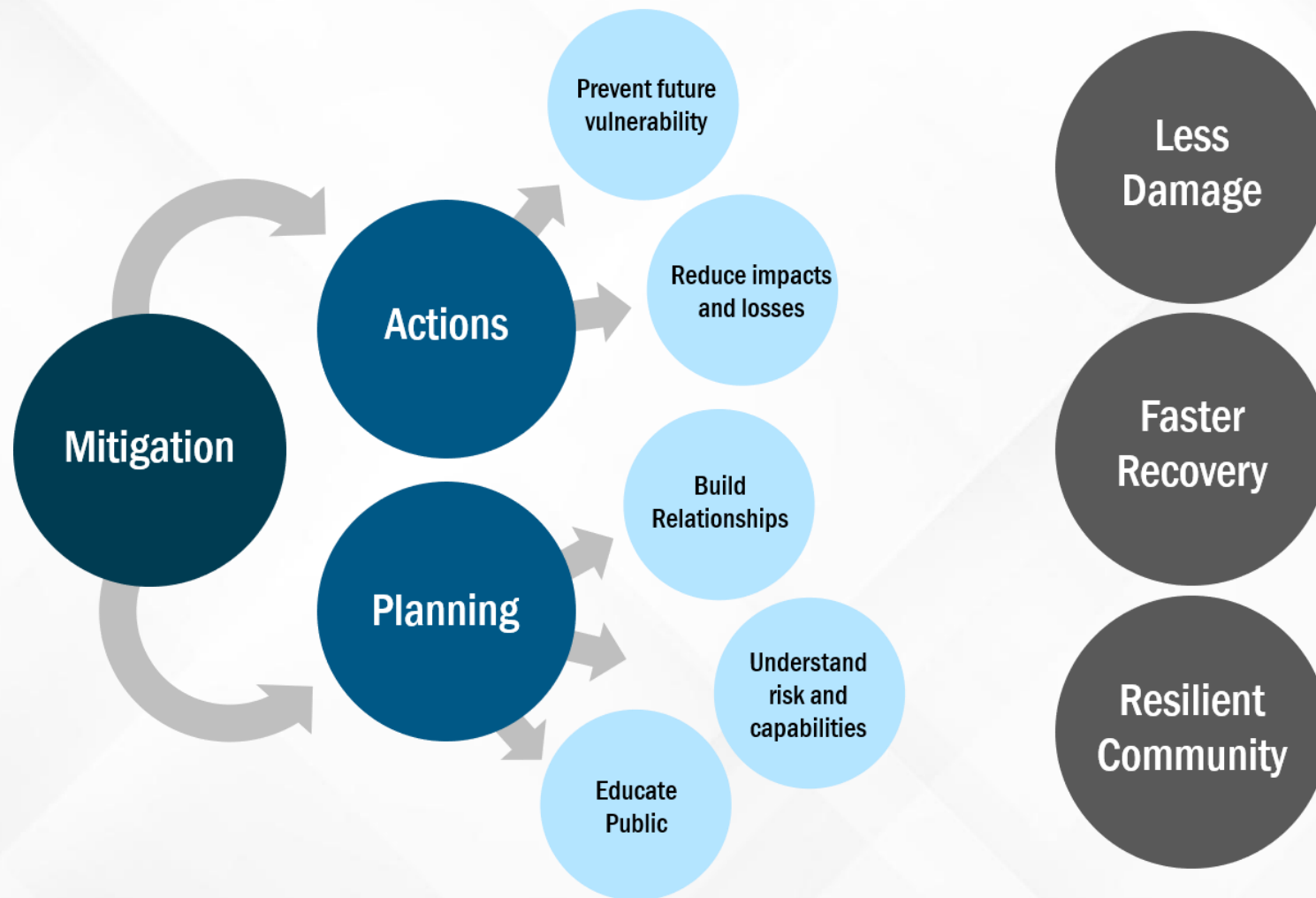
Resilience

Capacity to adapt to changing conditions and to prepare for, withstand, and rapidly recover from disruptions to everyday life, such as hazard events.





Mitigation vs. Resilience





Disaster Resilience

Local Disaster Resilience



Disaster Resilient Community

What are characteristics of a disaster resilient community?





Disaster Resilient Community

Adapts to changing conditions

Withstands and recovers rapidly from disruptions

Engages the public

Considers enduring, long-term elements

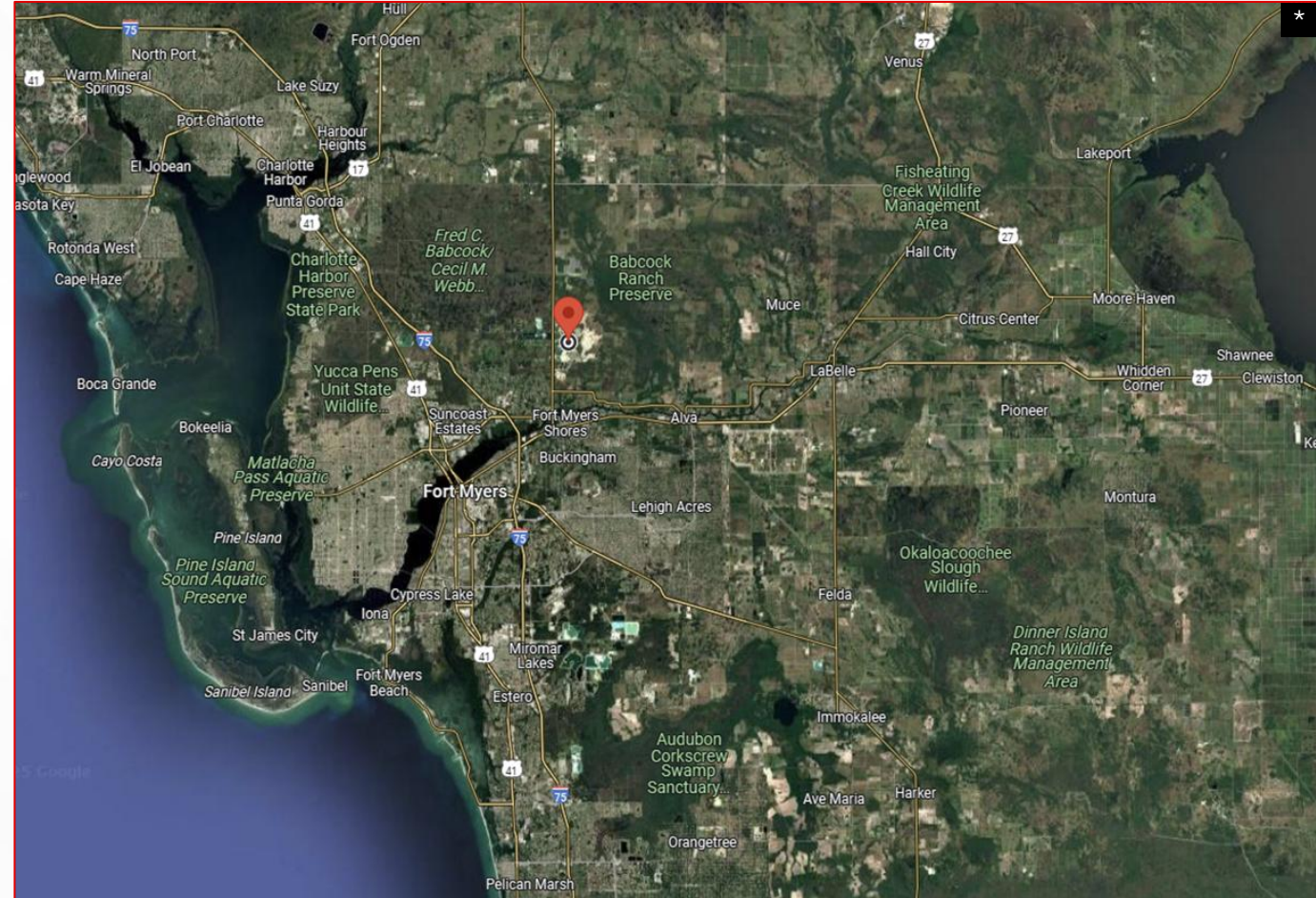
Attains political commitment

Implements significant risk reduction measures



Disaster Resilient Community – Babcock Ranch

- Babcock Ranch
 - Strategic Location
 - Inland Charlotte County



* Image sourced from Google Maps



Disaster Resilient Community – Babcock Ranch

- Babcock Ranch
 - Sustainable Infrastructure
 - Solar Farm

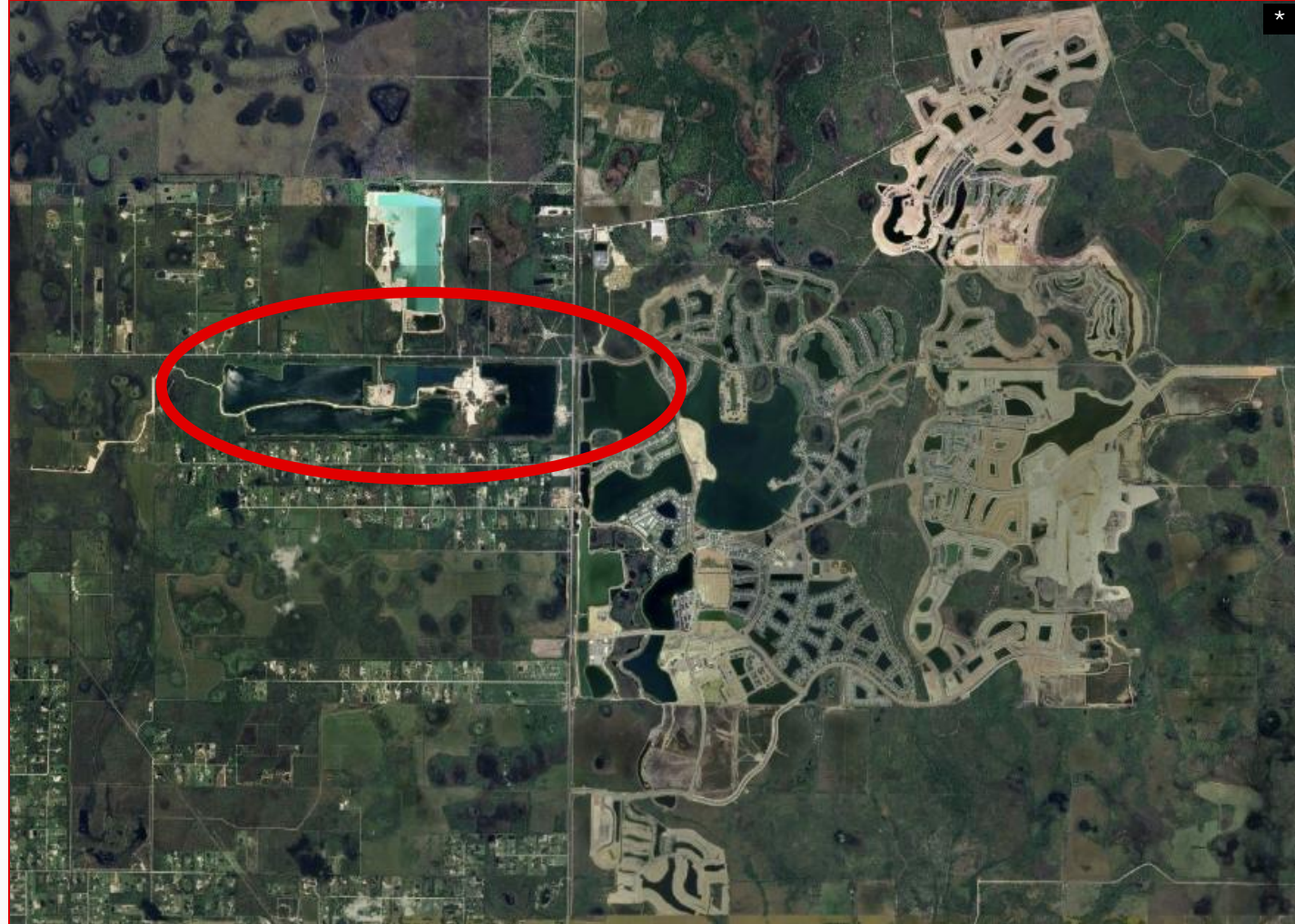


* Image sourced from Google Maps



Disaster Resilient Community – Babcock Ranch

- Babcock Ranch
 - Smart Design
 - Green Spaces
 - Water Management Systems



* Image sourced from Google Maps



Disaster Resilient Community – Babcock Ranch

- Babcock Ranch
 - Community Engagement
 - Economic Resilience
 - Emergency Services
 - Education & Training



* Image sourced from Babcock Ranch



Disaster Resilient Community

Adapts to changing conditions

Withstands and recovers rapidly from disruptions

What are some characteristics of resiliency within your community?

Engages the public

Considers enduring, long-term elements

Attains political commitment

Implements significant risk reduction measures





Disaster Resilience

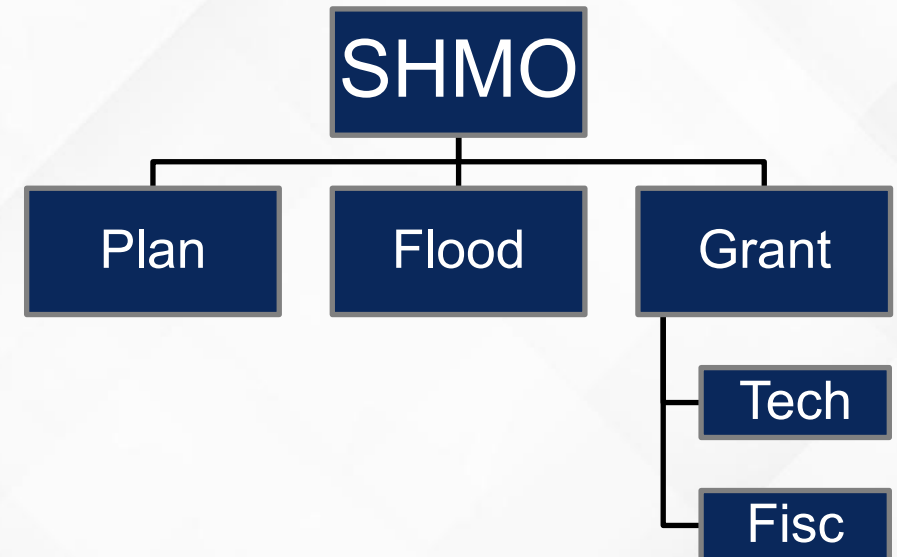
State Disaster Resilience



State Hazard Mitigation Office

Florida's State Hazard Mitigation Office (SHMO) is housed within the Florida Division of Emergency Management (FDEM) and is responsible for:

- Mitigation Planning
- Floodplain Management
- Administering Mitigation Grants
 - Technical Support
 - Fiscal Operations

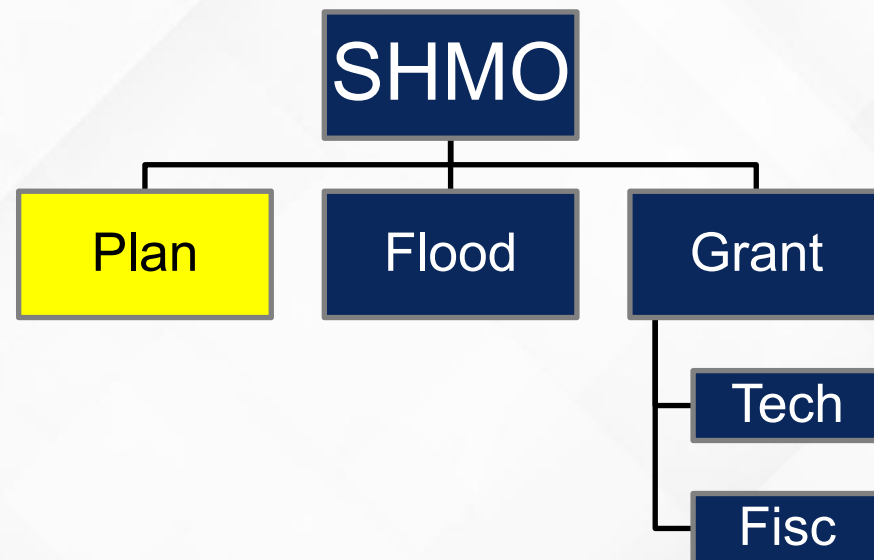




State Mitigation Planning

Mitigation Planning :

- Reviews, updates, Florida's Enhanced State Hazard Mitigation Plan (SHMP)
- Reviews, approves, Multi-Jurisdictional Local Mitigation Strategy (LMS) Plans
- Assists county LMS Working Groups
- Coordinates Mitigate FL Workgroup
- Coordinates Florida's Silver Jackets Teams
- Facilitates education and outreach





State Mitigation Planning

STATE HAZARD MITIGATION PLAN

Enacted under Disaster Mitigation Act of 2000 under Section 322 of the Robert T. Stafford Disaster Relief and Emergency Assistance Act

FL SHMP was digitized in 2023 and is 1 of 16 enhanced plans in the nation.

ENHANCED STATUS

Achieved through developing a comprehensive mitigation program and ability to manage increased funding.

Has provided an additional \$927+ Million in Hazard Mitigation Grant Program (HMGP) funds to Florida Since 2007.*

MITIGATE FL COORDINATING GROUP

Natural hazards risks and mitigation interagency coordinating group required by FS 252.3655

Meetings held on second Tuesday of each quarter at 1 PM

Quarterly meetings with partners: federal, state, local, non-profit, private and public sectors



State Mitigation Planning

LOCAL MITIGATION STRATEGY WORKING GROUP

*Required by 44 CFR Part 201 and
established in FAC 27P-22*

All 67 Florida counties have a
FEMA approved multi-
jurisdictional plan and LMS
working group.

FLORIDA SILVER JACKETS TEAM

*Interagency team dedicated to
developing and implementing
solutions to flood risk management
problems.*

FL Team meets quarterly.
Projects are awarded annually.

EDUCATION AND OUTREACH

*Activities include teaching FEMA
mitigation courses, presenting at LMS
Working Group meetings, providing
technical assistance regarding LMS
plan updates, and publishing the
FDEM Mitigation Bulletin Newsletter.*

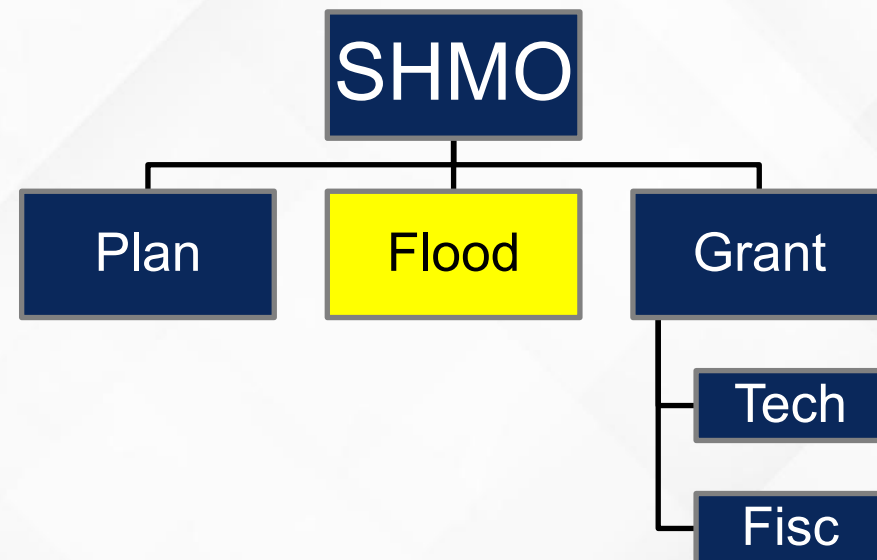
Mitigation Bulletin is published
quarterly.



Office of Floodplain Management

Office of Floodplain Management:

- Coordinates with National Flood Insurance Program (NFIP)
- Providing support for the implementation of the Community Rating System (CRS) requirements
- Conducting flood ordinance reviews





Office of Floodplain Management

NATIONAL FLOOD INSURANCE PROGRAM

A federally-subsidized flood damage insurance program administered by FEMA.

469 Communities participate in FL (98%), representing nearly 35% of all policies nationwide.*

COMMUNITY RATING SYSTEM

Rewards community and State activities that go beyond the minimum NFIP requirements by offering flood insurance premium discounts.

\$195 Million in savings in 244 communities, 52% OF FL NFIP communities.*

FLOOD ORDINANCE REVIEW

Ordinance reviews assist communities in adopting local ordinances that meet the minimum standards of the NFIP and coordinate with the FL Building Code.

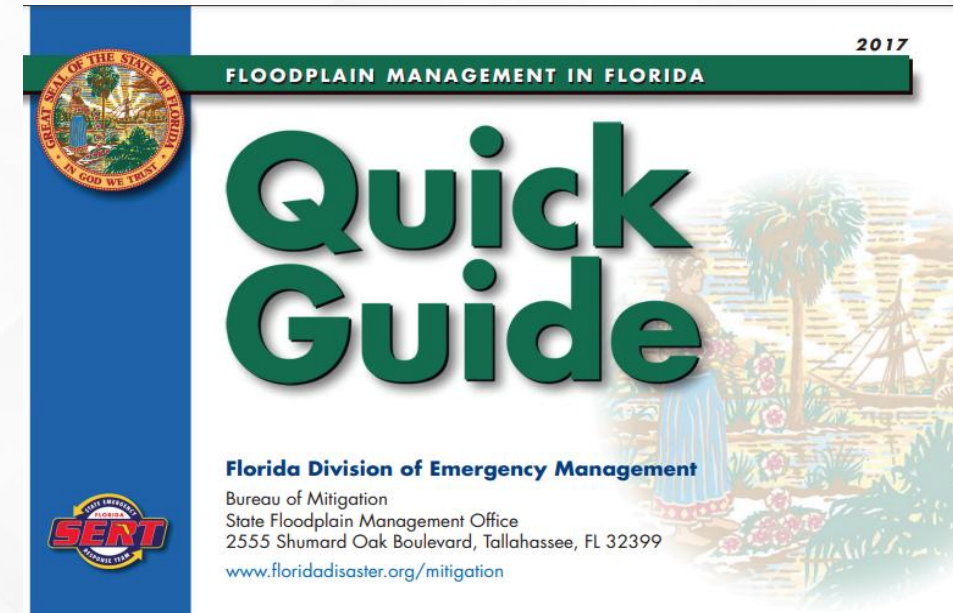
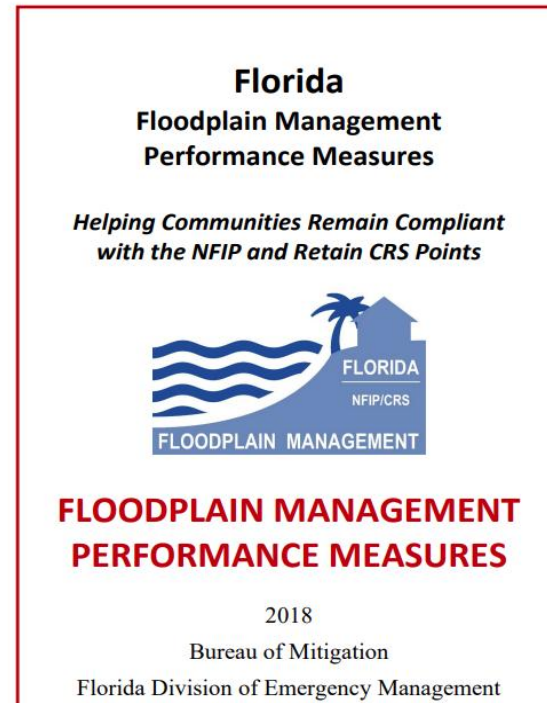
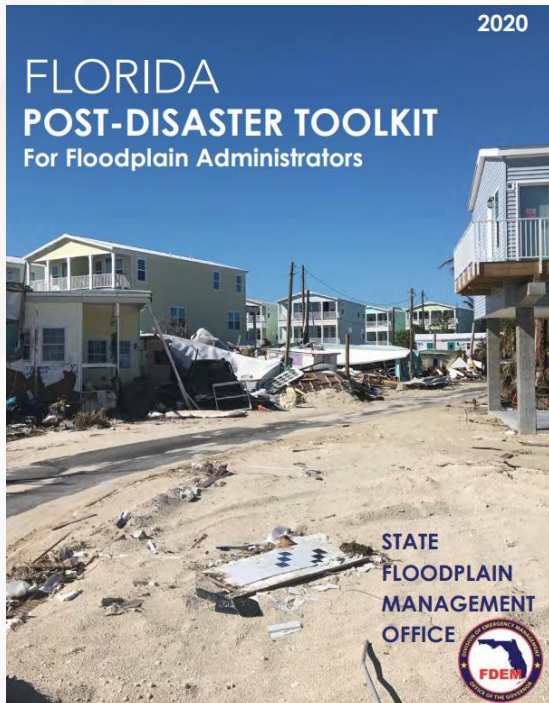
98% of Florida communities have adopted the model ordinance.*

* All statistics sourced from 2025 State OFPM data.



Office of Floodplain Management

Products available for local floodplain administrators and emergency managers:

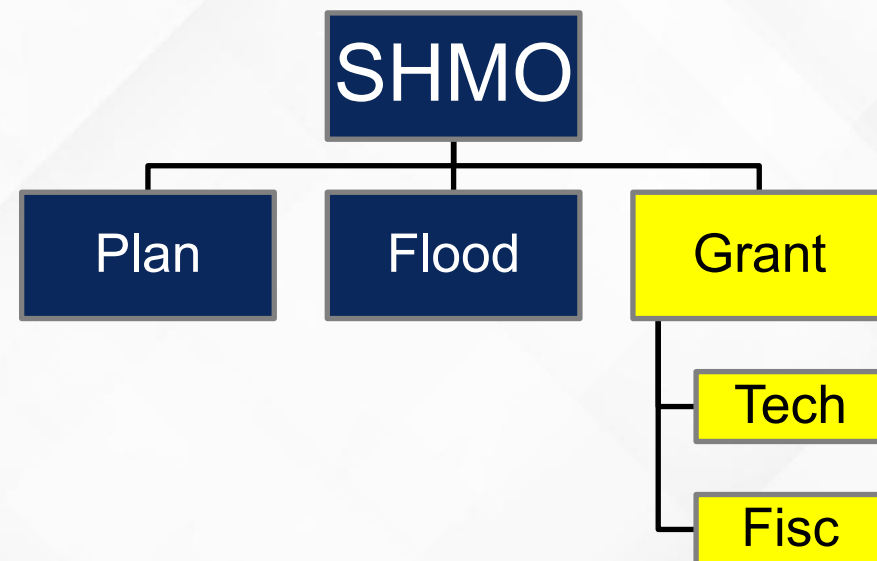




Mitigation Grant Management

FDEM is responsible for administering and managing the following mitigation grant programs:

- Hazard Mitigation Grant Program (HMGP)
- Flood Mitigation Assistance (FMA)
- Hurricane Loss Mitigation Program (HLMP)





Unit Summary

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Supporting Objectives:

- ☑ Identify and explain how mitigation differs from preparedness, response, and recovery within the emergency management cycle
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Unit Overview

Unit 2: The Local Role in Mitigation

Terminal Objective:

Identify local roles and responsibilities for an effective mitigation strategy and working group

Supporting Objectives:

- ☐ Identify the statutory requirements of the LMS
- ☐ Identify working group roles, structure, and effectiveness
- ☐ Create a list of potential obstacles to successful mitigation



Local Mitigation Strategy

What is a Local Mitigation Strategy?





Local Mitigation Strategy

- ❑ Local mitigation strategy plans form the foundation of a community's long-term strategy to:
 - ▶ Reduce disaster losses
 - ▶ Break the cycle of –
 - disaster damage
 - reconstruction
 - repetitive damage
- ❑ Each county in Florida has a Working Group, established by Florida Administrative Code 27P-22.005, the legal framework for the Local Mitigation Strategy
- ❑ FEMA Hazard Mitigation Assistance Grants require an approved County Multi-Jurisdictional LMS Plan



Local Mitigation Strategy – Components

Statement of general mitigation goals

Describes local government and private organization activities promoting hazard mitigation

- Policies
- Ordinances
- Programs
- Deficiencies
- Recommendations to correct deficiencies

Describes methods used to engage private sector

Working Group identifies mitigation actions and implementation procedures

Endorses projects in order of priority with estimated costs and funding sources

Statement of procedures used to set order of priority for projects

**– Natural Hazard Assessment –
Evaluation of the vulnerability of structures, infrastructure, special risk populations, environmental resources, and economy to:**

- Storm surge
- High winds
- Flooding
- Wildfires
- All hazards community susceptible to

Identifies critical facilities which must remain operational during and after disaster

Repetitive loss structures

Geographic Information System (GIS) maps depicting hazard areas, project locations, critical facilities, and repetitive loss structures



Local Mitigation Strategy Working Group

This group is responsible for the development and implementation of the Local Mitigation Strategy.



Each county electing to participate in HMGP must have a formal LMS Working Group and a current FEMA approved LMS Plan.

The working group is required to:

- Support the creation/ maintenance of the LMS plan
- Designate a Chairperson and Vice-chairperson
- Coordinate all mitigation activities within the county
- Set an order of priority for local mitigation projects
- Submit annual LMS updates to FDEM



Local Mitigation Strategy Working Group

The Working Group is made up of:

- Chair
- Vice-Chair
- Members (stakeholders)
- Coordinator*



* Not a statutorily required position; not incorporated in all working groups



Local Mitigation Strategy Working Group

Stakeholders



- County and Municipal Officials
 - Building Official
 - Floodplain Administrator
 - County/City Administration
- Independent Special Districts
 - School Boards
 - Utility Co-Ops
 - Water and Sewer
 - Improvement Districts
- Regional Groups
 - Water Management Districts
 - Regional Planning Councils
- Public/Residents
- Education Institutions
- State Agencies
- Non-Profit Orgs / Community-Based Orgs
- Faith-Based Organizations
- Private Organizations
 - Chamber of Commerce
 - Local retail chains
- Tribal Organizations



Local Mitigation Strategy Working Group

Why should a variety of stakeholders
be involved in the LMS Working Group?





Why involve a variety of stakeholders?

Engaging the whole community:

- Ensures the mitigation strategy aligns with local priorities and goals
- Wider knowledgebase of populations, resources, critical facilities
- Identified roles and responsibilities for projects when funding becomes available
- More funding opportunities can be identified and applied for



Working Group Responsibilities



**Support the creation/
maintenance of the LMS
plan**



**Designate a chairperson
and vice-chairperson**



**Coordinate all mitigation
activities within the county**



**Set an order of priority for
local mitigation projects**



**Submit annual LMS
updates to FDEM**



**Identify hazards
and risk**



**Coordinate with
other community
goals**



**Increase public
awareness**



**Identify existing
mitigation
projects**



**Identify
incentives and
resources**



**Propose
additional
mitigation
projects**



Identifying Hazards and Risks

Identifying hazards and risks serves as the foundation from which effective mitigation can take place.

This informs planning and leads to effective mitigation projects.

All hazards (particularly natural hazards) should be considered.





Identifying Hazards and Risks

Can you identify recurring hazards that remain unaddressed in your community?





Identifying Existing Mitigation Projects

- Many communities are already involved in mitigating local hazards
- Be aware of existing mitigation programs and activities

Examples of mitigation projects:

- Flood risk reduction (Drainage, Retention Ponds, etc.)
- Structural elevations, dry/wet floodproofing
- Public outreach and education (CRS Activities)



Proposing Mitigation Projects

- Address recurring risks:
 - Are there recurring vulnerabilities?
- Promote community objectives and values
 - What strategies can strengthen the community's ability to be more resilient?
 - What policies or plans can help achieve our community objectives?
- Filling gaps
 - Are there gaps in our current mitigation efforts?
 - How can addressing these gaps help us reduce or eliminate risk?



* Image sourced from FEMA



Coordinating with Other Community Goals

This process promotes:

- Improved access to resources
- Better solutions to address multiple problems
- Broader support for implementation
- Reduced chance for duplicating efforts



* Image sourced from FEMA.



Identifying Incentives and Resources

Funding sources may be:

- Local
- Private
- State
- Federal





Supporting Maintenance of LMS Plan

A Local Mitigation Strategy Plan should be:

- A comprehensive approach to mitigation
- Reviewed and updated on a scheduled basis
 - Pre-Disaster
 - Post-Disaster
 - Annually
 - 5-year Update





Increase Public Awareness

Community members must understand:

- The impact of disasters
- How to reduce risks



Polk County Comprehensive Plan Workshop

* Image sourced from Central Florida Regional Planning Council



Unit 2, Activity 1

Task 1: Personal Mitigation

Allotted Time: 5 Minutes

FL-393 Mitigation for Emergency Managers

Your Role in Mitigation

Unit 2, Activity 1

Think about the role you play in mitigation in your community, considering your current and past involvement within mitigation.

Task 1 – Personal mitigation

In the first column, list the ways you encourage and participate in mitigation activities within your jurisdiction.

Task 2 – Group discussion

In the second column, discuss differences in column one within your group. Write down engagement that is different from yours.

Task 3 – Brief out & new ideas

Your group will brief out and listen to other groups. As other groups brief out, write down any ideas you have not yet explored or exercised that you would like to engage in upon completing this course.

1	2	3
List the ways <i>you currently</i> encourage and/or participate in mitigation activities within your jurisdiction.	List the ways <i>others</i> encourage and/or participate in mitigation activities within their jurisdiction.	Mitigation activities you would like to accomplish in your community.

Unit 2, Activity 2

What problems do you face trying to promote mitigation within your jurisdiction?





Unit 2, Activity 1

Task 2 : Group formation & discussion

Allotted Time: 10 Minutes

FL-393 Mitigation for Emergency Managers

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Unit 2, Activity 2

What problems do you face trying to promote mitigation within your jurisdiction?





Unit 2, Activity 1

Task 3 : Brief out & new ideas

Allotted Time: 2 Minutes per group

FL-393 Mitigation for Emergency Managers

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Unit 2, Activity 2

What problems do you face trying to promote mitigation within your jurisdiction?





Unit 2, Activity 2

What challenges do you face in promoting mitigation within your jurisdiction?

Allotted Time: 10 Minutes

FL-393 Mitigation for Emergency Managers

Your Role in Mitigation

Unit 2, Activity 1

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Unit 2, Activity 2

What problems do you face trying to promote mitigation within your jurisdiction?





Effective Working Groups

Effective Working Groups:

- Conduct public outreach and gather community support
- Stay informed on community goals and vulnerabilities
- Are composed of members with varied skill sets / from various community groups
- Proactively identify varying funding sources
- Address challenges in promoting mitigation in their community



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Break Time – 15 Minutes



Unit Overview

Unit 3: The Mitigation Planning Process

Terminal Objective:

Understand the components/procedures of the Mitigation Planning Process

Supporting Objective:

- ☐ Identify the mitigation planning process
- ☐ Recognize how different stakeholders can support the planning process
- ☐ Identify potential members of the LMS Working Group



Proactive Mitigation Planning

Why does proactive mitigation planning matter?





Proactive Mitigation Planning

Meets the
community's
needs

Achieves multiple
objectives

Increases funding
eligibility

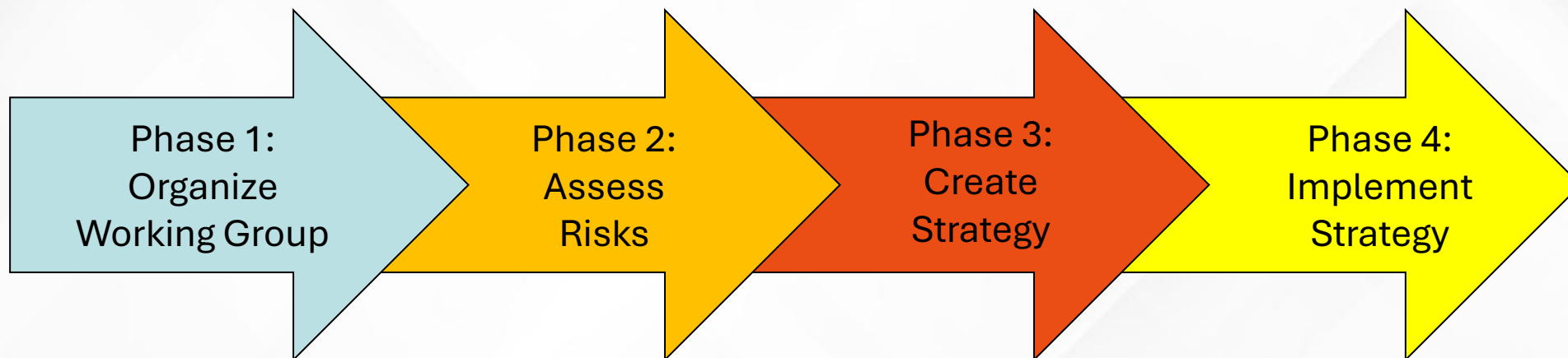
Incorporates a
post-disaster
recovery plan

Promotes public
participation

Integrates into
other local plans

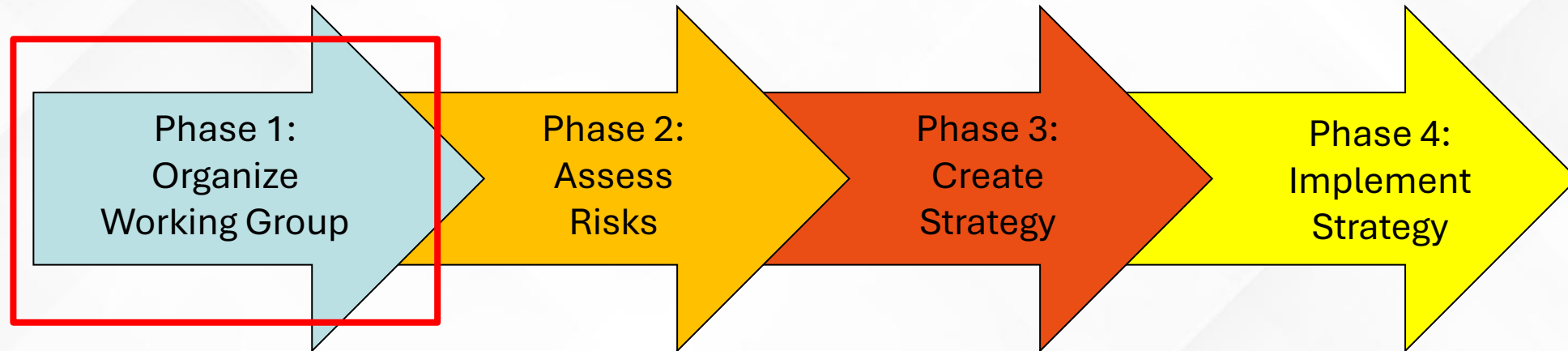


Mitigation Planning Process





Mitigation Planning Process



Phase 1: Organize Working Group

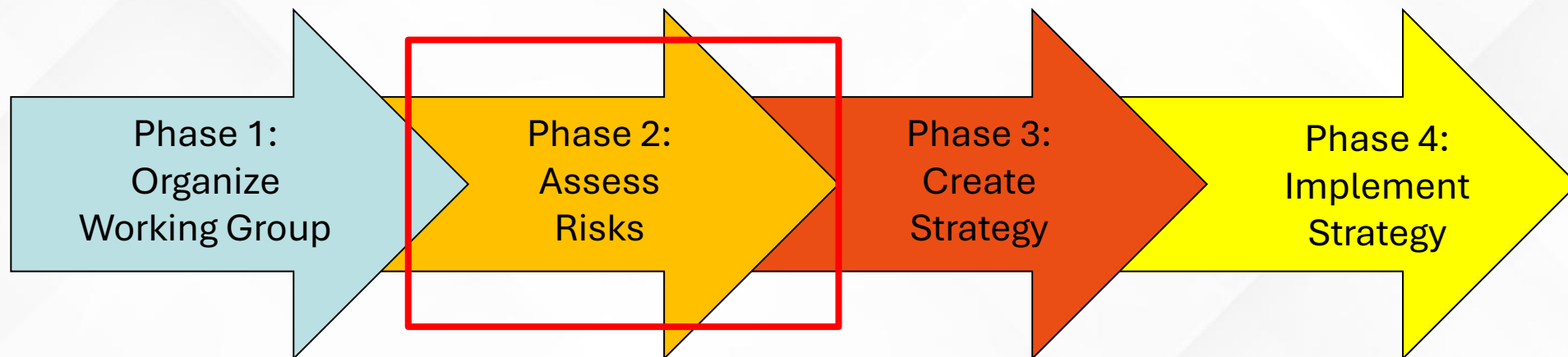
Step 1: Determine the planning area, stakeholders, and resources

Step 2: Identify how stakeholders can contribute

Step 3: Create communication plan



Mitigation Planning Process



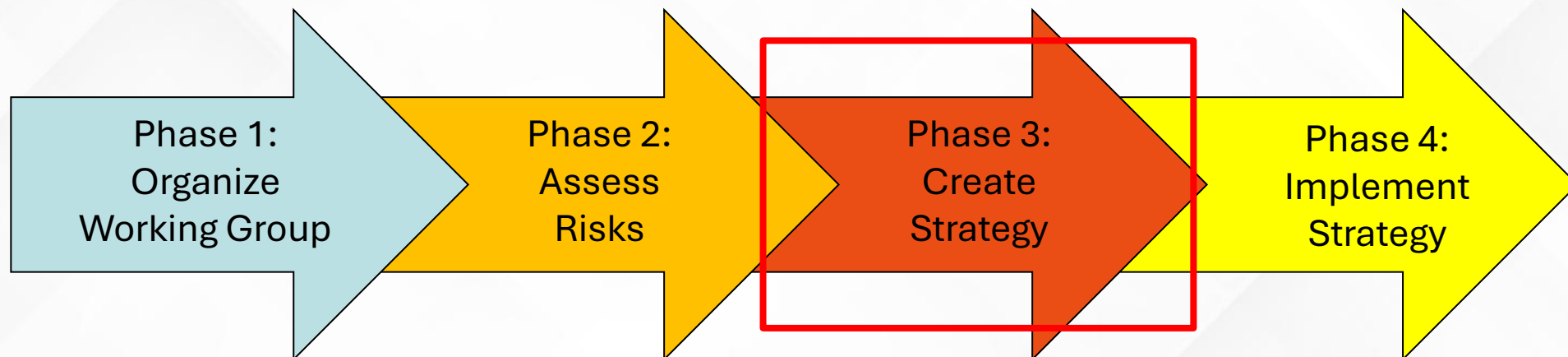
Phase 2: Assess Risks

Step 4: Review community priorities and vulnerabilities

Step 5: Analyze hazards affecting the planning area



Mitigation Planning Process



Phase 3: Create Strategy

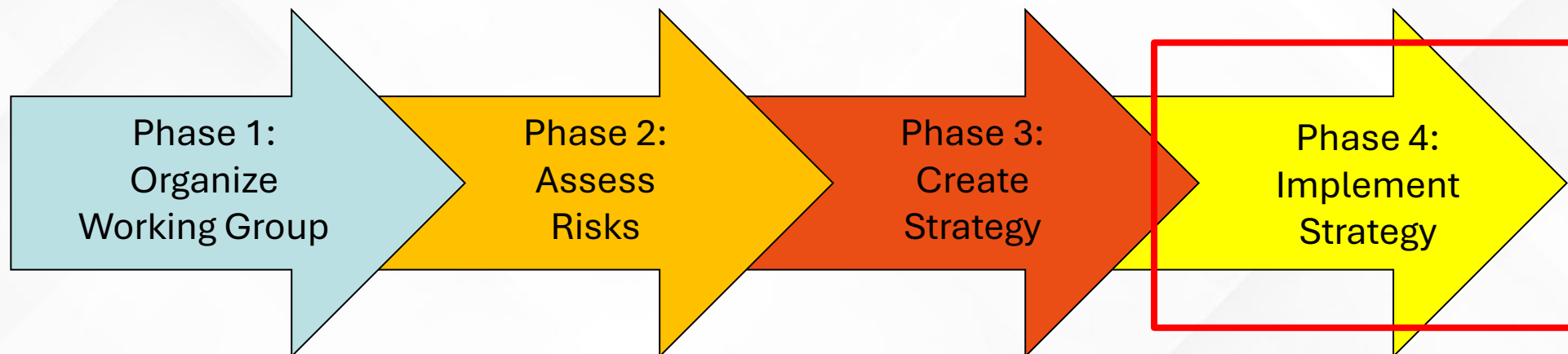
Step 6: Develop problem statements, goals and objectives

Step 7: Prioritize mitigation projects and identify resources

Step 8: Document the implementation strategy; consider capabilities and limitations



Mitigation Planning Process



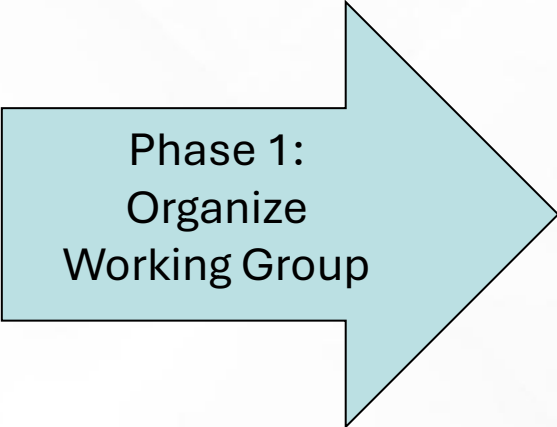
Phase 4: Implement Strategy

Step 9: Adopt the plan

Step 10: Plan maintenance



Where are we in the process?



Phase 1:
Organize
Working Group

Phase 1: Organize Working Group

Step 1: Determine the planning area, stakeholders, and resources

Step 2: Identify how stakeholders can contribute

Step 3: Create communication plan



Phase 1: Creating the Working Group

Step 1: Determine the planning area, stakeholders, and resources

Review the planning area, keeping existing partnerships and planning efforts in mind

Update jurisdictions and stakeholders in the planning area



* Image sourced from FEMA.



Phase 1: Creating the Working Group

Step 2: Identify how stakeholders can contribute

Engage in your community:

- Specialty districts
- Private sector
- State government
- The public

Define working group roles & responsibilities



* Image sourced from FEMA.



Stakeholder Contributions

Engaging Special Districts and Private Sector

- Contribute data, knowledge, and perspectives
- Provide technical expertise
- Integrate mitigation with related initiatives
- Support government entities in carrying out the planning process
- Provide in-kind services



Stakeholder Contributions

State Government

- Support plan implementation with funding, technical assistance, and training
- Troubleshoot challenges and identify opportunities
- Conduct review of Local Mitigation Strategy Plans
- State-funded assistance and programs



Stakeholder Contributions

The Public

- Be involved in mitigation outreach activities
- Provide feedback throughout the LMS plan development
- Identify community goals and objectives
- Voice concerns of the local community



Outreach Strategy

Why is public participation
valuable in mitigation planning?





Phase 1: Creating the Working Group

Step 3: Create communication plan

- Engage key stakeholders
- Organize public engagement activities
- Sustain public engagement



* Image sourced from FEMA.



Unit 3, Activity 1

Allotted Time: 15 Minutes

FL-393 Mitigation Planning for Emergency Managers

Building the Working Group

Unit 3, Activity 1

Use this worksheet to identify potential members of the Local Mitigation Strategy (LMS) Working Group. While not every group will need to participate in all planning decisions, each plays an important role in supporting community resilience. All stakeholders should be provided the opportunity to engage throughout the process.

Stakeholders – Individuals or groups that affect or can be affected by a mitigation project or policy. The LMS must document how each of the following were – at minimum – given the *opportunity* to participate:

1. Local and regional agencies involved in hazard mitigation activities.
 - Public works including dam owners and safety officials, emergency management, local floodplain administration, and Geographic Information Systems (GIS) departments.
2. Agencies that have the authority to regulate development.
 - Zoning, planning, community, and economic development departments; building officials; planning commissions, or other elected officials.
3. Neighboring communities.
 - Adjacent local governments, including special districts, such as those that are affected by similar hazard events or may share a mitigation action or project that crosses boundaries. Neighboring communities may be partners in hazard mitigation and response activities, or may be where critical assets, such as dams, are located.
4. Representatives of businesses, academia, and other private organizations.
 - Private utilities, including dam owners, or major employers that sustain community lifelines.
5. Representatives of nonprofit organizations, including community-based organizations, that work directly with and/or provide support to underserved communities and socially vulnerable populations, among others.
 - Housing, healthcare, or social service agencies.
6. General public

Review the instructions on the next page.





Stakeholders

Local/Tribal

- Administrator/Manager's Office
- Budget/Finance Office
- Building Code Enforcement Office
- City/County Attorney's Office
- Economic Development Office
- Emergency Management Office
- Fire and Rescue Department
- Hospital Management
- Local Emergency Planning Committee
- Planning and Zoning Office
- Police/Sheriff's Department
- Public Works Department
- Sanitation Department
- School Board
- Transportation Department

Non-Governmental Organizations

- American Red Cross
- Chamber of Commerce Organizations
- Environmental Organizations
- Homeowners Associations
- Neighborhood Organizations
- Private Development Agencies
- Utility Companies
- Major Employers/Businesses
- Colleges/Universities

State

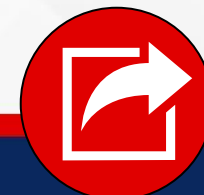
- Agriculture and Consumer Services
- Attorney General
- Children and Families Agency
- Department of Citrus
- Department of Commerce
- Department of Education
- Elder Affairs Agency
- Emergency Management Agency
- Environmental Protection Agency
- Office of Financial Regulation
- Fish and Wildlife Conservation Commission
- Geological Survey Agency
- Department of Health
- Agency for Health Care Administration
- Insurance Regulation Agency
- State Law Enforcement Agency
- Military Affairs
- Agency for Persons with Disabilities
- Department of Transportation
- Department of Veterans' Affairs

Special Districts and Authorities

- Airport and Seaport Authorities
- Business Improvement District(s)
- Fire Control District
- Flood Control District
- Redevelopment Agencies
- Regional/Metropolitan Planning Organization(s)
- School District(s)
- Transit/Transportation Agencies

Other

- Architecture/Engineering/Planning Firms
- Citizen Corps
- Land Developers
- Professional Associations
- Retired Professionals





Unit Summary

Unit 3: The Mitigation Planning Process

Terminal Objective:

Understand the components/procedures of the Mitigation Planning Process

Supporting Objective:

- ☑ Identify the mitigation planning process
- ☑ Recognize how different stakeholders can support the planning process
- ☑ Identify potential members of the LMS Working Group



Unit Overview

Unit 4: Assets and Risk

Terminal Objective:

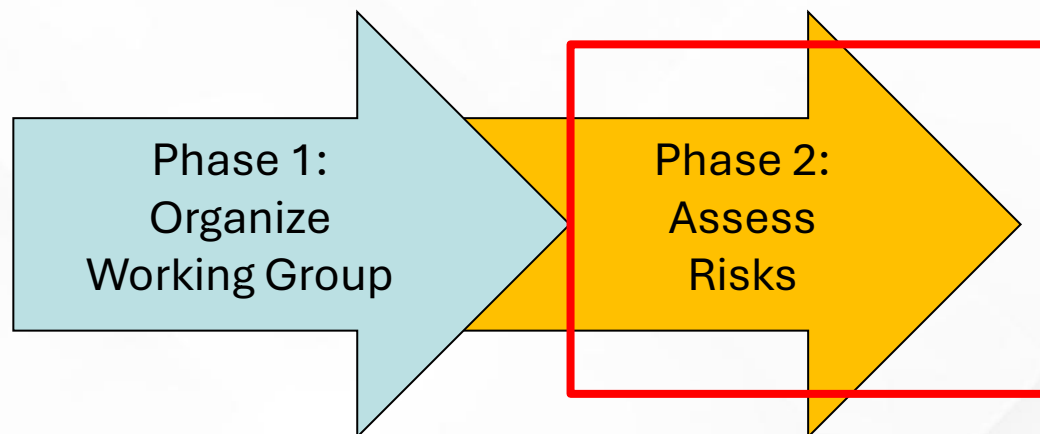
Understanding assets in the planning area and components of a hazard profile

Supporting Objective:

- ☐ Identify community assets
- ☐ Identify types of capabilities for reducing long-term vulnerability
- ☐ Complete a hazard profile



Where are we in the process?



Phase 2: Assess Risks

Step 4: Review community capabilities to inform priorities and vulnerabilities

Step 5: Analyze hazards affecting the planning area



Phase 2: Assess Risks

What is a hazard?





Phase 2: Assess Risks

Hazard: A source of **potential danger** or adverse condition.





Identifying Hazards and Risks

What is risk?





Identifying Hazards and Risks

Risk: The likelihood that a hazard will **harm** an **asset** with some severity of consequences





Identify Community Assets

Asset – any component important to the character and function of a community

Categories of assets:

- People
- Structures
- Economic
- Natural, Historical, and Cultural
- Critical Facilities & Infrastructure



Identify Community Assets

■ People

- Residents, workers, visiting populations, and socially vulnerable populations

■ Structures

- Community centers, historic sites, planned capital improvement

■ Economic

- Employers, primary economic sectors

■ Natural, Historical, and Cultural

- Areas of preservation and conservation, beaches, parks, critical habitats

■ Critical Facilities & Infrastructure

- Hospitals, law enforcement, water, power, dams, levees, telecommunications



Vulnerability

Vulnerability is a characteristic of an asset that makes it susceptible to harm from a hazard

The potential for negative consequences when a hazard occurs

Considerations:

- Location
- Probability
- Frequency of hazards
- Magnitude



Unit 4, Activity 1

Allotted Time: 15 Minutes

FL-393 Mitigation Planning for Emergency Managers

Identifying Your Community Assets

Unit 4, Activity 1

As a group, think of natural hazards that could affect and may impact your community in the future.

Examples include but are not limited to: hurricanes, flooding, wildfires, severe weather, extreme heat, and drought.

Next, identify specific community assets that could be impacted by those hazards and what makes them vulnerable.

Identifying Vulnerable Assets	What makes this group or asset vulnerable?
People (Residents, workers, visiting populations, and socially vulnerable populations like seniors, individuals with disabilities, lower-income individuals, etc.)	
Structures (Community centers, historic places, planned capital improvement)	





Identify Community Assets

What resources do you have within your community to address these vulnerabilities?





Phase 2: Assess Risks

Step 4: Review community capabilities to inform priorities and vulnerabilities

Capabilities are functions within the community that help reduce vulnerability

- Identify capabilities that currently reduce disaster losses or could be used to reduce losses in the future





Types of Capabilities

Planning and
regulatory

Administrative and
technical

Financial

Education and
outreach



Planning and Regulatory

Examples of policies, processes, and programs that guide development:

- Building and land use codes and ordinances
- Comprehensive plans, and other land use and development plans and standards
- Transportation plans
- Pre-, post-, and long term-disaster recovery plans
- Floodplain management plans



- Community wildfire prevention plans
- Land use administration and procedures
- Environmental review process



Administrative and Technical

Staff and skills for planning and mitigation such as:

- Engineers
- Planners
- GIS analysts
- Code enforcement staff
- Emergency managers
- Natural resource managers
- Floodplain managers
- Application development (grant writers)
- Grant managers



* Image sourced from FEMA.



Financial

Secure resources related to obtaining and administering funding for mitigation projects. These can include:

- Capital funds
- Local match (cost-share)
- Staffing costs

Include current and potential funding sources





Education and Outreach

Communicating risk and supporting mitigation:

- Social media
- Community newsletters
- Local news
- Hazard awareness campaigns
 - Firewise
 - Storm Ready
 - Severe Weather Awareness Week
 - School programs
 - Public events (ex: county fairs)



* Image sourced from FEMA.



Local Capabilities

Planning and
regulatory

Administrative
and technical

Financial

Education and
outreach

If there are limitations within a community's capabilities, how does this effect vulnerability?





Lunch





Mid-Unit Review

Unit 4: Assets and Risk

Terminal Objective:

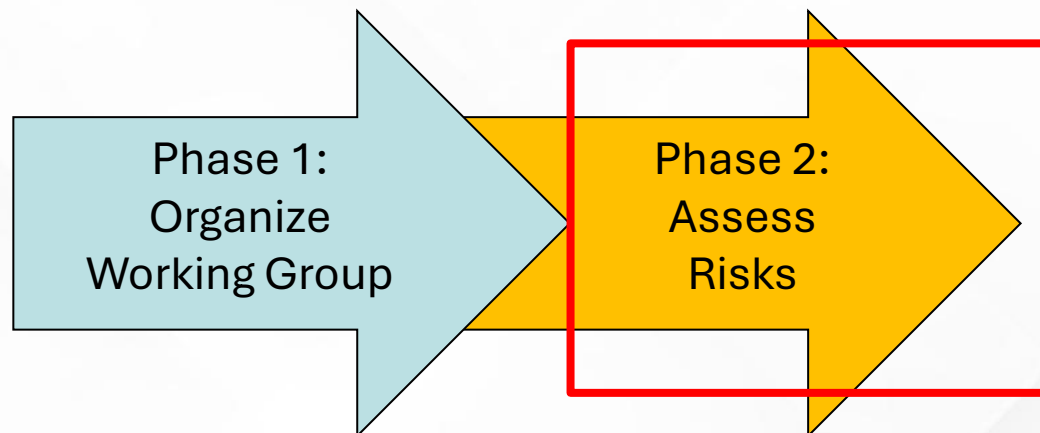
Understanding assets in the planning area and components of a hazard profile

Supporting Objective:

- ☒ Identify community assets
- ☒ Identify types of capabilities for reducing long-term vulnerability
- ☐ Complete a hazard profile



Where are we in the process?



Phase 2: Assess Risks

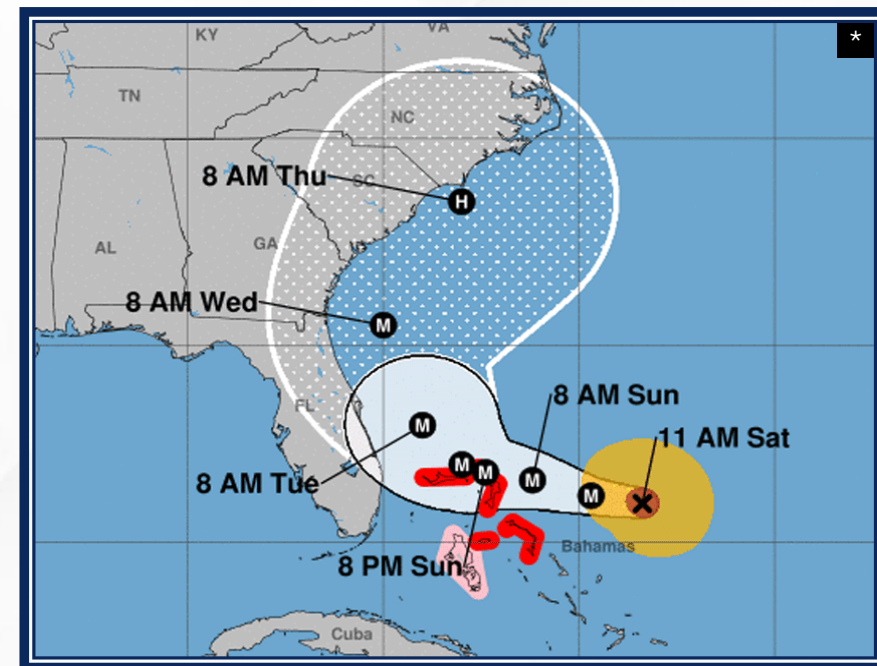
- ☒ Step 4: Review community capabilities to inform priorities and vulnerabilities
- ☐ Step 5: Analyze hazards affecting the planning area



Phase 2: Assess Risks

Step 5: Analyze hazards affecting the planning area

- Process that identifies and analyzes hazards with the potential to harm (risk) community assets
- Assigns probability and vulnerability values to these risks
- Provides a basis for prioritizing risks
 - Guides decision making processes for the best course of action
- Hazard profiles feed into risk assessment



Hurricane Dorian



Phase 2: Assess Risks

What is a Hazard Profile?

- Identifies hazards that can affect participating communities with respect to:
 - Description
 - Location
 - Extent
 - Past Occurrences
 - Future Probability
 - Potential and future impacts
 - Changes in Development
 - Overall Vulnerability
- Provide factual basis for mitigation strategy by using information sources



Description and Location

Description

- Define the hazard

Location

- Specify which areas within the county will experience the risk



Extent

The strength or magnitude of the hazard

Defined by using scientific measurement or scale

Include narrative and worst-case scenario

Examples include:

- Beaufort Wind Scale – Severe Weather
- Coastal feet/miles lost per year – Erosion
- Lightning Density – Lightning
- Acres burned per occurrence – Wildfire
- National Weather Service Advisories – Extreme Temperatures



Past Occurrences

This includes dates of events since the last update, and any significant events prior to that. If the most recent event was more than a few years ago, state when the last occurrence was, particularly if it was prior to the last update.

There have been four recorded sinkholes in Collier County between 2000 and 2023. Past sinkhole incidents reported by the Florida Geological Survey for Collier County are recorded below in Table 2.77.

Table 2.77 – Sinkholes in Collier County, 2000-2023

Date	Location	Length	Width	Depth	Note
7/18/2000	Immokalee	4 ft	4 ft	12 ft	No structures threatened. Sinkhole appears to be stable.
2/23/2003	Collier County	5 ft	6 ft	4 ft	Sinkhole developed in roadway after a sprinkler system malfunction.
3/22/2017	Collier County	4 ft	4 ft	1 ft	Sinkhole is in swale maintained by the County.
9/3/2018	Collier County	1 ft	1 ft	0 ft	N/A

Source: Florida Geological Survey

* Sourced from 2025 Collier County LMS.



Future Probability

Likelihood of the hazard occurring

Defined in general descriptors, historical frequencies, statistical probabilities, or hazard probability maps

How likely the area is to experience the hazard based on previous occurrences and current conditions. The probability of each hazard was categorized as either:

- Unlikely– Less than 1 percent probability in the next 100 years.
- Low– 1 to 10 percent probability in the next 10 to 100 years
- Moderate- 10 to 90 percent probability in the next 10 years
- High- 90 to 100 percent probability in the next 2 years.

As an example, a hazard with a high probability (at least once a year) that can impact a large geographic area to a significant extent is considered a be a high risk.



Potential and Future Impacts

Consequences or effects of each hazard on the assets identified

As beaches are constantly moving, building up here and eroding there, in response to waves, winds, storms, and relative sea level rise, this issue requires long-term analysis and planning. The current beach- erosion problem has many causes, including the following items:

- The desire by many to live near the sea
- A historically rapid rise in average ocean levels, now estimated to be rising at about 25–30 centimeters per century in much of the United States
- The gradual sinking of coastal land (since the height of the land and the sea are both changing, the “relative sea level rise” is used to describe the rise of the ocean compared to the height of land in a particular location)
- Efforts to reduce erosion that have proved to be ineffective and instead increased it



Changes in Development

A discussion of changes in development should be included throughout the risk assessment where applicable. Further, discuss whether the changes have affected vulnerability to hazards or not.

Although there has been an increase in population for Charlotte County and its jurisdictions, which also leads to an increase in development and vulnerability, all jurisdictions work to address the mitigation of risks and hazards, such as flooding, coastal erosion, and other events that could cause loss of life and property. Some of the methods utilized include existing planning mechanisms, and both the City of Punta Gorda and Charlotte County are completing vulnerability studies to enhance their mitigation efforts.



Overall Vulnerability

Information collected is used to summarize vulnerability

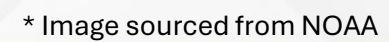
The vulnerability analysis is used to:

- Define overall vulnerability from impacts and future changes
- To inform the mitigation strategy
- To communicate findings to elected officials and stakeholders to support their decision making
- Develop problem statements, goals, and objectives



Information Sources

- Hazard maps
- Historical data
- Existing plans and reports
- Geographic Information Systems (GIS)
- NCEI Storm Event Database
- Local experts
- Internet websites
- HAZUS





Reports



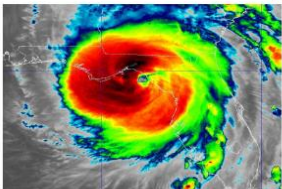
**NATIONAL HURRICANE CENTER
TROPICAL CYCLONE REPORT**

HURRICANE HELENE

(AL092024)

24–27 September 2024

Andrew B. Hagen, John P. Cangialosi, Marc Chenard¹,
Laura Alaka, and Sandy Delgado
National Hurricane Center
8 April 2025²



GOES-16 INFRARED IMAGE OF HELENE AT 0200 UTC 27 SEPTEMBER 2024 PRIOR TO LANDFALL IN FLORIDA.
IMAGE COURTESY OF NOAA/NESDIS/STAR.

Helene made landfall in the Florida Big Bend region as a category 4 hurricane (on the Saffir-Simpson Hurricane Wind Scale). The storm brought catastrophic inland flooding, extreme winds, deadly storm surge, and numerous tornadoes that devastated portions of the southeastern United States and southern Appalachians. Helene is responsible for at least 250 fatalities in the United States (including at least 176 direct deaths), making it the deadliest hurricane in the contiguous U.S. since Katrina in 2005. Helene also produced tropical storm conditions and minor damage across portions of Mexico and Cuba.

¹ NOAA/NWS/NCEP Weather Prediction Center, College Park, MD
² Original report dated 19 March 2025. Second version on 21 March 2025 updated casualty statistics for North Carolina and removed an erroneous rainfall observation (station BLAN7) in North Carolina. In this version, a person who was previously listed as missing is now counted as a direct fatality in North Carolina, and an erroneous rainfall observation in Tennessee (station EMBT1) was removed, which resulted in a change to the highest rainfall amount in the state of Tennessee.

**NOAA** NATIONAL CENTERS FOR
ENVIRONMENTAL INFORMATION
NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION

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NCEI > Storm Events Database (Select State)

Storm Events Database

Data Access
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[Bulk Data Download \(CSV\)](#)
[Storm Data Publication](#)

Documentation
[Database Details](#)
[Version History](#)
[Storm Data FAQ](#)
[NOAA's NWS Documentation](#)
[Tornado EF Scale](#)

External Resources
[NOAA's SPC Reports](#)
[NOAA's SPC WCM Page](#)
[NOAA's NWS Damage Assessment Toolkit](#)
[NOAA's Tsunami Database](#)
[ESRI/FEMA Civil Air Patrol Images](#)
[SHELDUS](#)
[USDA Cause of Loss Data](#)

Storm Events Database
Data available from 01/1950 to 02/2025.
Select the year 'Any' to search across all years in the database for the selected day and month range.

State/Area:

Begin Date: / /

End Date: / /

County:

Alachua
Baker
Bay
Bradford
Brevard
Broward
Calhoun
Charlotte
Citrus

Event Type(s):

Astronomical Low Tide
Avalanche
Blizzard
Coastal Flood
Cold/Wind Chill
Debris Flow
Dense Fog
Dense Smoke
Drought
Dust Devil
Dust Storm
Excessive Heat
Extreme Cold/Wind Chill
Flash Flood
Flood

[Advanced Search and Filter Options](#)

More information on Counties, Zones and Event Types...

Storm Data are geographically categorized by County or by NWS Forecast Zone. Smaller (areal coverage) are collected by county (Tornado, Thunderstorm Winds, Flash Floods and Hail) while larger scale events are collected by forecast zone (Heat, Cold, Drought, Flood, Tropical & Winter Weather).

Each event type listed below are also listed with their collection type (County or Zone). All searches are by county. For zone-based events, all zones intersecting or within a selected county will be returned from a search.

The county selection list is built from the events recorded in the Storm Events Database. An unlisted county means that no records are present.

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- After Action Reports
- NWS Tropical Cyclone Reports
- Previous versions of the LMS
- Local Comprehensive Plans
- NCEI Events Database

* Images sourced from NOAA



2023 Florida Enhanced SHMP Website

<https://flshmp-floridadisaster.hub.arcgis.com/>

Home State of Florida Profile Planning Risk Assessment State Mitigation Strategy Funding Resources Feedback

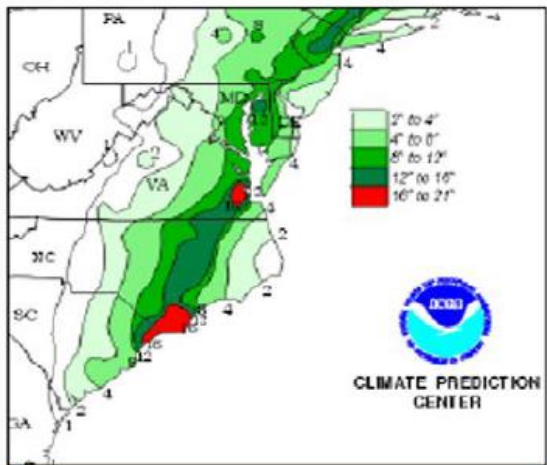
2023 ENHANCED
STATE HAZARD MITIGATION PLAN

What is the Florida Enhanced State Hazard Mitigation Plan?

The Florida Enhanced State Hazard Mitigation Plan (SHMP) is designed to reduce death, injuries, and property losses caused by natural hazards in Florida. The plan identifies hazards based on the history of disasters within the state and lists goals, objectives, strategies, and actions for reducing future losses. Implementation of planned, pre-identified, and cost-effective mitigation measures not only helps reduce loss to life, property, and the environment, but also streamlines the disaster recovery process. Hazard mitigation is most effective when based on an inclusive, comprehensive, long-term plan that is developed before a disaster occurs. The SHMP serves several purposes, including providing an explanation of the Florida Division of Emergency Management (FDEM) Mitigation Bureau and the strategies the State uses to implement an effective comprehensive statewide hazard mitigation plan. Plans are coordinated through appropriate state, local, and regional agencies, as well as non-governmental interest groups. This 2023 Update, and its future revisions, will provide guidance in merging the planning efforts of all state agencies, local governments, the private sector, and non-profit organizations into one viable, comprehensive, and statewide mitigation program.

HAZUS/GIS Modeling

Tools to evaluate vulnerable assets, describe potential impacts, and estimate losses for each hazard



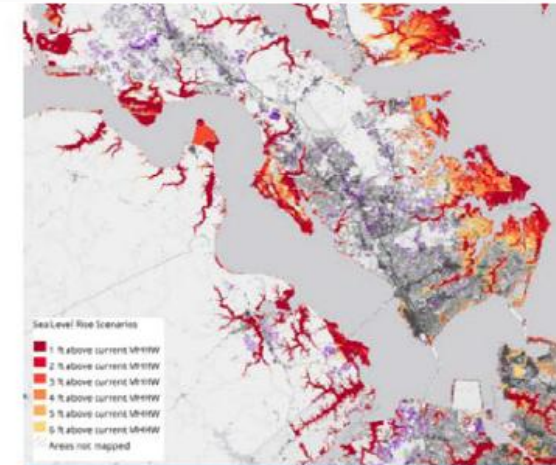
Historical Analysis

Start with your past



Exposure Analysis

Overlay your assets



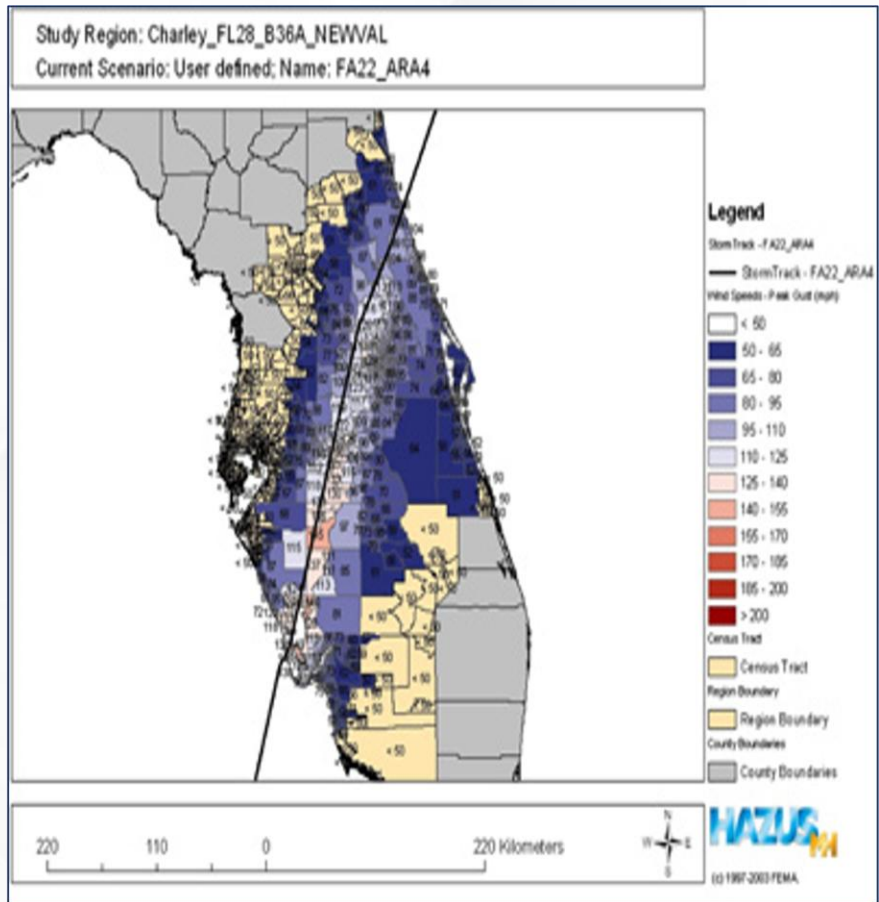
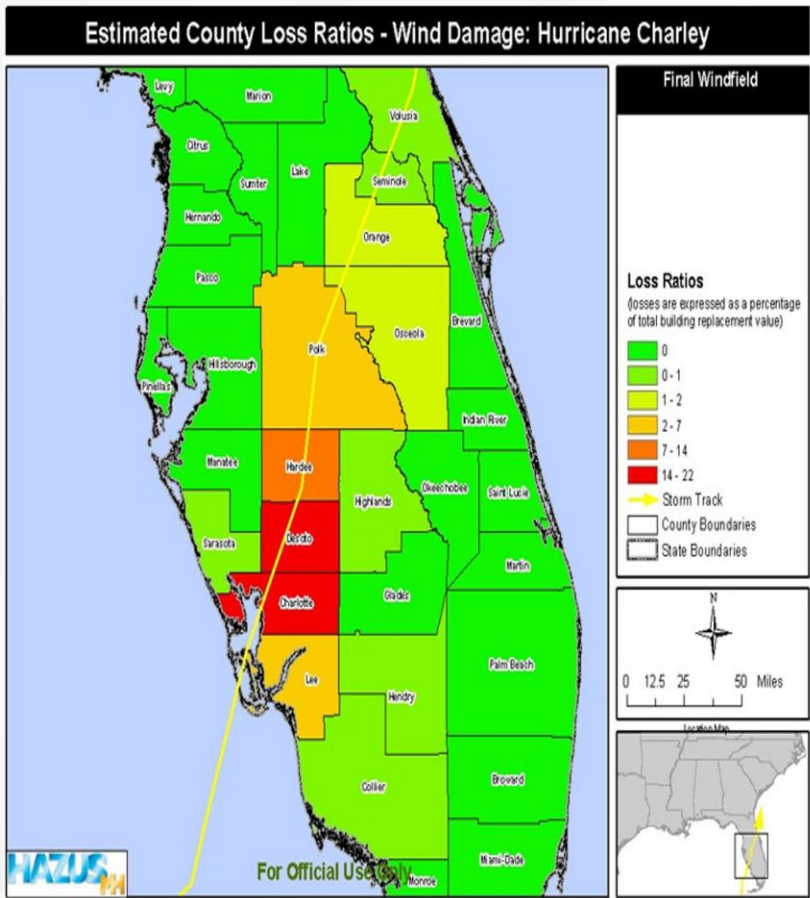
Scenario Analysis

Ask yourself "what if?"





HAZUS/GIS Modeling



* Images sourced from FEMA.



Unit 4, Activity 2

Allotted Time: 15 Minutes

- General description
- Geographic location
- Extent
- Previous occurrences
- Probability
- Impacts
- Overall Vulnerability

FL-393 Mitigation Planning for Emergency Managers

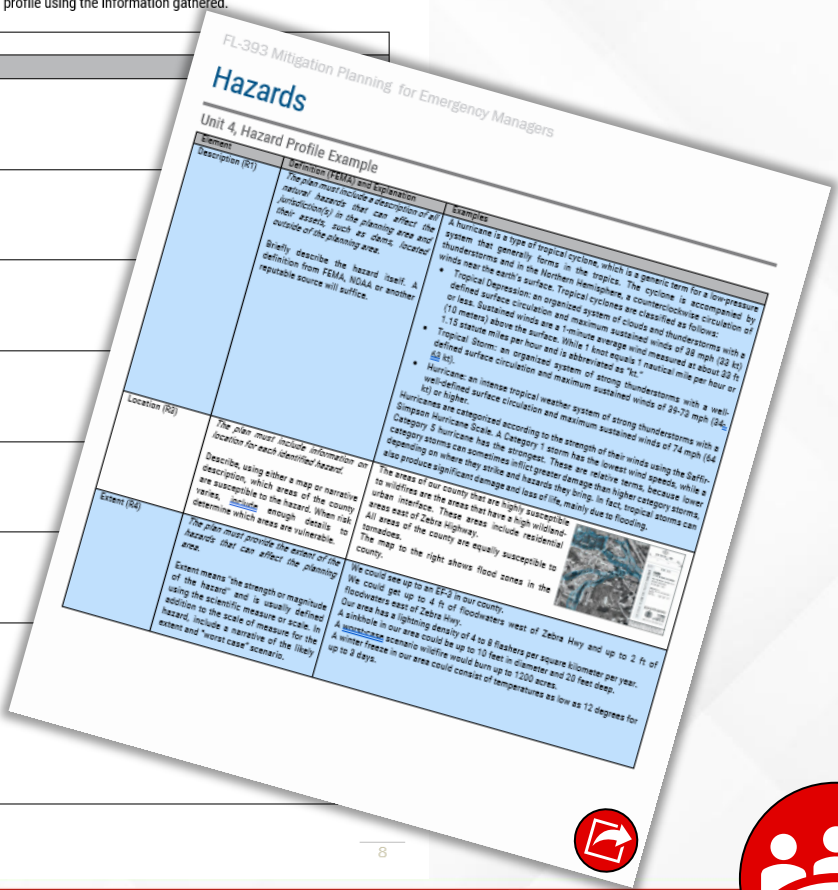
Identifying Hazards in Your Community

Unit 4, Activity 2

Your group was brought in to consult with a county LMS Working Group looking to profile a particular hazard.

You attended a meeting where you gathered information from conversations, emails, calls, and other correspondence between stakeholders. Now, use the following table to build a hazard profile using the information gathered.

Hazard Name	
Element	Profile Information
Description (R1)	
Location (R3)	
Extent (R4)	
Previous Occurrences (R5)	
Future Probability (R6)	
Potential Impacts (R8)	
Vulnerability Summary (R9)	





LMS Hazard Probability Matrix

County	FL	DF	TC	TO	ST	WF	DR	EH	WS	FR	ER	SH	EQ	AB	TU	DS	CB	MM	TR	*
Alachua	MH	-	H	-	H	MH	M	-	L	L	-	L	-	-	-	L	-	L	MH	
Baker	MH	-	H	MH	MH	H	MH	MH	L	H	-	L	-	-	-	-	-	-	-	
Bay	H	-	H	H	H	H	-	-	-	-	-	L	L	-	-	L	-	-	L	
Bradford	H	-	H	H	H	M	M	M	L	L	L	L	-	-	-	-	-	-	-	
Brevard	H	L	H	H	H	L	L	L	L	L	H	-	-	-	L	L	L	-	L	
Broward	H	-	H	H	H	H	L	H	-	-	H	-	-	-	-	L	H	L	-	
Calhoun	H	-	H	MH	H	H	MH	MH	L	L	L	L	-	-	-	-	-	-	-	
Charlotte	M	L	M	M	H	H	M	H	-	M	M	L	L	-	L	L	H	-	L	
Citrus	H	-	MH	-	H	H	MH	MH	H	H	L	H	L	-	L	-	M	-	-	
Clay	H	-	H	MH	H	H	M	M	M	M	-	M	L	-	L	L	-	-	-	

County	FL	DF	TC	TO	ST	WF	DR	EH	WS	FR	ER	SH	EQ	AB	TU	DS	CB	MM	TR	*
Alachua	MH	-	H	-	H	MH	M	-	L	L	-	L	-	-	-	L	-	L	MH	
Baker	MH	-	H	MH	MH	H	MH	MH	L	H	-	L	-	-	-	-	-	-	-	
Bay	H	-	H	H	H	H	-	-	-	-	-	L	L	-	-	L	-	-	L	
Bradford	H	-	H	H	H	M	M	M	L	L	L	L	-	-	-	-	-	-	-	
Brevard	H	L	H	H	H	L	L	L	L	L	H	-	-	-	L	L	L	-	L	
Broward	H	-	H	H	H	H	L	H	-	-	H	-	-	-	-	L	H	L	-	
Calhoun	H	-	H	MH	H	H	MH	MH	L	L	L	L	-	-	-	-	-	-	-	
Charlotte	M	L	M	M	H	H	M	H	-	M	M	L	L	-	L	L	H	-	L	
Citrus	H	-	MH	-	H	H	MH	MH	H	H	L	H	L	-	L	-	M	-	-	
Clay	H	-	H	MH	H	H	M	M	M	M	-	M	L	-	L	L	-	-	-	

H	One or more occurrences each year
MH	One occurrence every 3 years
M	One occurrence every 5-7 years
L	One occurrence every 10 years
-	No data

FL – Flood
DF – Dam Failure
TC – Tropical Cyclone
TO – Tornado
ST – Severe Thunderstorm
WF – Wildfire
DR – Drought
EH – Extreme Heat

WS – Winter Storm
FR – Freeze
ER – Erosion
SH – Sinkhole
EQ – Earthquake
AB – Algae Bloom
TU – Tsunami
DS – Domestic Security

CB – Cyber
MM – Mass Migration
TR – Transportation
HZ – Hazardous Materials
SW – Space Weather
RA – Radiological
AG – Agricultural Disruption
HH – Human Health
CD – Civil Disturbance

* Sourced from 2023 State Hazard Mitigation Plan



Unit Summary

Unit 4: Assets and Risk

Terminal Objective:

Understanding assets in the planning area and components of a hazard profile

Supporting Objective:

- ☒ Identify community assets
- ☒ Identify types of capabilities for reducing long-term vulnerability
- ☒ Complete a hazard profile



Unit Overview

Unit 5: Developing Mitigation Strategies

Terminal Objective:

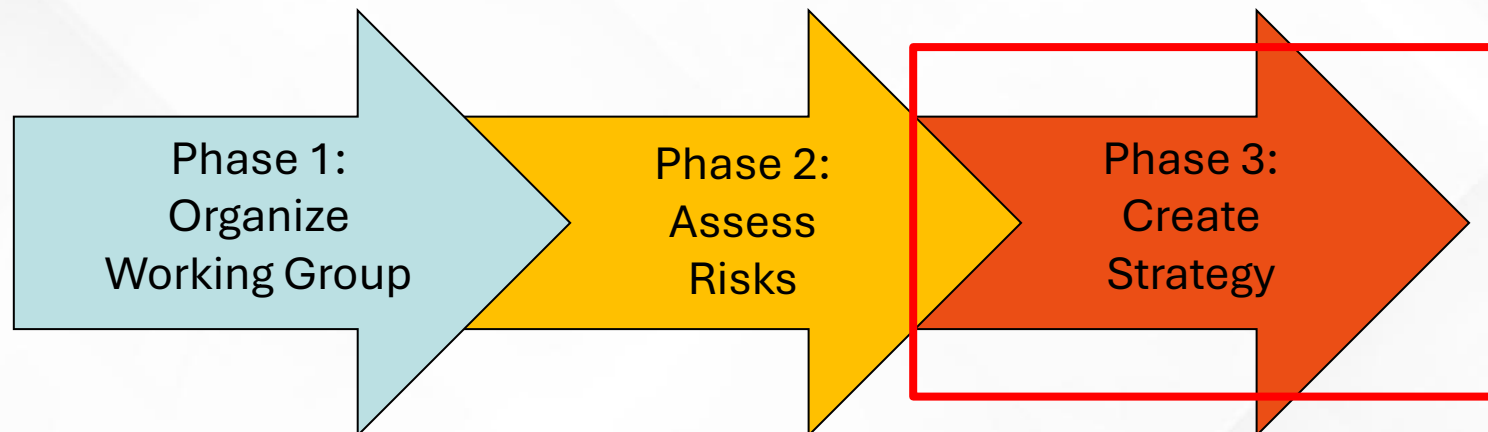
Understanding the purpose of mitigation goals, project types, and elements of the project list

Supporting Objectives:

- ☐ Draft hazard mitigation problem statements, goals, and objectives
- ☐ Identify mitigation project types



Where are we in the process?



Phase 3: Create Strategy

Step 6: Develop problem statements, goals & objectives

Step 7: Prioritize mitigation projects and identify resources

Step 8: Document the implementation strategy; consider capabilities and limitations



Step 6: Develop Problem Statements, Goals & Objectives

- Review results of risk assessment
- Formulate goals/objectives
- Get public input



Formulate Problem Statements

The primary purpose of a problem statement is to focus the plan and provide a clear way to address the vulnerability

The problem statement should answer:

- Location
- Cause of and contributing factors
- Significance of impacts
- Who is impacted



Problem Statement

All incorporated jurisdictions have at least 89 percent of their total land area in the Special Hazard Flood Area. Riverine floods could likely significantly impact these jurisdictions. It is important to consider how the recently released preliminary floodplain maps will impact flood insurance once effective.

All jurisdictions in the County have a flood loss-ratio of greater than 10%; the loss ratio is higher in unincorporated Monroe (30%) than Countywide (25%).

Per the Hazus analysis, 100 percent of developed parcels in the AE and VE zones are at risk to flooding (Key Colony Beach and Layton); Marathon (99.9%) and Islamorada (90.5%) have larger portions of parcels at risk than the County average (89.2%). Mitigation strategies should prioritize these properties.

* Sourced from 2025 Monroe County LMS

** Excerpt from whole problem statement



Formulate Goals

Goals are broad, forward-thinking statements that succinctly describe your desired outcomes.

Goals should articulate community's desire to protect people & property, reduce costs of disaster response & recovery, and minimize disruption after a disaster

Several problem statements can lead to one broad goal



Formulate Objectives

Objectives define strategies or steps to achieve the goals that have been set.

- More specific and narrower in scope
- Should be measurable



Mitigation Goals & Objectives

Table 9: Local Mitigation Strategy Goals and Objectives

Goal	Activity Class	Objectives	Actions	Implementation Documents	Agency / Depts.	Timeline
Goal 1: Minimize future losses from disasters by reducing the risk to people and property.						
Goal 1	Prevention	Objective 1.1 Protection of populations and properties in the City of Jacksonville susceptible to economic or physical loss from natural and man-made disasters shall be consistent with the standards established in the Local Mitigation Strategy and other planning documents.	1. Examine current practices related to construction of infrastructure 2. Identify ways to build infrastructure more resiliently 3. Identify ways to retrofit resiliency and build it into new construction. 4. Identify regulations that need to change to allow for wet and dry flood-proofing and elevation 5. Change regulations to allow resiliency and to require it 6. Identify areas appropriate for development limitations	COJ Ordinance Chapter 674, Emergency Preparedness	COJ EPD COJ DPW COJ PDD COJ HCDD (Neighborhoods)	Ongoing

* Sourced from 2020 Duval County LMS



Get Public Input

After drafting goals and objectives

- Gather public input on the list of goals and objectives
- Consider revising goals based on community feedback
- Work toward consensus



Step 6: Develop Problem Statements, Goals & Objectives

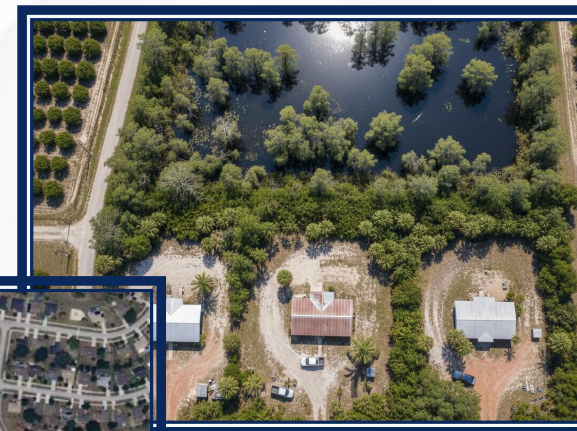
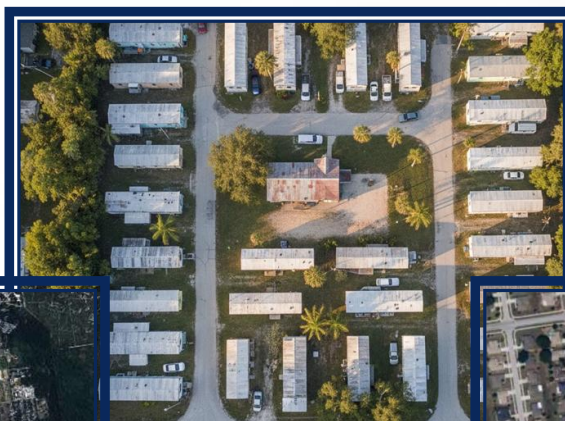
Why is it important to develop mitigation goals?





Unit 5, Activity 1

Develop mitigation problem statements, goals, and objectives for your neighborhood.





Beach Front Neighborhood

Overview:

- Key Largo, FL
- Built in 1970s before local adoption of NFIP
- Masonry

Hazard:

TSUNAMIS



* Image sourced from U.S. Geological Survey



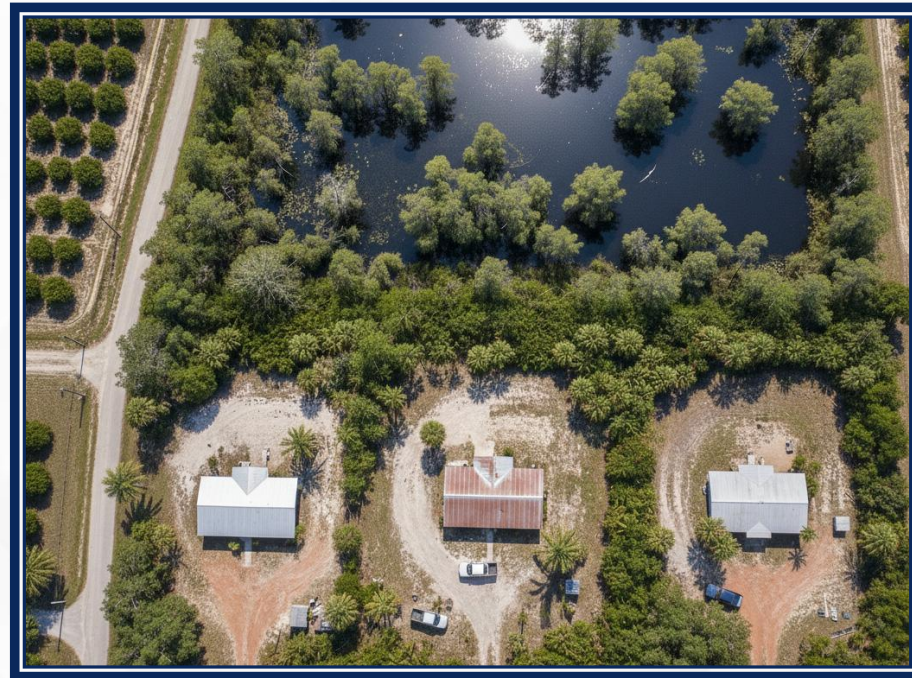
Rural Neighborhood

Overview:

- Outside Crestview, FL
- Built in 1970s
- Carpentry

Hazard:

Severe Thunderstorms





Mobile Home Neighborhood

Overview:

- Port Orange, FL
- Built in late 1990s
- Synthetic materials

Hazard:

TORNADOS





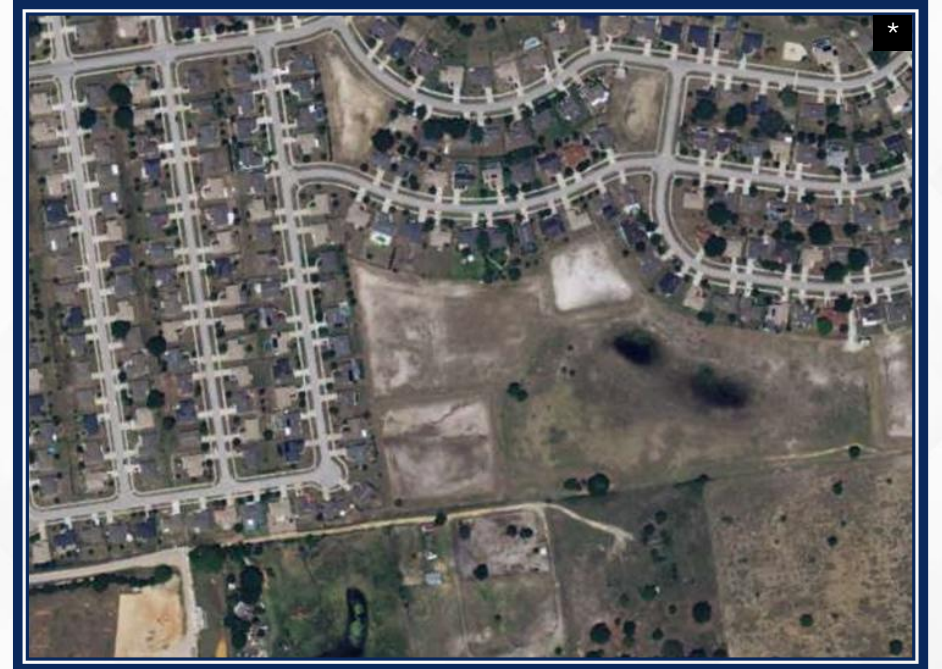
Suburban Neighborhood

Overview:

- Minneola, FL
- Built in mid-1990s
- Masonry

Hazard:

TROPICAL CYCLONES



* Image sourced from U.S. Geological Survey



Lake Front Neighborhood

Overview:

- Sebring, FL
- Built in the 2000's
- Steel-framed Timber Stud



Hazard:

FLOODING



* Image sourced from U.S. Geological Survey



Unit 5, Activity 1

Task 1: Develop Problem Statements

Allotted Time: 15 Minutes

Task 1 – Develop Problem Statements

Use the table below to develop 1-2 problem statements regarding your neighborhood.

Each team will brief out before moving on to [Task 2](#).

Neighborhood:	
Problem Statement:	
Problem Statement:	





Problem Statements, Goals, and Objectives

Develop 2 problem statements per neighborhood

Example:

- All jurisdictions in the County have a flood loss-ratio of greater than 10%; the loss ratio is higher in unincorporated Monroe (30%) than Countywide (25%).**

A problem statement should answer:

Location of problem

Cause of and contributing factors to the problem

Significance of impacts

Who is impacted, if applicable

* Sourced from 2025 Monroe County LMS

** Excerpt from whole problem statement



Unit 5, Activity 1

Task 2: Formulate Goals

Allotted Time: 10 Minutes

Task 2 – Formulate Goals

Use the table below to formulate 2 goals.

Each team will brief out before moving on to Task 3.

Neighborhood	
Goal Statement #1	
Goal Statement #2	





Problem Statements, Goals, and Objectives

Formulate 2 goals per neighborhood

Example:

- Protect and maintain the life, health, safety, and welfare of the community.

Broad

Forward
thinking
statements

Articulate
community's
desired
outcomes

Minimize
disruption after
a disaster



Unit 5, Activity 1

Task 3: Determine Objectives

Allotted Time: 20 Minutes

Task 3 – Determine Objectives

Use the table below to determine 2 objectives for each goal listed above. Each team will brief out before moving on.

Neighborhood	
Goal Statement #1	
Objective:	
Objective:	
Goal Statement #2	
Objective:	
Objective:	





Problem Statements, Goals, and Objectives

Determine 2 objectives per goal

Examples:

- Provide public education and outreach through published brochures, fliers, and at least two (2) public informational sessions pertaining to community resilience and mitigation initiatives, prior to the next LMS update cycle.
- Partner with county building official to develop regulatory measures ensuring new development will not increase flood threats to existing properties within 10 years and reduce the number of houses that are in the floodplain or are vulnerable to flooding by 20% by 2028.

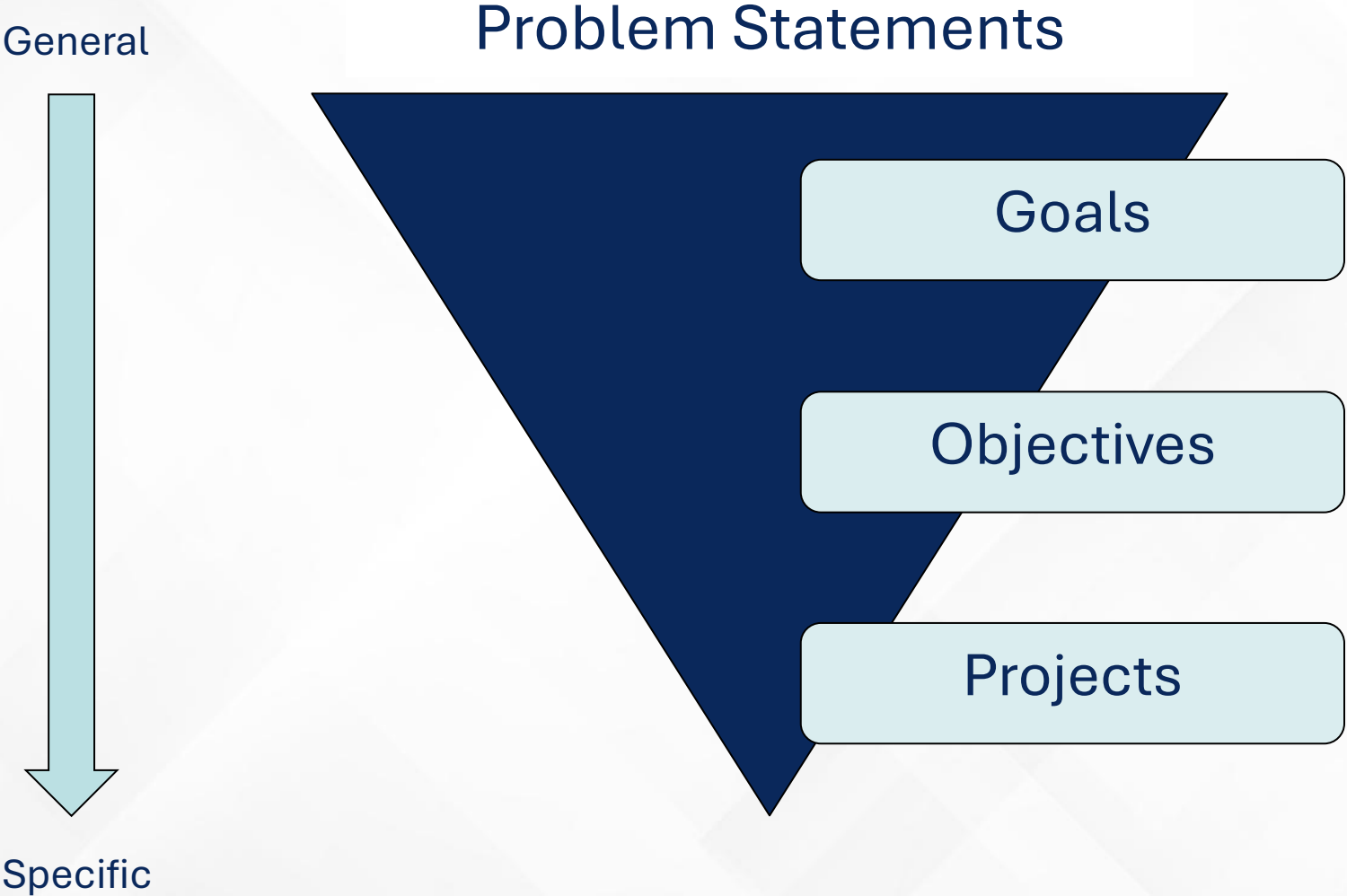
Defines
Strategies

Narrower in
scope

Measurable



Step 6: Develop Problem Statements, Goals & Objectives





Break Time – 10 Minutes



Developing the Mitigation Plan

Reflecting on potential mitigation goals in your community, how can engaging stakeholders help achieve community mitigation goals?





Step 7: Prioritize Projects & Identify Resources

- Identify possible local mitigation projects
- Evaluate, select, and prioritize mitigation projects



Identify Mitigation Projects

Mitigation projects should help achieve goals and objectives

- All profiled hazards that are identified need to have projects
- Participating stakeholders should identify one or more projects

Consider projects that reduce risk to:

- Life and human safety
- Existing buildings and infrastructure
- Future development and redevelopment



Types of Mitigation Projects



Local plans and regulations



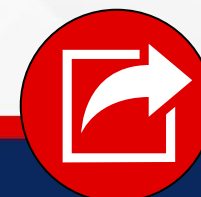
Education and awareness programs



Natural systems protection



Property protection





Plans and Regulations

Government authorities, policies, or codes that encourage risk reduction. These may include building codes, planning regulations, and planning studies





Plans and Regulations



Florida International University (FIU)'s Wall of Wind

- Wind engineering research
- Data from study affects building codes, regulations, and local planning.



* Images sourced from FIU News



Education and Awareness Programs

Inform and educate citizens, elected officials, and property owners about hazards and potential ways to mitigate them



* Image sourced from FEMA



Natural Systems Protection



Minimize damage and losses of natural systems

Preserve and restore the functions of natural systems (wetlands, floodways, aquifer, canals, etc.)



* Image sourced from Central Broward Water Control District.

** Image sourced from Florida State Parks



Property Protection

Modify existing structures and infrastructure to protect or remove them from a hazard area

Applies to public or private structures





Secondary Power Source

Enhances resilience of power systems by mitigating the impacts to critical facilities and infrastructure.

- Generators (permanent and/or portable)
- Diesel bypass pumps
- Batteries
- Solar panels
- Secondary electrical connection
- Other power source systems

***Only for critical facilities and infrastructure**





Flood Risk Reduction

Minimizes frequency of flooding and reduce depth of floodwaters, lowering potential impact on communities and infrastructure.

- Stormwater Diversion and Storage (ponds, lift stations, piping, upgrades, etc.)
- Floodplain Stream Restoration
- Culverts
- Seawalls
- Road Elevation
- Other localized flood control projects





Elevation

Physical raising and/or retrofitting of an existing structure to protect from flood risks or other environmental hazards. This ensures structure is positioned above potential flood levels.

- Evaluate feasibility
- Multi-hazard approach recommended
- Be aware of Hazard Mitigation Assistance (HMA) requirements and allowable cost when building cost estimate





Mitigation Reconstruction

Construction of new, improved, and elevated structures when existing buildings are not structurally sound enough to be safely elevated. This approach ensures new structures meet resilience standards.

- Provide a structural assessment indicating the existing structure cannot be elevated.
- Be aware of the grant eligible activities





Acquisition

Purchase of an at-risk property to convert land into open space. This removes structures from high-risk areas and promotes environmental preservation.

- Intended to eliminate 100% damages
- Fair market value
- Restores floodplain
- Land will be deed restricted in perpetuity
- Be aware of HMA requirements and allowable cost





Wind Retrofit

Modifications made to existing structures to enhance resistance to high winds experienced during hurricanes, tornadoes, or severe storms.

- Systemic protection to entire building must be provided
- Consider pre-calculated benefits for residential and non-residential buildings
- Roof, louvers, vents, and similar products are considered openings
- Structural assessments are required to identify the vulnerabilities of structure





Code Plus



Wind retrofit initiative designed to surpass local building codes and regulatory requirements to provide a higher level of protection for structures in areas prone to high winds. Incorporates advanced materials, enhanced construction techniques, and additional safety measures.

- Typically new construction
- Designs must exceed local wind speed requirements to provide enhanced wind resistance
- HMA programs pay only cost difference between standard code-compliant construction and upgraded design



Safe Room

Specifically designed and constructed to offer immediate life-safety protection for individuals during severe wind events, such as hurricanes and tornadoes.

- Primarily intended to protect lives of first responders
- Safe rooms are NOT to serve as long-stay shelters
- Review guidance and be aware of activities covered by program





Infrastructure Retrofit

Targeted upgrades to existing systems and facilities to reduce the impacts of natural hazards. These actions are designed to protect and maintain operation of critical functions.

- Allows community to recover faster
- Maintains utility service after a storm event
- Designs must provide protection through 500-year event





Stabilization

Reduces risk to structures/infrastructure from erosion and landslides.

- Geosynthetic products
- Stabilizing sod
- Installing vegetative buffer strips
- Preserving mature vegetation
- Modifying with riprap and other means of slope anchoring

***Dredging is ineligible**





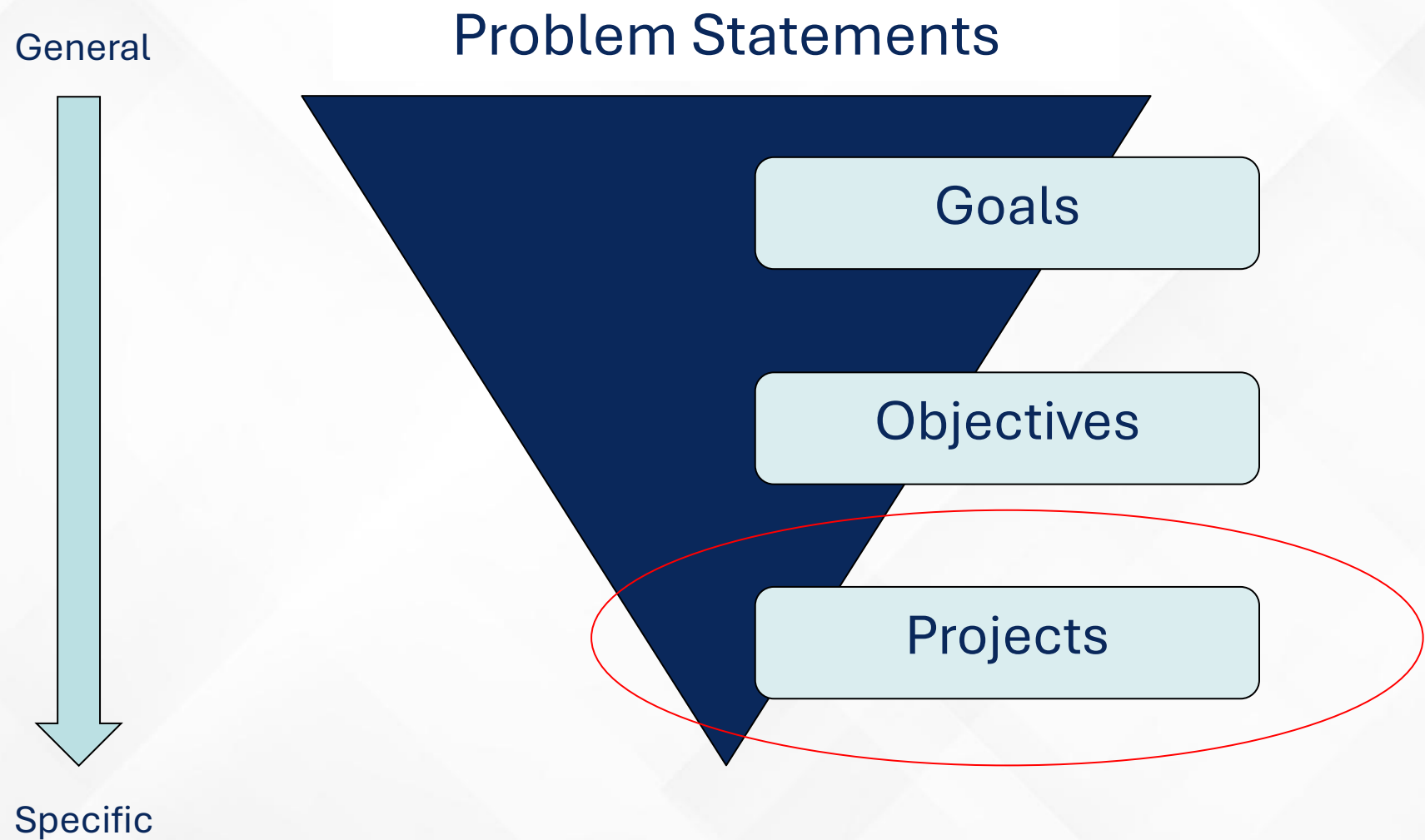
Identify Existing Mitigation Projects

Can you think of a mitigation project
you've seen implemented in your community?





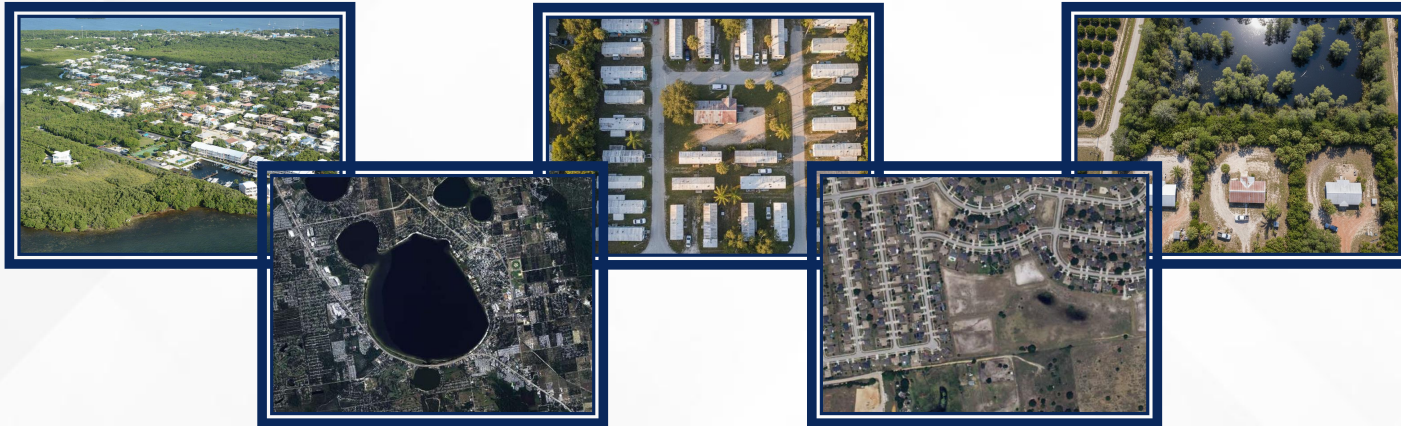
Step 6: Develop Problem Statements, Goals & Objectives





Unit 5, Activity 2

For your neighborhood, identify at least 3 mitigation projects to achieve your goals & objectives



Allotted Time: 15 Minutes

FL-393 Mitigation Planning for Emergency Managers

Identifying Mitigation Projects

Unit 5, Activity 2

With developed goals and objectives for the corresponding scenarios, the next step is to identify mitigation projects. After reviewing the goals and objectives, identify several alternative mitigation projects for each scenario. It is important to look at all types of projects when developing your plan. Some will be more feasible than others. The plan must document *all* projects to be considered. Keep in mind that projects identified in the plan may not be implemented if your community does not have the capacity to carry them out now.

The following list describes the different types of mitigation projects:

Local Plans and Regulations

- Government authorities, policies, or codes which address flood risk reduction
- Modify existing infrastructure to remove it from flood risk

Natural Systems Protection

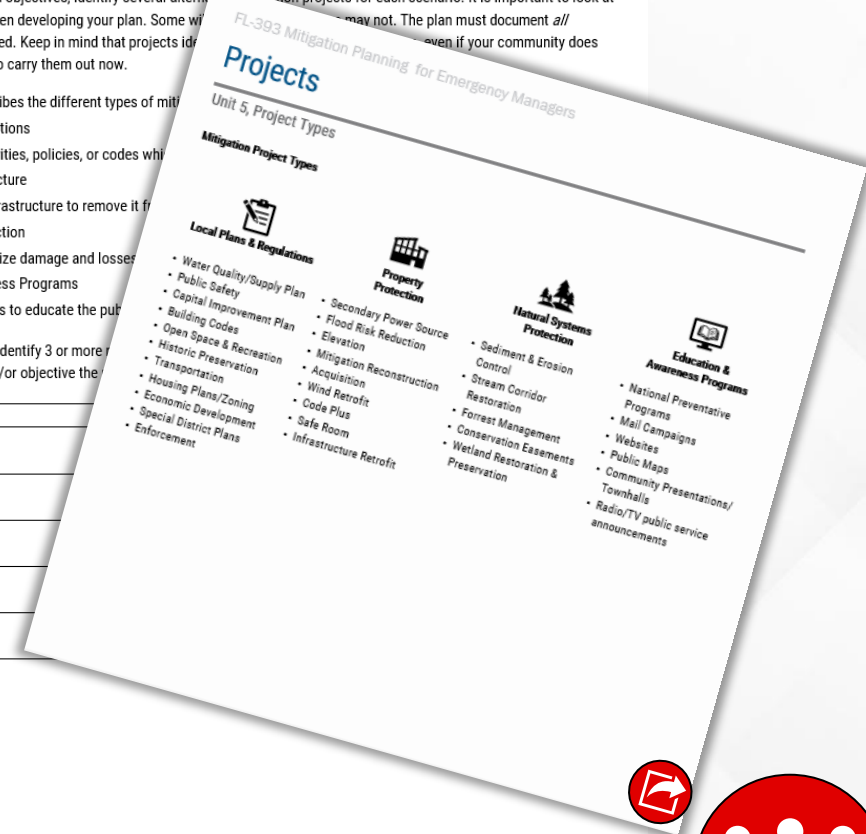
- Actions that minimize damage and losses to natural systems

Education and Awareness Programs

- Sustained programs to educate the public about flood risk

Use the table below to identify 3 or more mitigation projects for each scenario. Identify which goal and/or objective the project addresses.

Neighborhood	
Mitigation Project	
Mitigation Project	
Mitigation Project	
Mitigation Project	
Mitigation Project	
Mitigation Project	





Unit Summary

Unit 5: Developing Mitigation Strategies

Terminal Objective:

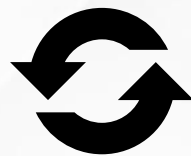
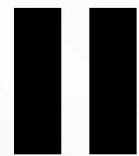
Understanding the purpose of mitigation goals, project types, and elements of the project list

Supporting Objectives:

- ☒ Draft hazard mitigation problem statements, goals, and objectives
- ☒ Identify mitigation project types



Break for the day





FL-393 Mitigation for Emergency Managers



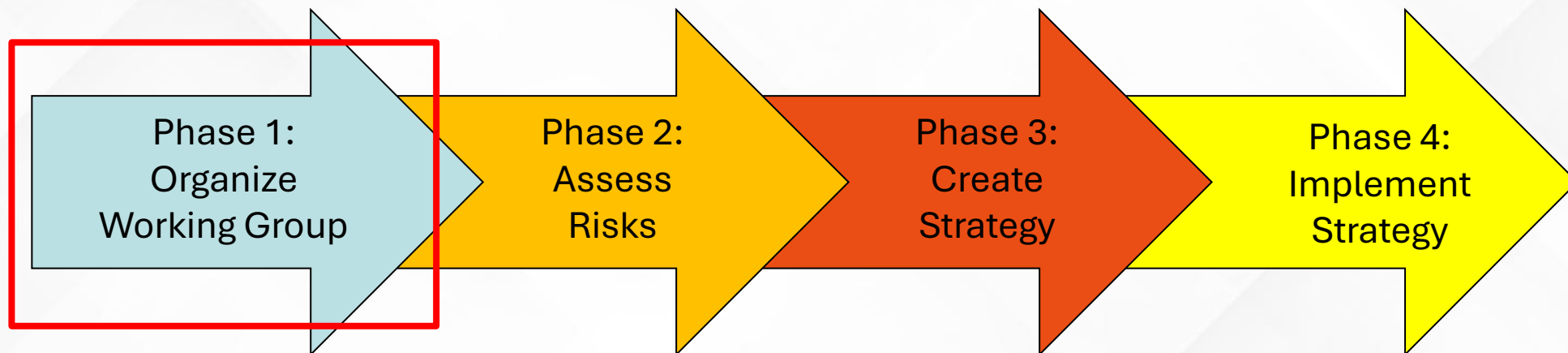


FL-393 Mitigation for Emergency Managers

Units 1 - 5 Recap



Mitigation Planning Process



Phase 1: Organize Working Group

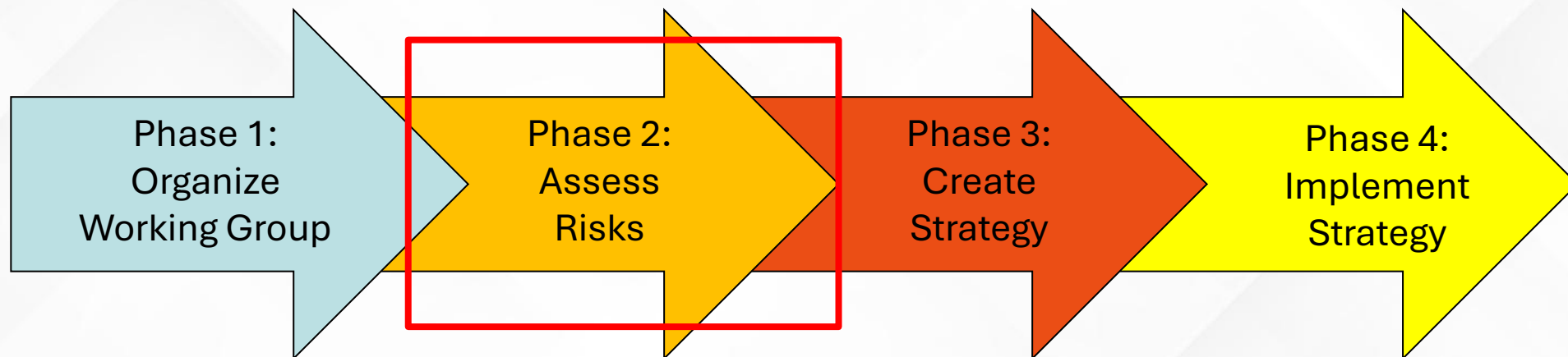
Step 1: Determine the planning area, stakeholders, and resources

Step 2: Identify how stakeholders can contribute

Step 3: Create communication plan



Mitigation Planning Process



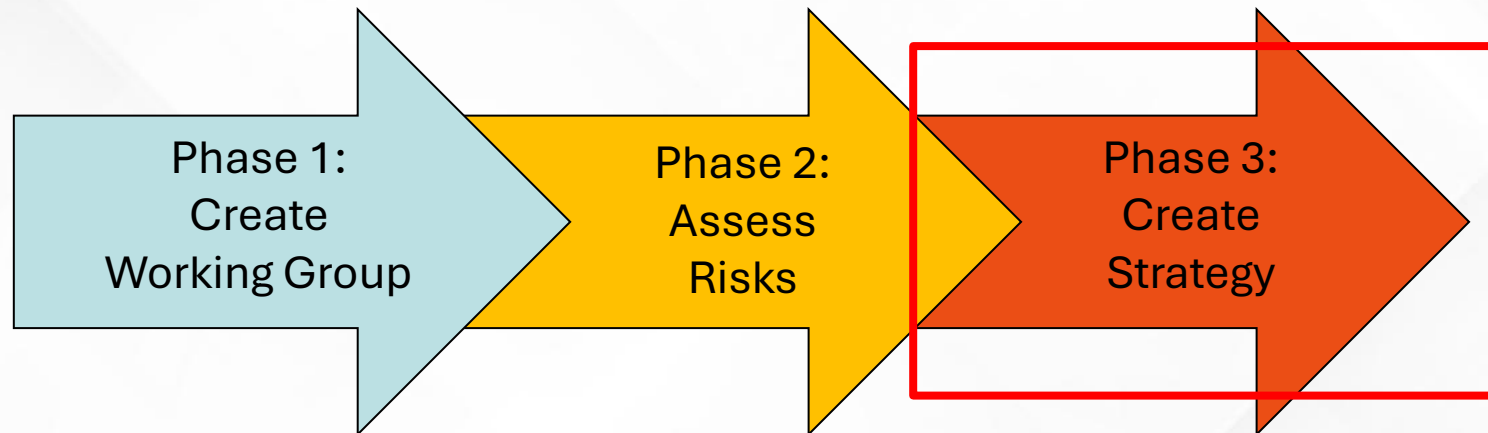
Phase 2: Assess Risks

Step 4: Review community priorities and vulnerabilities

Step 5: Analyze hazards affecting the planning area



Where are we in the process?



Phase 3: Document the Mitigation Strategy

Step 6: Develop problem statements, goals & objectives, and projects

Step 7: Prioritize mitigation projects and identify resources

Step 8: Document the implementation strategy; consider capabilities and limitations



Unit Overview

Unit 6: Prioritize mitigation projects and identify resources

Terminal Objective:

Evaluate methods of project prioritization and potential funding sources

Supporting Objectives:

- ☐ Prioritize identified projects
- ☐ Review state-administered & additional funding sources



Identify Existing Mitigation Projects

If there are many mitigation projects that would benefit your community, but resources are limited, what must be done?





Step 7: Prioritize Projects & Identify Resources

Projects must be organized to determine priority for implementation.

- Consider your community vulnerabilities and goals
- Determine if projects align with local capabilities
- Prioritize selected projects on official project list



Working Group Prioritization Methods

- Custom point/scoring system
 - Criteria based on local priorities
- Benefit-cost review
 - Cost, project readiness, match availability, probability of funding, consistency with other plans, community benefit
- Categorization and consensus
 - Project types (e.g., lift stations, drainage, critical infrastructure, hardening/retrofit, planning, etc.) are categorized first, then projects are prioritized within each category; followed by a majority vote for approval from working group



Point System Prioritization

Example: Suwannee County

Prioritization Criteria	Weighted Values	
1. Does it accomplish one, more than one, or all of the LMS goals?	5 points for each goal accomplished	With no more than 25 points assigned
2. Does it promote the reduction of the loss of lives?	Yes = 25 points	No = 0 points
3. Does it promote the reduction in property damage?	Yes = 20 points	No = 0 points
4. Is the project required by regulation or is there an additional benefit to be provided by sponsoring agency (federal, state, or local programs)?	Yes = 10 points	No = 0 points
5. Is there funding already available?	Funding source already identified	10 points
	Strong potential funding source	7 points
	No funding source identified	0 points
	If multiple funding sources are identified	3 additional points

* Prioritization examples used from 2023 state-wide assessment data.



Benefit-Cost Review Prioritization

Example:
Hamilton County

Scores	Issues
	Cost or Cost Impact
	Probability of Funding
	Probability of Community Acceptance
	Complexity of Implementation
	Addressed in Plans, Programs, and Policies
	Health and Safety Considerations
	Total Score

* Prioritization examples used from 2023 state-wide assessment data.



Categorization & Consensus Prioritization

Example: Bay County

The mitigation project categories are prioritized as follows:

1. Lift Station Elevation
2. Storm water/Drainage Mitigation/Road Elevation
3. Critical Infrastructure/Facility Protection & Mitigation to include Bridges and County roadways
4. Hardening/Retrofit
5. Floodplain Acquisition
6. Mitigation Planning
7. Mitigation Training, Education & Public Outreach
8. Traffic Signal - Mast Arm
9. Traffic Signal/Lift Station - Permanent Generator/UPS

* Prioritization examples used from 2023 state-wide assessment data.



STAPLEE Method

- S - Social considerations
- T - Technical feasibility
- A - Administrative capabilities
- P - Political will/local champion
- L - Legal authority
- E - Economic (Cost-Benefit Analysis)
- E - Environmental constraints



STAPLEE ACTION EVALUATION TABLE

* Prioritization examples used from 2023 state-wide assessment data.



Unit 6, Activity 1

Compare and score three mitigation projects using STAPLEE (or another scoring method)

Allotted Time: 20 Minutes

FL-393 Mitigation Planning for Emergency Managers

Prioritizing Mitigation Projects

Unit 6, Activity 1

Prioritization is critical as funding is not typically readily available to accomplish all identified actions/projects. Using 3 projects your group identified in Unit 5, Activity 2, evaluate and score your projects below. You may use STAPLEE, another prioritization method presented, or develop your own. Be prepared to explain the selected method and rationale.

Results of Analysis	
Project	Score Breakdown
Project #1:	
Project #2:	
Project #3:	

FL-393 Mitigation Planning for Emergency Managers

Prioritizing Mitigation Projects

Unit 6, Activity 1

Once mitigation projects are identified, you can begin evaluating and prioritizing them. Prioritization is important as funding is not typically readily available to accomplish all identified actions/projects. STAPLEE is a commonly used, standard method of prioritization.

STAPLEE CRITERIA

SOCIAL

- Will the action be socially acceptable to the community?
- Will it cause any one segment of the population to be treated unfairly?
- Will the action disrupt established neighborhoods, break up voting districts, or cause the relocation of low- or reduced-income people?
- Is the action compatible with present and future community values?

TECHNICAL

- What consequences are created by this approach?
- Most importantly, will it solve the problem?
- Considering other community goals, is it the most useful?

ADMINISTRATIVE

- Does the community have the capability to implement the action?
- Can the community provide any maintenance necessary?
- Are staff, technical experts, and funding (initially) sufficient?
- Can it be accomplished in a timely manner?

POLITICAL

- Have all the stakeholders been offered an opportunity to participate in the planning process?
- How can the mitigation goals be accomplished at the lowest cost to the stakeholders?
- Is there public support both to implement and maintain this measure?
- Is the political leadership willing to propose and support this measure?

LEGAL

- Does the community have the authority to implement the proposed measure?
- Is there a clear legal basis for the measure?
- Is enabling legislation necessary?
- What are the legal ramifications?
- Will the community be liable for the actions or support of actions, or lack of action?
- Is it likely to be challenged?

ECONOMIC

- What are the costs and benefits of the measure (B/C ratio)?
- How will the implementation of this measure affect the fiscal capability of the community?
- What burden will be placed on the tax base or the local economy?
- Does the action contribute to other community economic goals, such as capital improvements or economic development?

ENVIRONMENTAL

- How will this action affect the environment?
- Will this measure comply with local, state, and federal environmental regulations?
- Is the action consistent with community environmental goals?





Prioritize Mitigation Projects

What other things would you consider in prioritization of projects?





Further Considerations

Items to consider when scoring:

- Determine the project construction timeline
- Review requirements of funding opportunities
- Equity among jurisdictions/eligible sub-applicants
- Nature-based solutions or innovative projects
- Utilizing partnerships/multi-jurisdictional projects
- Including components for future conditions
- Cross-benefits (e.g., CRS components, NFIP requirements)



Step 7: Prioritize Projects & Identify Resources

Identify the responsible agencies

- Who is the most appropriate entity to lead each project?

Identify resources to implement the projects

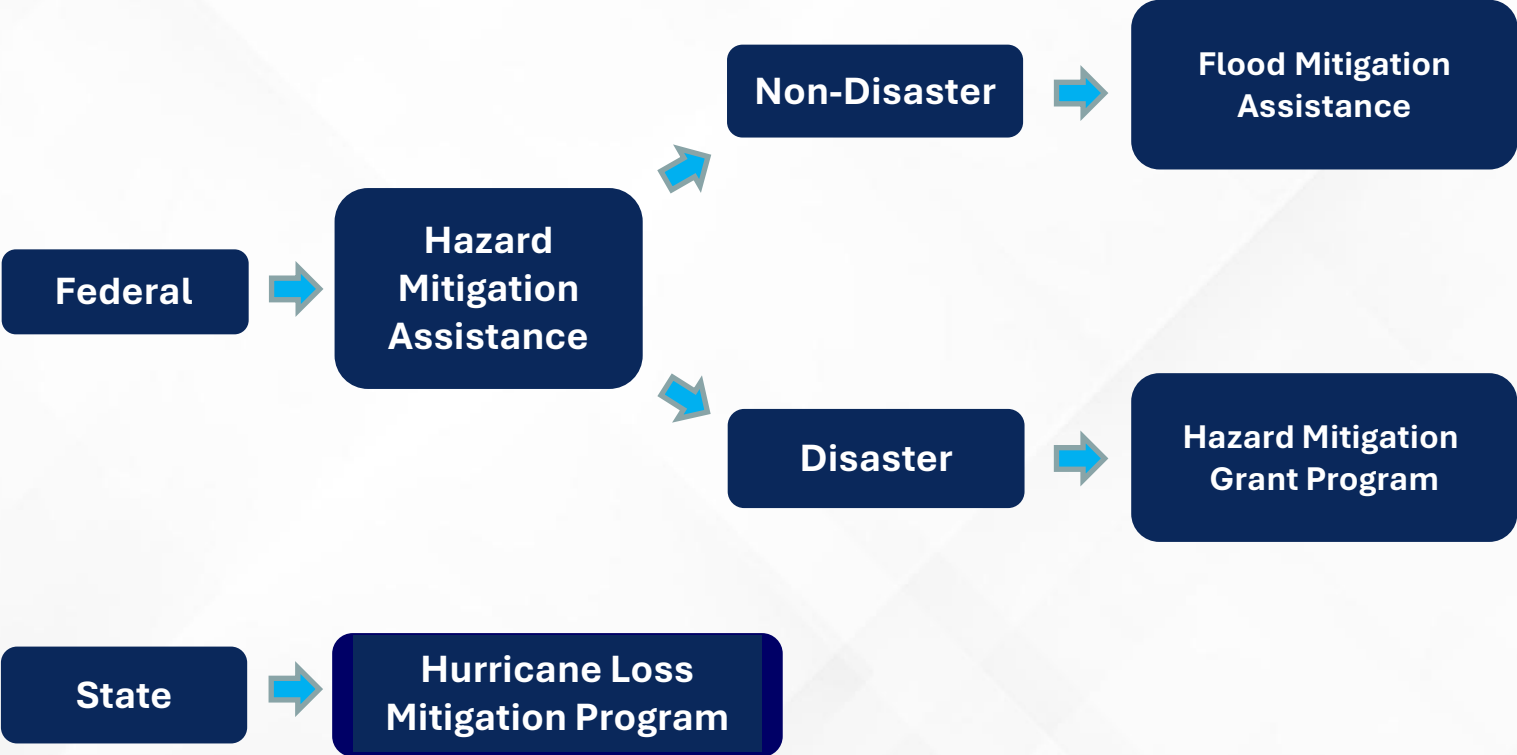
- What funding is available?

This information should be documented in a Prioritized Project List!



Mitigation Funding Programs

The following grant programs are administered by the Florida Division of Emergency Management





Hazard Mitigation Grant Program

*Federal, post-disaster grant
authorized by Section 404 of the
Robert T. Stafford Disaster
Relief and Emergency
Assistance Act.*

GOAL: Assist in implementing
long-term hazard mitigation
following a major disaster
declaration.

**Counties must have a recognized working group
and current, FEMA-approved LMS Plan to
participate.**

PERIOD OF PERFORMANCE

4 years

TYPE & COST SHARE

*Cost reimbursement grant
75% federal / 25% non-federal*

ALLOCATION

*20% of federal disaster assistance for a
disaster*

*FL allocates using a 3-tier system
(established by F.A.C. 27P-22), providing to
impacted counties first*

ELIGIBLE APPLICANTS

*States, local, and tribal governments
*Non-profit organizations, individuals, & businesses
can apply through local gov.*



Eligible Projects - HMGP



Elevations
Acquisitions
Dry Floodproofing
Flood Risk Reduction



Structural Retrofitting
Infrastructure Retrofitting



Wildfire Mitigation



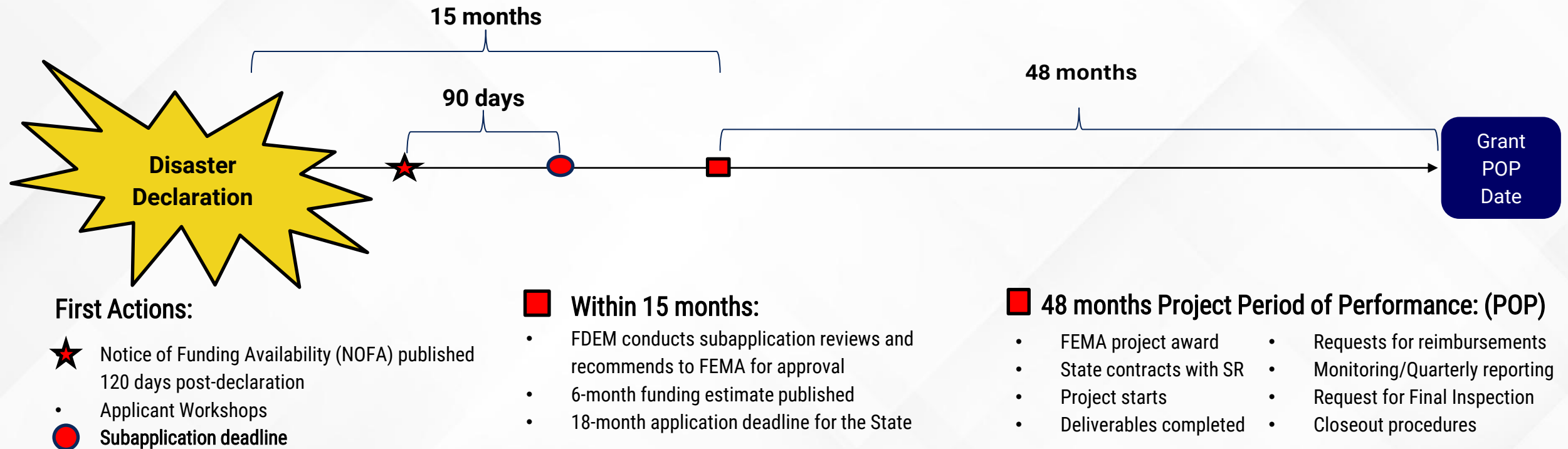
Critical Facility Generators
System Retrofits



New Construction*
Safe rooms, Code Plus, Mitigation
Reconstruction, Wastewater Treatment Plant
Relocation



HMGP Implementation Timeline





HMGP NOFA Creation

- HMGP funding = federal aid based on IA & PA data
- County share set by IA, PA, SBA recovery percentages
- 30 -Day Estimate = planning
- 6-Month Estimate = planning
- 12-Month Estimate = lock-in cap
- NOFA shows federal share + 25% local match

FEMA-4828-DR-FL 30-Day Estimate as of 2/6/2025

County	Regular Projects HMGP Funding	25% Match Required
Alachua	\$ 11,867,595.20	\$ 3,955,865.07
Baker	\$ 1,434,022.02	\$ 478,007.34
Bay	\$ 42,231.20	\$ 14,077.07
Bradford	\$ 3,106,392.81	\$ 1,035,464.27
Calhoun	\$ -	\$ -
Charlotte	\$ 14,952,307.31	\$ 4,984,102.44
Citrus	\$ 11,426,919.05	\$ 3,808,973.02
Collier	\$ 803,173.47	\$ 267,724.49
Columbia	\$ 15,170,398.94	\$ 5,056,799.65
Dixie	\$ 23,253,912.66	\$ 7,751,304.22
DeSoto	\$ 54,436.84	\$ 18,145.61
Duval	\$ 5,413,556.16	\$ 1,804,518.72
Escambia	\$ -	\$ -
Franklin	\$ 207,402.62	\$ 69,134.21
Gadsden	\$ -	\$ -



HMGP Allocation System

In Florida, HMGP funding is distributed, or allocated, to counties utilizing a tiered system as outlined in FAC 27P-22.

TIER ONE

Initial allocation of submitted and eligible projects will be funded in order of priority as endorsed by the LMS Working Group in presidentially declared counties.

TIER TWO

Any allocation remaining after all eligible projects in any declared county are funded will go to another declared county LMS Working Group with a partially funded project contained in original submission.

TIER THREE

If funds remain after the Tier Two funding process, the un-obligated funds will be provided to any non-declared LMS Working Group statewide with a project application submitted within the application period, on a first-come-first-serve basis until all available funds are obligated.



HMGP Allocation System

The County has an Allocation of \$7,262,310.39 for Helene
(Guaranteed funding / Tier 1)

Rank/Priority	Project Type	Total Project Cost	Federal Share	Running Sum
1	Wind-retrofit	\$ 1,300,000.00	\$ 975,000.00	\$ 975,000.00
2	Utilities	\$ 200,000.00	\$ 150,000.00	\$ 1,125,000.00
3	Infrastructure Retrofit	\$ 1,464,460.00	\$ 1,098,345.00	\$ 2,223,345.00
4	Utilities	\$ 500,000.00	\$ 375,000.00	\$ 2,598,345.00
5	Generator	\$ 1,500,000.00	\$ 1,125,000.00	\$ 3,723,345.00
6	Flood mitigation	\$ 200,000.00	\$ 150,000.00	\$ 3,873,345.00
7	Wind-retrofit	\$ 205,000.00	\$ 153,750.00	\$ 4,027,095.00
8	Generator	\$ 600,000.00	\$ 450,000.00	\$ 4,477,095.00
9	Utilities	\$ 168,475.00	\$ 126,356.25	\$ 4,603,451.25
10	Utilities	\$ 200,000.00	\$ 150,000.00	\$ 4,753,451.25
11	Mitigation Reconstruction	\$ 600,000.00	\$ 450,000.00	\$ 5,203,451.25
12	Wind-retrofit	\$ 750,000.00	\$ 562,500.00	\$ 5,765,951.25
13	Safe room	\$ 150,000.00	\$ 112,500.00	\$ 5,878,451.25
14	Wind-retrofit	\$ 1,142,541.00	\$ 856,905.75	\$ 6,735,357.00
15	Flood mitigation	\$ 500,000.00	\$ 375,000.00	\$ 7,110,357.00
16	Wind-retrofit	\$ 1,193,612.00	\$ 895,209.00	\$ 8,005,566.00
17	Shelter	\$ 950,000.00	\$ 712,500.00	\$ 8,718,066.00
18	Utilities	\$ 1,750,000.00	\$ 1,312,500.00	\$ 10,030,566.00
19	Utilities	\$ 750,000.00	\$ 562,500.00	\$ 10,593,066.00
20	Generator	\$ 600,000.00	\$ 450,000.00	\$ 11,043,066.00



Flood Mitigation Assistance

*Federal, non-disaster grant
authorized by the National
Flood Insurance Act (42 USC
4104c) and
2 CFR Part 200.*

GOAL: Reduce or eliminate claims
under the NFIP by reducing or
eliminating risk of repetitive flood
damage to insured buildings and
structures.

TYPE & COST SHARE

*4 year period of performance
Cost reimbursement grant*

Community flood projects:
75% federal / 25% non-federal

Repetitive Loss (RL) projects:
90% federal / 10% non-federal

Severe RL projects:
100% federal

ALLOCATION

*Annual appropriation by Congress
Nationally competitive*

ELIGIBLE APPLICANTS

*States, local and tribal governments
*Non-profit organizations, individuals, & businesses
can apply through local gov.*



Eligible Projects - FMA



Elevations
Acquisitions
Dry Floodproofing
Flood Risk Reduction



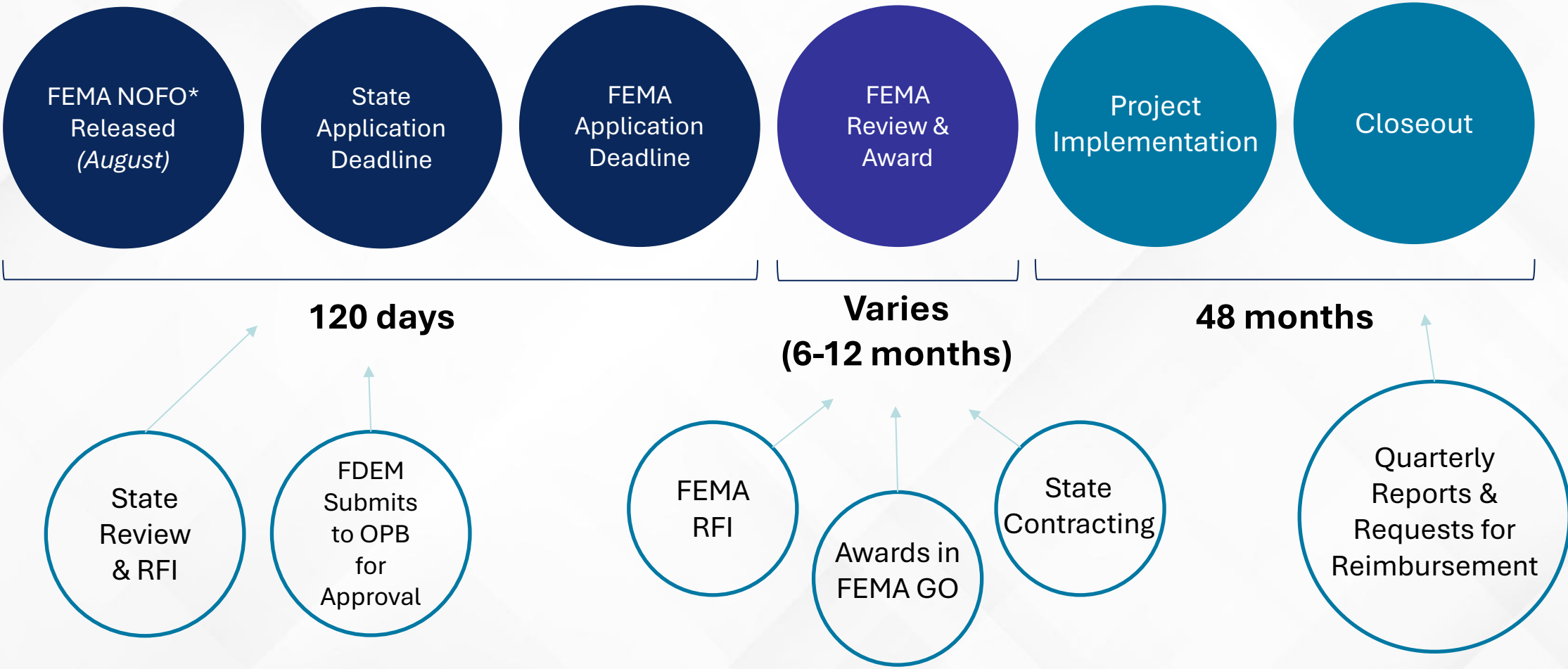
Structural Retrofitting
Infrastructure Retrofitting
Mitigation Reconstruction



Mitigation Planning
Management Costs



Non-Disaster Implementation Timeline



**Notice of Funding Opportunity typically released in August; timing may vary*



Notice of Funding Opportunity – FMA

<https://www.fema.gov/grants/mitigation/learn/notice-funding-opportunities/fma/fy2023-nofo>

<https://www.grants.gov/search-results-detail/350564>

The U. S. Department of Homeland Security (DHS)
Notice of Funding Opportunity (NOFO)
Fiscal Year 2024 Flood Mitigation Assistance

SUMMARY OVERVIEW OF KEY INFORMATION	
FEDERAL EMERGENCY MANAGEMENT AGENCY (FEMA) FLOOD MITIGATION ASSISTANCE (FMA)	
Program Overview	The Flood Mitigation Assistance (FMA) grant program makes federal funds available to states, U.S. territories, federally recognized tribal governments, ¹ and local governments to reduce or eliminate the risk of repetitive flood damage to buildings and structures insured under the National Flood Insurance Program (NFIP), and within NFIP-participating communities. It does so with a recognition of the growing flood hazards associated with climate change ² and of the need for flood hazard risk mitigation activities that promote climate adaptation, equity, and resilience with respect to flooding. These include both acute extreme weather events and chronic stressors, which have been observed and are expected to increase in intensity and frequency in the future. The program is partially funded through the Infrastructure Investment and Jobs Act, also known as the Bipartisan Infrastructure Law (BIL), which infused \$3.5 billion in FMA grants over a 5-year period.
Goals and Objective	The purpose of the FMA program is to reduce or eliminate the flood risk of repetitive flood damage to structures and buildings insured by the NFIP and to enhance community flood resilience within NFIP-participating communities.
Eligible Projects	The FMA grant program funds three types of activities and projects: Capability and Capacity Building Activities, Localized Flood Risk Reduction Projects, and Individual Flood Mitigation Projects.
Deadlines	NOFO Availability Window Start Date: 01/06/2025 Applicant Eligibility Period Start Date: 01/06/2025 Application Submission Deadline: 04/18/2025
Funding Amount	Available Funding for the NOFO: \$600,000,000 • Capability and Capacity Building Activities subtotal: \$60,000,000 • Localized Flood Risk Reduction Projects subtotal: \$420,000,000 • Individual Flood Mitigation Projects subtotal: \$120,000,000

¹ The term "federally recognized tribal government," as used in this funding opportunity, has the same meaning as "Indian Tribal government," as defined at 44 Code of Federal Regulations (C.F.R.) § 17.20.

² Climate change is "Changes in average weather conditions that persist over multiple decades or longer. Climate change encompasses both increases and decreases in temperature, as well as shifts in precipitation, changes in frequency and location of severe weather events, and changes to other features of the climate system." (<https://nca2023.globalchange.gov/chapter/appendix-5/>)



Hurricane Loss Mitigation Program

*State, non-disaster grant
authorized by Florida Statute
215.559.*

GOAL: Improve flood and wind
resilience of residences and
community buildings.

PERIOD OF PERFORMANCE

1 year

TYPE & COST SHARE

*Cost reimbursement grant
100% State funded; no local match required*

ALLOCATION

HLMP: \$3.5 million annually

Other Annual Allocations:

*Hurricane Public Shelter Retrofit Program: \$3 million
Mobile Home Tie Down Program: \$2.8 million
FIU International Hurricane Research Center: \$700,000*

ELIGIBLE APPLICANTS

Counties, cities, and non-profit organizations

**Individuals can apply through eligible applicant*



Eligible Projects - HLMP



Residential/Non-Residential Wind
Retrofits
Tree Trimming



Localized Flood Risk
Reduction



Property Acquisition and
Demolition



Other Funding Sources

Federal

- FEMA's Hazard Mitigation Assistance Grants (6)
- FEMA's Rehabilitation of High Hazard Potential Dam
- FEMA's Resilient Grants (3)
- National Science Foundation (700+)
- NOAA's Office for Coastal Resource Management (7)
- USACE Flood Risk Management Program
- USACE Florida Silver Jackets
- US Department of Energy, Energy Efficiency and Conservation Block Grant Program
- US Department of Housing and Urban Development Community Development Grant Programs (9)
- US Department of Housing Community Planning and Development Programs (17)
- USDA Rural Development Loans and Grants (38)
- US Economic Development Administration (5)
- US Environmental Protection Agency (16)
- US Green Building Council Habitat Protection Grants (4)

State

- Coastal Partnership Initiative Grant Program
- Florida Communities Trust Fund
- Florida Hurricane Catastrophe Fund
- Hurricane Loss Mitigation Program (HLMP)
- Hurricane Restoration Reimbursement Grant Program
- Resilient Florida Grant Program

Non-Governmental Organizations

- American Institute of Architects
- American Society of Landscape Architects
- American Planning Association
- Association of State Floodplain Managers
- Firewise USA
- Rockefeller Foundation

**Expanded funding source information available in your Resource Packet.*





Unit Overview

Unit 6: Prioritize mitigation projects and identify resources

Terminal Objective:

Evaluate methods of project prioritization and potential funding sources

Supporting Objectives:

- ☒ Prioritize identified projects
- ☒ Review state-administered & additional funding sources



Break Time – 10 Minutes



Unit Overview

Unit 7: Documentation Considerations

Terminal Objective:

Discuss various documentation for capturing data in the LMS

Supporting Objective:

- ☐ Tie capabilities into LMS documentation
- ☐ Identify key considerations when supplying supporting documentation



Step 8: Document the Implementation Strategy; Consider Capabilities and Limitations

Collect and organize documentation throughout the mitigation planning process to support plan development and future updates

Working group should use documentation to:

- Make decisions
- Develop a local mitigation strategy plan
- Review the plan

Ensure:

- The timeline and utilization of resources are realistic
- Responsibilities are assigned to the appropriate parties
- Projects are cost-effective and feasible



Analyze Local Mitigation Capabilities

Remember the
four categories of
capabilities?





Documenting Example: Planning and Regulatory

Example: St. Johns County

Plan/Ordinance/Capability	St. Johns County	City of St. Augustine	City of St. Augustine Beach	School District
Comprehensive Plan	X	X	X	C
Land Development Code	X	X	X	C
Florida Building Code	X	X	X	X
Building Code Effectiveness Grading Schedule (BSEGS) Rating (Commercial / Residential)	3/4	3 / 4	2 / 3	n/a
Stormwater management program	X	X	X	C
Site plan review requirements	X	X	X	X
Capital Improvement Plan	X	X	X	X
CEMP	X	X	X	X
Flood Insurance Study or other flood study requirements	X	X	X	C
Participates in the NFIP	X	X	X	n/a
Participates in the CRS	X	X	X	n/a
Post-Disaster Redevelopment Plan				
FDEP Vulnerability Assessment	X	X	*	C
FDEP Adaptation Plan	*	*	*	
Designated resiliency position	X	X		
Dedicated grant staff	X	X		
Ability to contract with subject matter experts to augment staffing levels	X	X	X	X
Participates in Resilient First Coast initiative	X	X	X	
* - indicates "under development" X - indicates currently "in place" C - indicates it's covered by another jurisdiction's requirements				

* Sourced from 2025 St. Johns County LMS.



Documenting Example: Administrative

Example: Pinellas County

Staff/Personnel Resources	Unincorporated	Belleair	Belleair Beach	Belleair Bluffs	Belleair Shore	Clearwater	Dunedin	Gulfport	Indian Rocks	Indian Shores	Kenneth City	Largo	Madeira Beach	North Redington	Oldsmar	Pinellas Park	Redington Beach	Redington Shores	Safety Harbor	St. Petersburg	St. Pete Beach	Seminole	South Pasadena	Tarpon Springs	Treasure Island
Planners with knowledge of land development and land management practices	X	X	X	X		X	X	X	X	X	X	X	X		X	X		X	X	X	X	X			X
Engineers or professionals trained in construction practices related to buildings and/or infrastructure	X	X	X	X		X	X		X	X	X	X	X	X	X	X		X	X	X	X	X		X	X
Emergency manager	X	X	X	X		X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X
Floodplain manager	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Staff with Certified Floodplain Manager (CFM) credentials	X		X			X	X		X		X	X	X		X	X	X	X	X	X	X		X	X	X
Land surveyors	X	X	X			X			X		X								X	X	X	X			X
Personnel skilled in Geographic Information Systems (GIS)	X	X	X			X	X		X			X	X		X	X			X	X		X		X	X
Grant writers	X		X			X		X	X		X	X		X	X	X				X				X	

* Sourced from 2025 Pinellas County LMS.



County Capabilities as a Narrative

Example: Bay County

Bay County and its Municipalities use the above funding options to enhance mitigation opportunities to recover, rebuild and sustain a more economic and viable community for the future. All municipalities within Bay County fall under the Bay County Comprehensive Emergency Management Plan. Each entity has representation on the LMS Working Group to review, evaluate and add projects that will mitigate risks and add resilience to the County from future disaster events. Each entity has its own Floodplain and Land Development Code that includes the most current FEMA FIRM Maps that are adopted and kept to the most up-to-date and stringent codes required. Bay County is completing the update on the Comprehensive Emergency Management Plan which will include all municipalities within its jurisdiction.

The major gap that the smaller communities have is access to local GIS Systems to track elevation certificates and perform disaster assessments. Callaway, Lynn Haven, Mexico Beach, Parker and Springfield must rely on the County to track and perform the GIS computer tracking for their entity after disaster events. This process works but causes a slower process for the entities since they do not have direct access to GIS information and must rely on the County personnel. As funding becomes available, the smaller municipalities will look for grants to upgrade their current system to a “four-runner” GIS system that will work in tandem with the County’s GIS system.



Key Considerations for Documentation

- Update information within the plan as necessary
- Review and revise the plan after public comment periods, keeping the public engaged
- Use plain language
- Maintain records of meetings, outreach events, planning process meetings, etc.
- Concur on final style decisions
 - Length, level of detail
 - Format, sections, page numbers
 - Easy to navigate
 - Alternative languages



Working Group Final Considerations

The Working Group should confirm:

- Capacity, capabilities, gaps, limitations are documented
- The timeline and utilization of resources is realistic
- Data is up to date
- Responsibilities are assigned to the appropriate parties



Working Group Final Considerations

The Working Group will create a plan for Monitoring, Evaluating, and Updating the plan. This includes:

- Who is responsible
- When are these actions initiated
- How is the plan monitored/evaluated/updated



Unit Summary

Unit 7: Documentation Considerations

Terminal Objective:

Discuss various documentation for capturing data in the LMS

Supporting Objective:

- ☒ Tie capabilities into LMS documentation
- ☒ Identify key considerations when supplying supporting documentation



Unit Overview

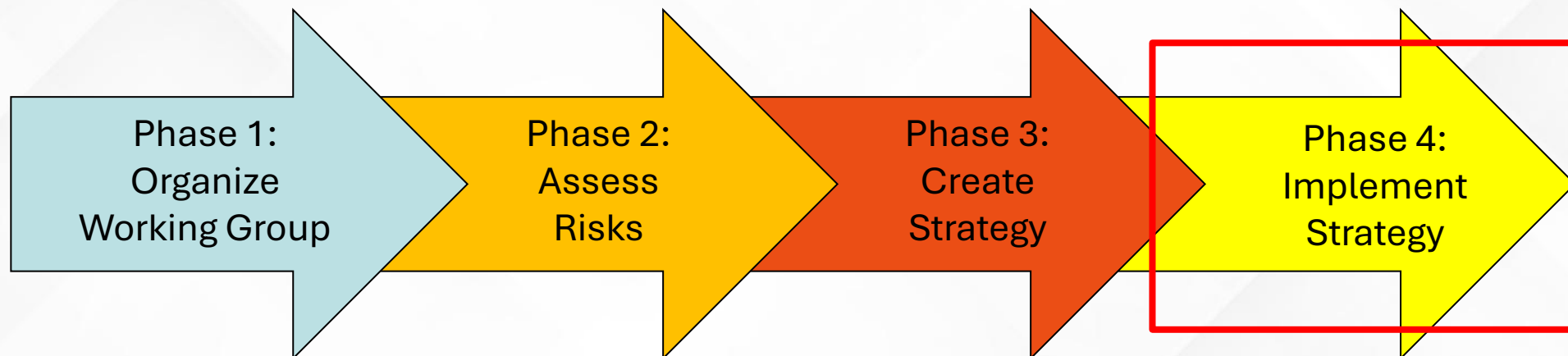
Unit 8: Implement and Maintain a Mitigation Plan

Terminal Objective:

- ☐ Identify Mitigation Plan maintenance schedule and associated tasks



Where are we in the process?



Phase 4: Implement Strategy

Step 9: Adopt the Plan

Step 10: Plan Maintenance



Step 9: Adoption Process

- Working Group revision
- Public review
 - Open for public comment
 - Revise based on public feedback
- Final draft (ready for State/FEMA review)
 - Should be submitted 6-months prior to plan expiration
- State approval pending adoption via resolutions
- FEMA approval



Phase 4: Implement the Strategy

Step 10: Plan Maintenance

Part 1: Monitoring the Plan

Part 2: Evaluating the Plan

Part 3: Updating the plan





Part 1: Monitoring the Plan

Monitor

Identify what seems to be working

Review FEMA/State feedback

Identify process changes

Record proposed changes for what seems to not be working



Part 2: Evaluating the Plan

Evaluate

Assess effectiveness and progress

Identify next steps and potential updates

Recommend changes or updates

Analyze relevant new data and feedback

Determine changes in goals, objectives, or prioritization

Evaluate impact of completed actions



Part 3: Updating the Plan

Update

New information on risks and assets

Changes in development and population

Progress in implementation

Priority changes



Plan Maintenance

What challenges might you face when conducting plan maintenance?





*

-
- Hazard Mitigation Plan**
- Year 1: Plan Approval**
Ensure all participants adopt the plan – adoption is the first step towards the 4 I's
- Year 2:**
Start conducting annual meetings and tracking actions and progress
- Year 3:**
Start the process to secure funding for the plan update
- Year 4:**
Begin planning process, determine the planning lead (or a consultant) and convene planning team
- Year 5:**
Finalize risk assessment, develop mitigation strategies and finish writing the plan
- PROJECT GRANT FUNDING CYCLE**
PLANNING GRANT FUNDING CYCLE

* Image sourced from FEMA.



Unit Summary

Unit 8: Implement and Maintain a Mitigation Plan

Terminal Objective:

- ☒ Identify Mitigation Plan maintenance schedule and associated tasks



Unit Overview

Unit 9: Post-disaster Mitigation Activity

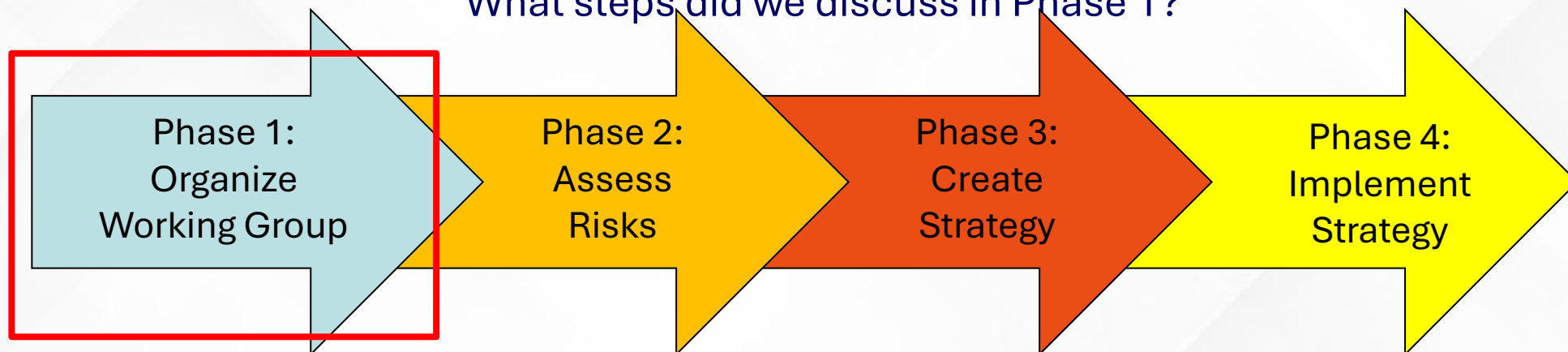
Terminal Objective:

- ☐ Apply all learned material to a post-disaster scenario



Phase 1 Review

What steps did we discuss in Phase 1?



Phase 1: Organize Working Group

Step 1: Determine the planning area, stakeholders, and resources

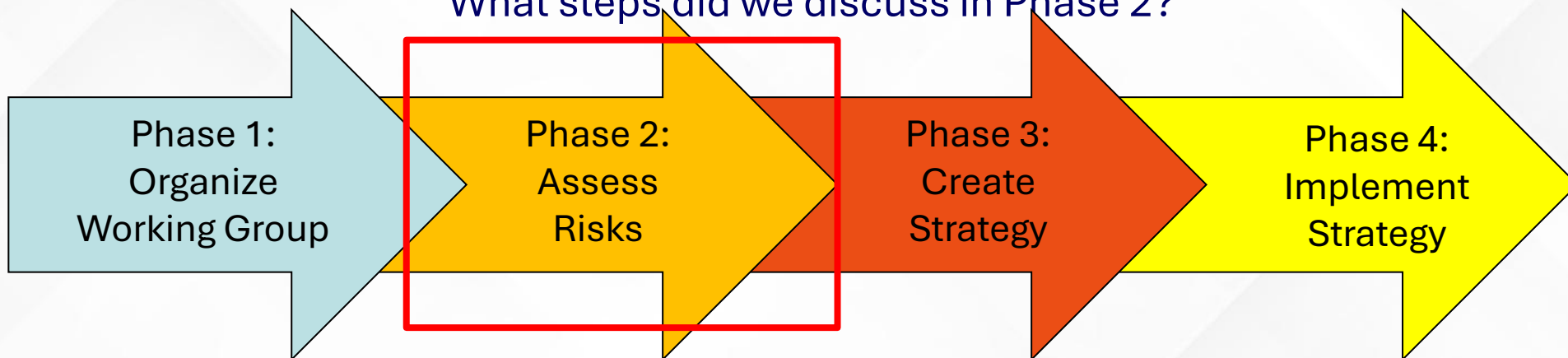
Step 2: Identify how stakeholders can contribute

Step 3: Create communication plan



Phase 2 Review

What steps did we discuss in Phase 2?



Phase 2: Assess Risks

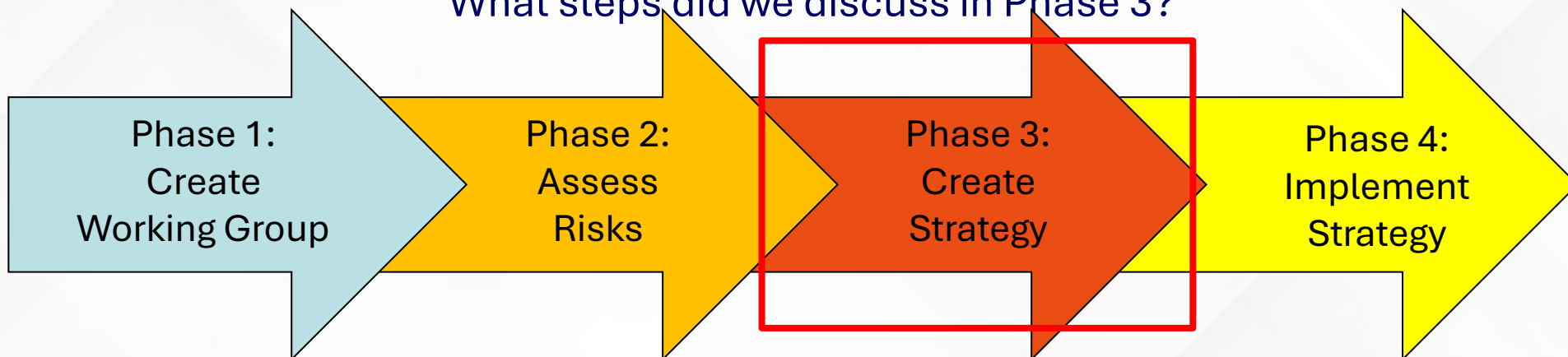
Step 4: Review community priorities and vulnerabilities

Step 5: Analyze hazards affecting the planning area



Phase 3 Review

What steps did we discuss in Phase 3?



Phase 3: Create Strategy

Step 6: Develop Problem Statements, Goals and Objectives

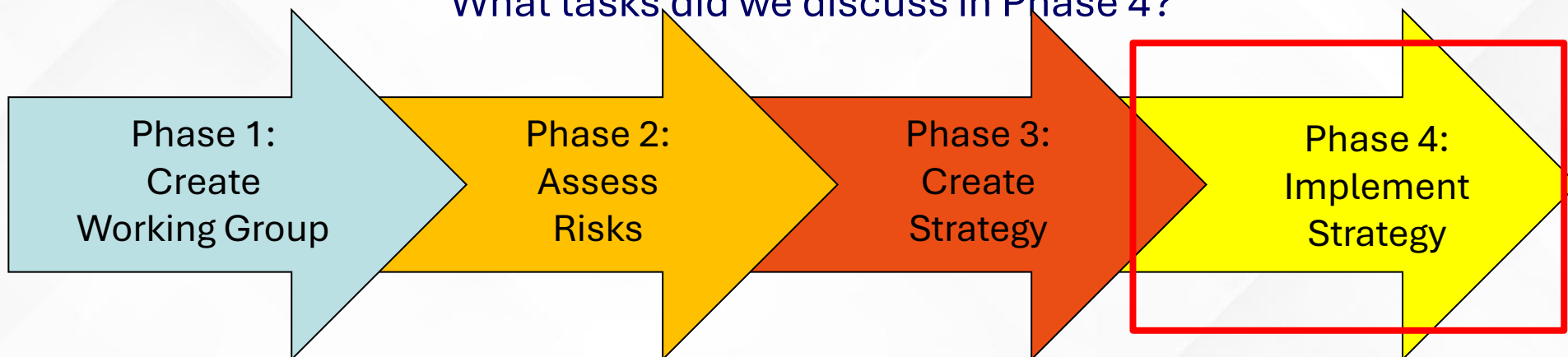
Step 7: Prioritize Mitigation Projects and Identify resources

Step 8: Document the Implementation Strategy; Consider Capabilities and Limitations



Phase 4 Review

What tasks did we discuss in Phase 4?



Phase 4: Implement Strategy

Step 9: Adopt the plan

Step 10: Plan maintenance



Activity Overview

Part 1: Background and establishing the Working Group

Part 2: Impacts and Damages (Policies and problems)

Part 3: Mitigation Strategy (Mitigation projects and resources)

- Real-world Scenario Review



Part 1: Background

Allotted Time:
15 Minutes

FL-393 Mitigation Planning for Emergency Managers

Post-Disaster Mitigation Exercise

Unit 9, Group Exercise

Part 1: Background

Read the background information about Palm Water Creek and follow the instructions that appear below.

The first coal-mining operations took place along the banks of Palm Water Creek in the 1820s. Palm Water Creek was also the first source of industrial and municipal water in the city of Blurple, until the mid-1870s when the creek became insufficient to supply the water. A canal was dug in 1887 to supplement the water system from Five Minute River. By the late 1920s, the city grew into the South's foremost industrial center. Both industry and working-class residential districts formed, causing worker housing to fill the floodplain of the creek.

Flooding started occasionally in the neighborhoods by the mid-1920s and by the late 1970s, residents watched flood water enter their homes at least once per year. As further industrial development increased, flooding grew worse. Some flood control measures aggravated the flooding problem.

In 1930, Blurple attempted to alleviate flooding of the creek by widening and clearing the creek channel. However, the flow of the creek was still restricted below the city limits and backed up in the low-lying areas of the neighborhoods. A corporation then constructed an artificial bank along the creek, allowing the dike to divert flood waters from the company's buildings, but made the flooding deeper on the opposite side of the creek. In 1951, 3,000 residents were marooned temporarily in their homes by floodwaters. The city and county were unable to tame the creek, and floodwaters grew more damaging and more deadly in the 1960s. By 1976, the residents demanded something be done about the creek, but no immediate action could be taken by the local governments.

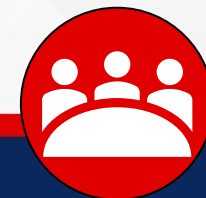
Since 1977, 11 federally declared flooding events have occurred.

Instructions

- Your group has been appointed by Palm Water Creek to serve as their Local Mitigation Strategy Working Group.
- You are charged with the responsibility of coordinating an effort to solve the community's repetitive flooding problems.
- A street map and a floodplain map of Palm Water Creek neighborhoods are included below.

Actions

- Record your plan of action on the blank page provided, including the following information:
 1. Organizations on the LMSWG will need to engage or recruit.
 2. A brief description of the process for developing a mitigation plan.
- You do not need to develop a complete mitigation strategy at this point.
- Space for notetaking is provided on the next page.





Part 2: Damages and Impacts

Allotted Time:
15 Minutes

G-393 Mitigation for Emergency Managers

Part 2: Impacts and Damages

Numerous neighborhoods sit in the floodway and floodplain of the Palm Water Creek, including approximately 4,574 residential dwellings, 196 commercial/industrial structures, and 87 critical facilities. The primary properties with recurring damage were structures located in the 100-year floodplain. Numerous structures were also in the floodway, which generally has higher velocity flow rates that cause more damage to structures.

Obstructions in the path of the water flow, such as undersized culverts and bridges, added to the problem. Other factors contributing to regular flooding included debris build-up and erosion from roadbeds.

In 1979, intense rainstorms resulted in the worst flood damage that Palm Water Creek neighborhoods had ever experienced. Preliminary damage assessments estimated total public and private damage in Palm Water Creek neighborhoods at over one million dollars. Flooding affected all properties and structures in the flood zones.

40 of the 196 commercial structures in the floodplain were substantially damaged, including a new, concrete-block grocery store. Every business suffered damage to some degree.

1,455 of the 4,574 residences in the floodplain were destroyed. All suffered flood damage.

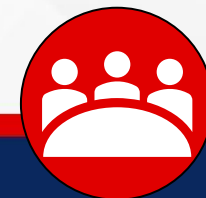
High winds associated with the storms also resulted in lost electric power in Palm Water Creek neighborhoods for a 10-day period.

The continued heavy rains aggravated the situation as the ground was already saturated. Roads and highways throughout the affected area were flooded and temporarily closed. Businesses had to halt operations because of flood damage and many employees' inability to get to work.

Instructions

Your working group must answer the following questions:

- What problems will arise in processing permits for repairs?
- How will you handle the increased need for additional resources?
- How will you increase/promote resilience within the community to better meet their needs in the future?
- What technical assistance will your community need to identify and accomplish mitigation projects?





Part 3: Mitigation Strategy

Allotted Time:
25 Minutes

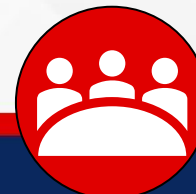
FL-393 Mitigation Planning for Emergency Managers

Part 3: Mitigation Strategy

Instructions

Your Working Group must complete the following actions:

- Identify any mitigation projects that are already in place and describe how effective they have been.
- Brainstorm several mitigation projects that might prevent these damages in the future. Refer to Unit Five for ideas. List at least four feasible projects.
- Evaluate your choices using the STAPLEE criteria reviewed in Unit Six.
- Select one or more mitigation projects that satisfy the STAPLEE criteria and develop your overall mitigation strategy.
- Research all possible resources for funding and technical assistance to implement the projects you have selected.
 - Refer to Unit Six for information about funding sources. Which of the state administered grants may the City of Blueville be eligible for and why?
 - Because you do not know whether the State will receive a Presidential disaster declaration, have a funding strategy prepared for either event.





Real-World Solution

Summary of Exercise

The scenario for this exercise was adapted from FEMA's Loss Avoidance Study: Birmingham, AL Acquisitions.

The solution we're about to discuss comes directly from the loss avoidance study.

Exercise Summary: Real-life solutions from Birmingham, Alabama

Further information can be found below on Village Creek, AL.

Loss Avoidance Study - <https://www.fema.gov/case-study/loss-avoidance-study-birmingham-al-acquisitions>

Case Study - <https://www.fema.gov/case-study/acquisition-evaluation-and-analysis-acquisition-successes-birmingham>

Historical data from Palm Water Creek - https://birminghamhistoricalsociety.files.wordpress.com/2020/02/bhs-village-creek-1985_lr.pdf



Real-World Solution

Acquisition and Relocation to remove structures from 100-year Floodplain and Floodway

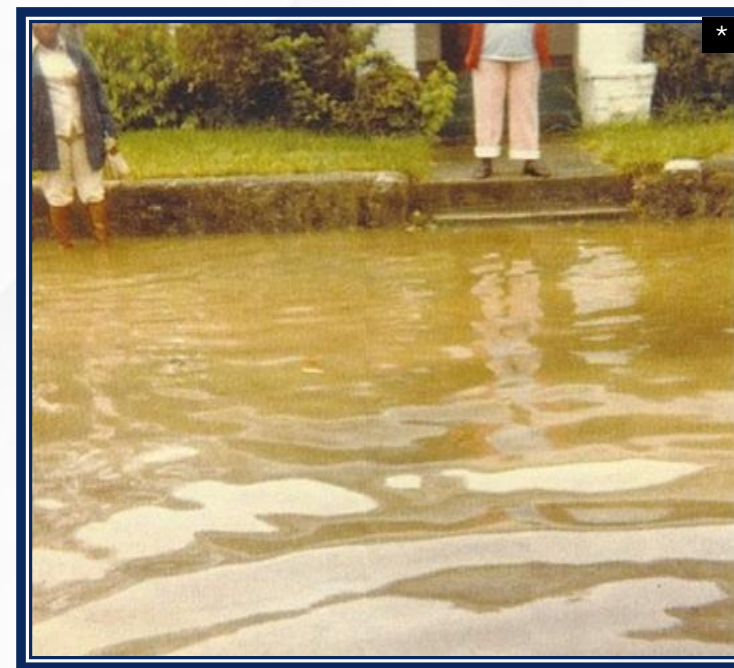
Total Acquisition: 735 properties

USACE Acquisition Cost:

- \$36,322,343

FEMA Acquisition Cost:

- \$7,070,426



* Image sourced from Village Creek Society



Real-World Solution

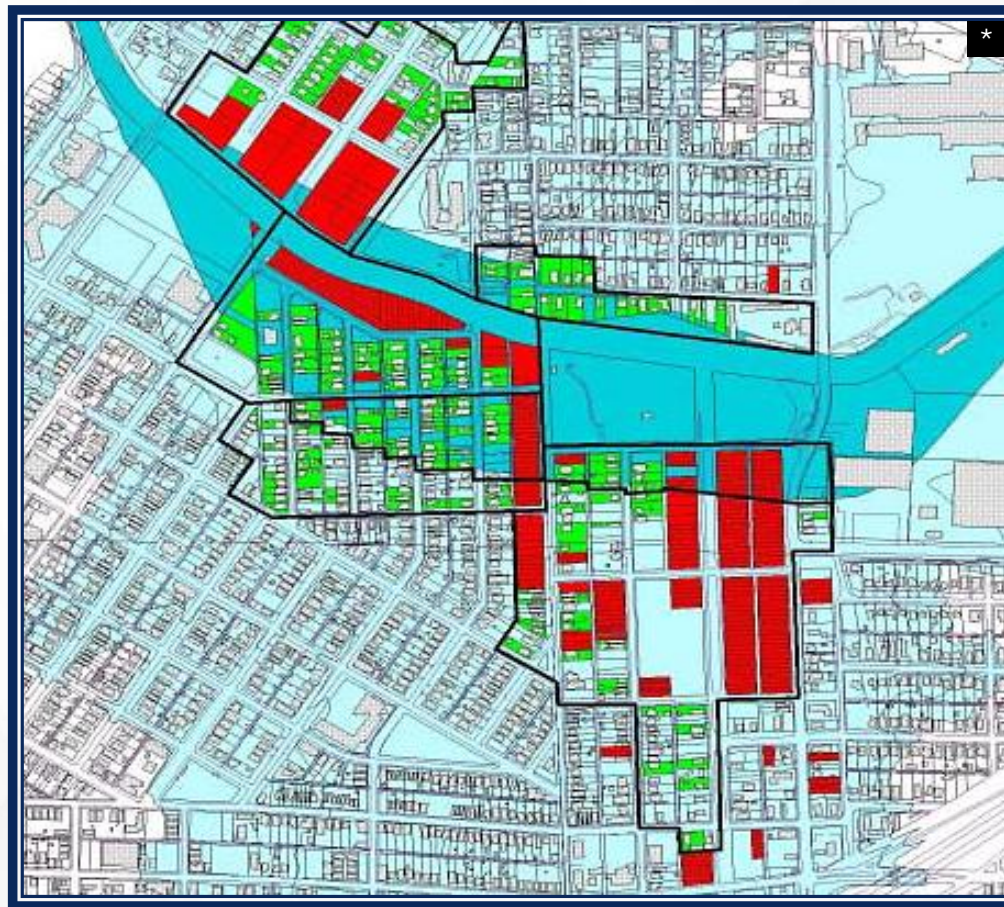
Loss Avoidance Study

- 6 floods (USACE area)
- 2 floods (FEMA area)

USACE Loss Avoided:
\$60,309,747
(166% loss avoidance)

FEMA Acquisition:
\$3,399,893
(48% loss avoidance)

Total Losses Avoided:
\$63,709,640 (146%)



* Image sourced from FEMA.



Real-World Solution

Orlo Vista Neighborhood Flood Mitigation Project

Further information can be found below on Orlo Vista, FL Orange County, FL Website for project: <https://www.ocfl.net/TrafficTransportation/StreetsandDrainageMaintenance/ManagingStormwaterandDebrisCleanup/OrloVistaFloodMitigationProject.aspx>

Project Update: https://www.ocfl.net/Portals/0/Library/Emergency-Safety/docs/ORLO%20VISTA%20FLOOD%20MITIGATION%20PROJECT%20UPDATE_11-13-24_0-CMcert.pdf

FEMA Environmental Assessment of Orlo

Vista: https://www.fema.gov/sites/default/files/documents/fema_orange-county-orlo-vista-neighborhood-drainage-improvements-final-ea.pdf



Real-World Solution

Hurricane Ian brought over 13 inches of rainfall to Orlo Vista, flooding many homes within the community

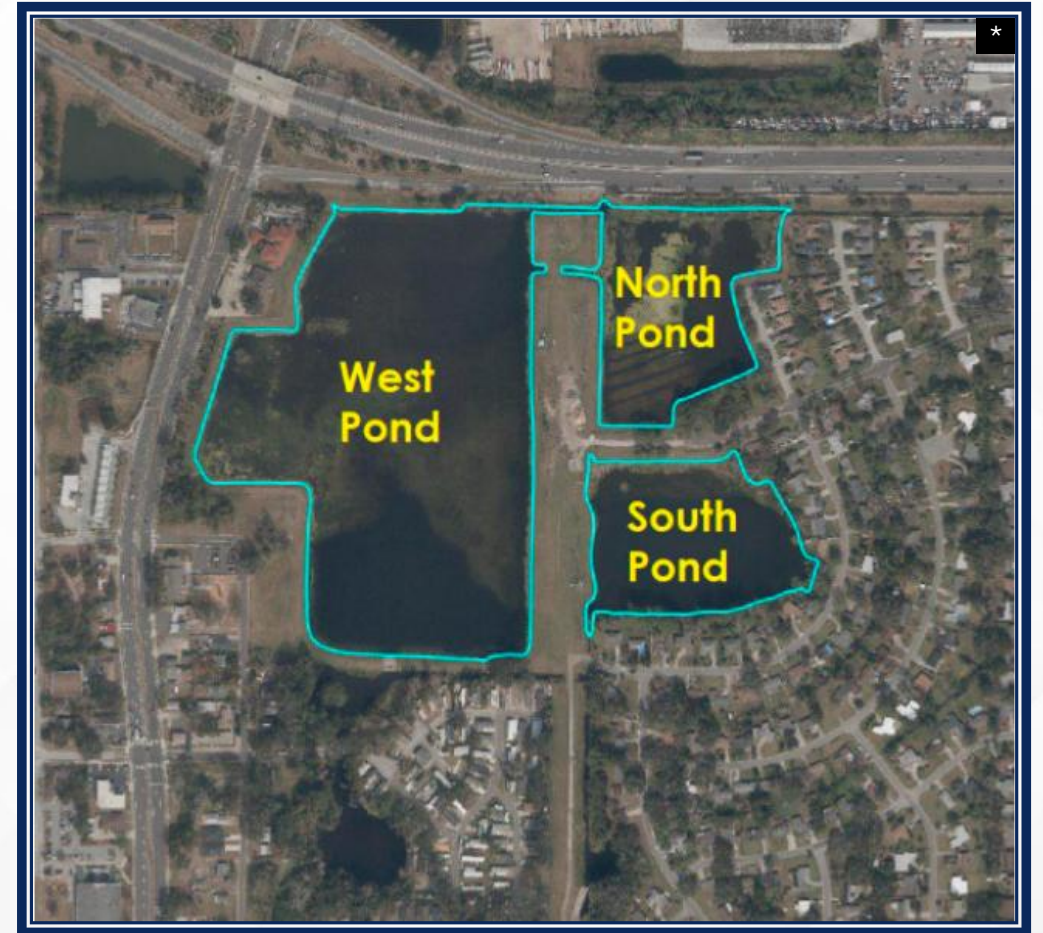


* Image sourced from Orange County Public Works



Real-World Solution

A \$23 Million Flood Risk Reduction project that included expanding the capacity of three retention ponds by making them deeper, as well as a new well-coordinated pumping strategy. This includes the deployment of temporary pumps to enhance water control both prior to and during the storm.



* Image sourced from Orange County Public Works



Real-World Solution

Hurricane Milton, October 2024

- Project was not yet completed
- 9.46 inches rainfall over 34 hours.



* Image sourced from Orange County Public Works



Unit Summary

Unit 9: Post-Disaster Mitigation Activity

Terminal Objective:

- ☒ Apply all learned material to a post-disaster scenario



Unit Overview

Unit 10: Course Wrap-up

Terminal Objective:

Review learned content and course objectives



Course Summary

Unit 1 – Introduction

Pre-Test; Understand what mitigation is and what it looks like in Florida

Unit 2 – The Local Role in Mitigation

Identify local roles and responsibilities for an effective mitigation strategy and working group

Unit 3 – The Mitigation Planning Process

Understand the components/procedures of the mitigation planning process

Unit 4 – Assets & Risk

Understanding assets in the planning area and components of a hazard profile

Unit 5 – Developing Mitigation Strategies

Understanding the purpose of mitigation goals, project types, and elements of the project list



Course Summary

Unit 6 – Prioritize Mitigation Projects & Identify Resources

Determining methods of project prioritization and potential funding sources

Unit 7 – Documentation Considerations

Discuss various documentation styles for capturing data in the LMS

Unit 8 – Implement & Maintain a Mitigation Plan

Identify Mitigation plan maintenance schedule and tasks

Unit 9 – Post-Disaster Mitigation Activity

Apply all course content to a post-disaster scenario

Unit 10 – Course Wrap-up

Final Exam; Review learned content and course objectives



Final Assessment





Unit 10, Activity 1

Allotted Time:
10 Minutes

FL-393 Mitigation Planning for Emergency Managers

Future Application

Unit 10, Activity 1

Based on what you have learned, what practical steps can you take to overcome barriers to mitigation efforts and help build a more resilient community?

Unit 10, Course Feedback



Student feedback provided via this survey is directly collected and analyzed by the FDEM Bureau of Mitigation.





Creating a Safe and Resilient Community

Final considerations:

- Use the post-disaster window of opportunity
- Focus on quality resources and input for your plan
- Develop strong messaging
- Encourage local champions
- Identify a mentor



Course Wrap-Up & To-Do

- SERT TRAC
 - Course evaluation forms
 - Distribution of certificates

Course Feedback



