



# FEMA

Mitigation for Emergency Managers

STUDENT MANUAL

FEDERAL EMERGENCY MANAGEMENT AGENCY  
EMERGENCY MANAGEMENT INSTITUTE



G393

# Mitigation for Emergency Managers

Student Manual

FEDERAL EMERGENCY MANAGEMENT AGENCY  
EMERGENCY MANAGEMENT INSTITUTE



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# Introductory Information

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## Course Description

This course is designed to enable the non-technical emergency worker to acquire skills in the use of mitigation. The course provides training in how to perform mitigation activities fundamental to reducing and eliminating long-term risk from hazards. It addresses the important roles of the emergency program manager (or other local government representative) in mitigation: motivator, coordinator, and monitor in local implementation of the National Mitigation Strategy.

To be accepted into this course, an individual must be a member of the target audience described above. In addition, it is recommended that participants complete FEMA's Independent Study (IS) 393.a course, *Introduction to Hazard Mitigation*, prior to enrollment.

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## Course Goals

The goals of this course are to:

- Motivate participants to create safer communities by addressing and mitigating hazards.
- Explore the important roles of the emergency program manager in mitigation: motivator, coordinator, and monitor.
- Enable participants to carry out mitigation responsibilities in accordance with applicable regulations and standards.

This course is designed to help accomplish the goals and priorities of FEMA:

*FEMA's mission is to support our citizens and first responders to ensure that as a nation we work together to build, sustain, and improve our capability to prepare for, protect against, respond to, recover from, and mitigate all hazards.*

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## Course Objectives

At the conclusion of this course, participants should be able to:

- Analyze reasons for differences between optimal and actual mitigation roles of the emergency program manager.
- Determine strategies to build support for mitigation planning in the community.
- Analyze hazard risks for a given scenario.
- Propose a mitigation strategy for a particular hazard.
- Develop a mitigation plan implementation strategy for a given scenario
- Evaluate the effectiveness of a community's mitigation planning efforts.
- Recommend actions to optimize the mitigation role of the emergency program manager.

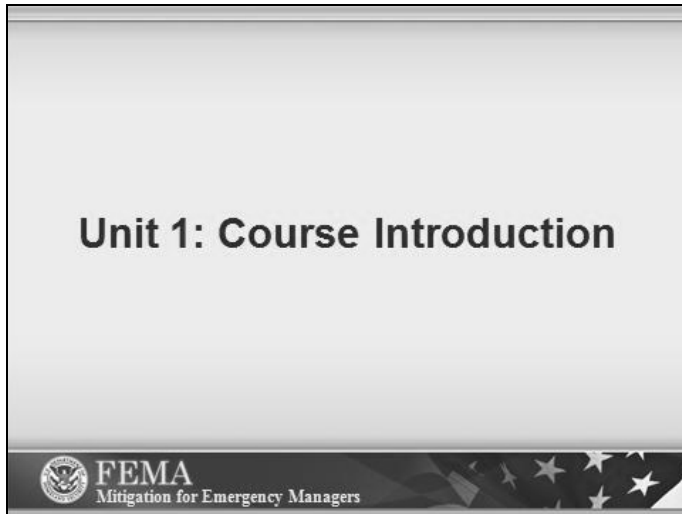




## Unit Guides



This course provides instruction in how to perform mitigation activities fundamental to reducing and eliminating long-term risk from hazards. It addresses the important roles of the emergency program manager (or other local government representative) in mitigation: motivator, coordinator, and monitor in local implementation of the National Mitigation Strategy.



The instructional team will now introduce themselves.


### *Using this Student Manual*

As you can see, there is plenty of space on the right side of the page for taking notes.

Occasionally, special notes like this one are inserted on this side of the page.

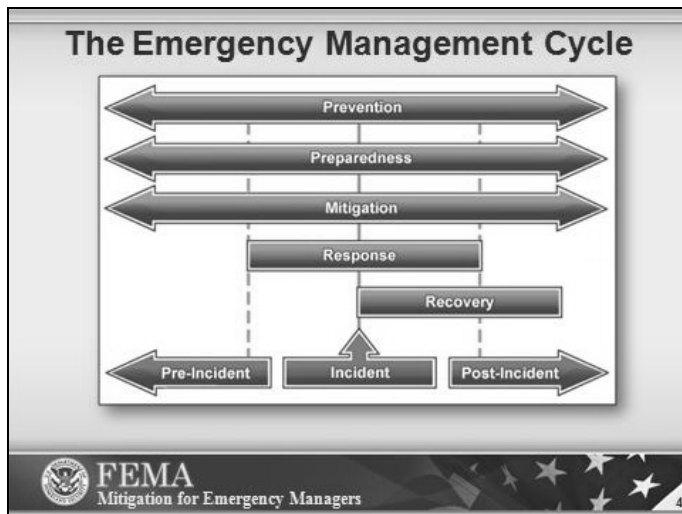
### Administrative Information

- Emergency procedures
- Mobile devices
- Breaks
- Questions
- Course materials
- Receiving credit
- Evaluation forms

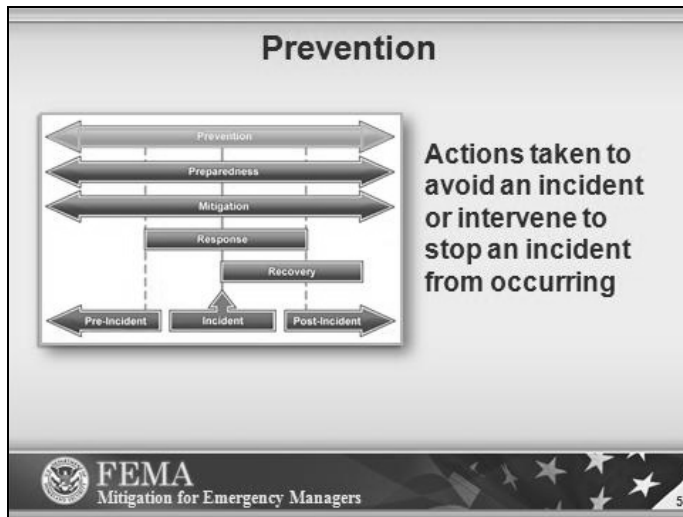


**NOTE:** The last page of the Student Manual is a blank sheet labeled, “Action Item List.” Throughout the course, as ideas come to you about improving your community’s disaster resilience, write them on the Action Item List.

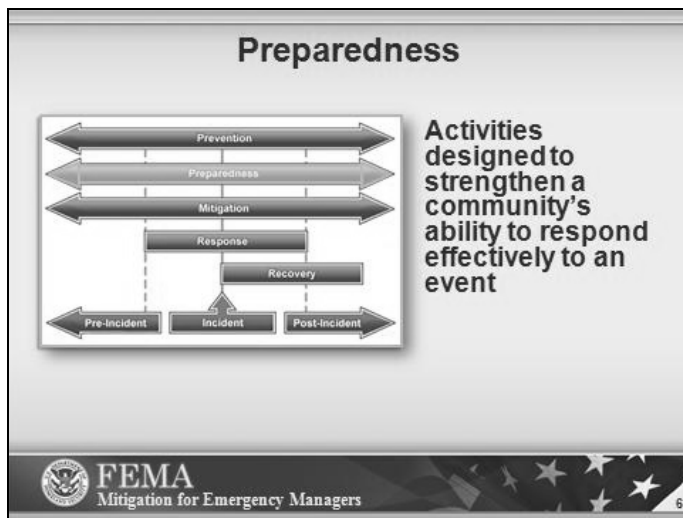
The instructor will go over any necessary administrative information at this time.



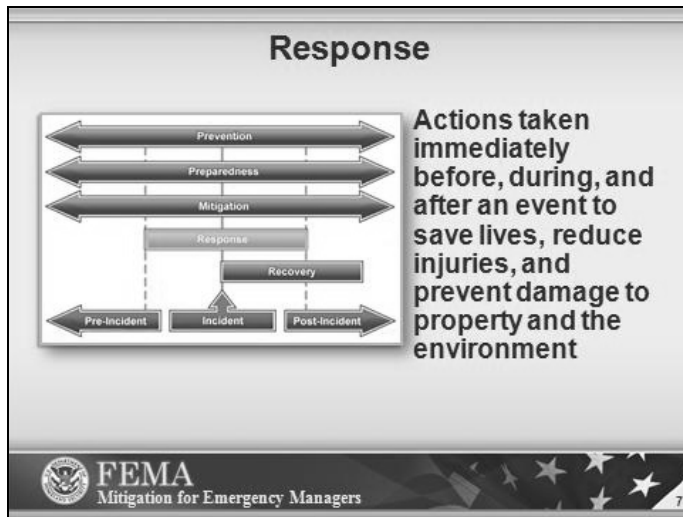
Emergency management involves mitigating, preventing, preparing for, responding to, and recovering from the effects of all hazards.



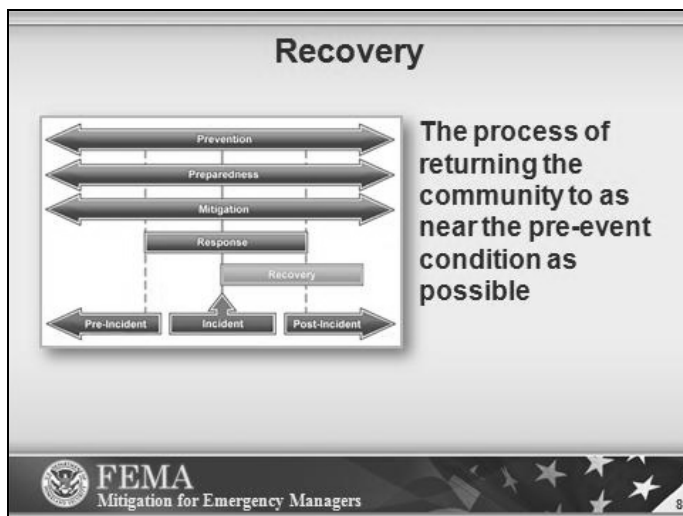
Prevention is an ongoing phase that includes actions taken to protect lives and property, and applying intelligence and other information to a range of activities that may include countermeasures.



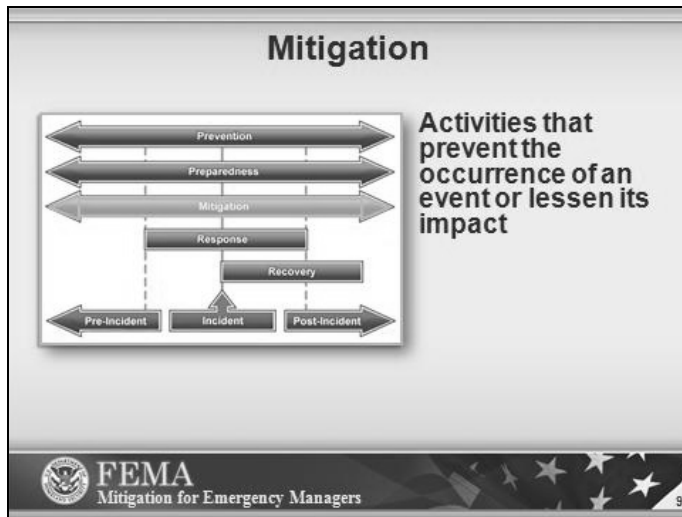
Preparedness is a continuous process that involves effective planning, practice, and coordination to save lives and facilitate response and recovery operations should a disaster or other emergency strike.



When an emergency occurs, response actions must be timely and well-coordinated, in order to save lives and protect critical infrastructure from damage.



The goal of recovery is to return the community to normal, or to as near the pre-event condition as possible, including restoration of economic activity and rebuilding of community facilities and housing.



Mitigation may be the most important phase of the emergency management continuum, because it is the only phase that has the potential to eliminate or reduce the need for the others. Like prevention and preparedness, mitigation is a continuous process.

The value of hazard mitigation to society includes:

- Creating safer communities by reducing or avoiding injury or losses of life and property.
- Enabling individuals and communities to recover more quickly from disasters.
- Lessening the financial impact of disasters to individuals, the community, and society in general.

To be successful, mitigation measures must be developed into an overall mitigation strategy that considers ways to reduce hazard losses together with the overall risk from specific hazards and other community goals.

This course focuses on breaking the cycle of disaster damage, reconstruction, and repeated damage through effective mitigation planning.

**“One must learn by doing the thing,  
for though you think you know it,  
you have no certainty until you try”**

**- Sophocles**



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This course has been designed as an activity-based learning experience that enables you to apply mitigation concepts and skills in your jobs. You'll be working in small groups to propose solutions for realistic scenarios, and you'll work individually to analyze the effectiveness of your own community's mitigation planning efforts.

### **Goals**

- **To motivate you to create safer communities**
- **To explore your roles in mitigation**
- **To enable you to perform mitigation responsibilities**



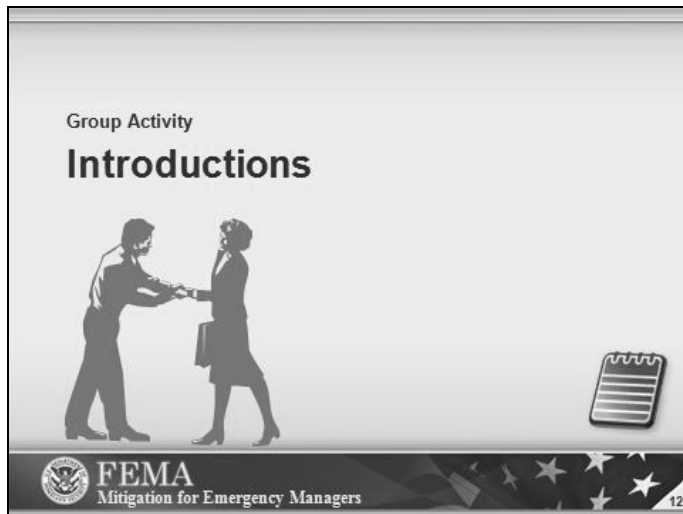
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The goals of this course are to:


- Motivate you to create safer communities by addressing and mitigating hazards.
- Explore the important roles of the emergency program manager in mitigation: motivator, coordinator, and monitor.
- Enable you to carry out mitigation responsibilities in accordance with applicable regulations and standards.



The instructor will give you an Introductory Activity form. After you identify the author of the form, you will introduce that person to the class, providing his or her name, job title, mitigation experience, and expectations for the course. The person who has your form will also introduce you.

### Topics

- **The emergency manager's role**
- **Building community support**
- **Identifying opportunities**
- **Developing strategies**
- **Identifying resources**
- **Implementing a plan**
- **Overcoming obstacles**




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In this course, we'll explore the role of the emergency manager in mitigating the effects of disasters. We'll discuss how to build community support and identify opportunities for mitigation. You'll work together to develop mitigation strategies and identify resources for funding and technical support. Finally, you'll learn how to overcome obstacles and successfully implement a plan.

### Course Objectives (1 of 3)

- **Analyze reasons for differences between optimal and actual mitigation roles of the emergency program manager**
- **Determine strategies to build support for mitigation planning in your community**



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We'll begin by discussing mitigation activities that are currently being accomplished, as well as activities that you'd like to accomplish if you had the time, support, and resources.

Then we'll explore how mitigation fits into the overall goals and objectives of a community and examine mitigation opportunities that may exist.



**Course Objectives (2 of 3)**

- **Analyze hazard risks for a given scenario**
- **Propose a mitigation strategy for a particular hazard**
- **Develop a mitigation plan implementation strategy for a given scenario**




The slide features the FEMA logo on the left, the text "FEMA Mitigation for Emergency Managers" in the center, and the number "14" in the bottom right corner. The background of the slide is a dark blue with white stars.

Then, we'll focus on developing mitigation solutions, including obtaining the necessary resources for carrying out a mitigation strategy.

**Course Objectives (3 of 3)**

- **Evaluate the effectiveness of a community's mitigation planning efforts**
- **Recommend actions to optimize the mitigation role of the emergency program manager**



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We'll address the critical task of developing and maintaining a pre-disaster mitigation plan. Finally, we'll review the reasons for the differences between an emergency manager's actual and optimal roles and talk about solutions to the obstacles.




NOTE: Throughout this course, you will learn more about the application of these planning steps.

The phases in the Hazard Mitigation Planning Process are:

- Phase 1: Organize resources
  - Assess community support
  - Build the planning team
  - Engage the public
- Phase 2: Assess risks
  - Identify hazards
  - Profile hazard events
  - Inventory assets
  - Estimate losses
- Phase 3: Develop a mitigation plan
  - Establish goals and objectives
  - Identify and prioritize mitigation actions
  - Prepare the mitigation strategy
  - Document the process
- Phase 4: Implement the plan and monitor progress
  - Adopt the plan
  - Implement the plan recommendations
  - Evaluate the results
  - Revise the plan

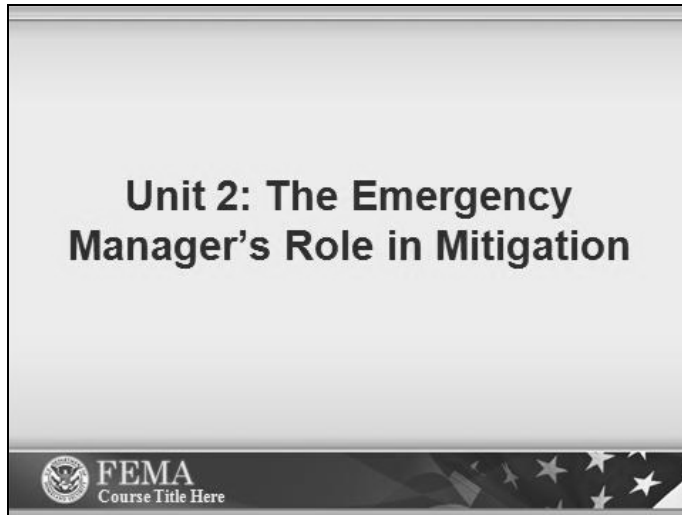
**Unit Summary**

**What do you hope to gain from this course that is not reflected in the course topics and objectives?**

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So that you can get the most benefit from this course, let the instructor know if there are additional topics you hope to cover that haven't yet been mentioned.

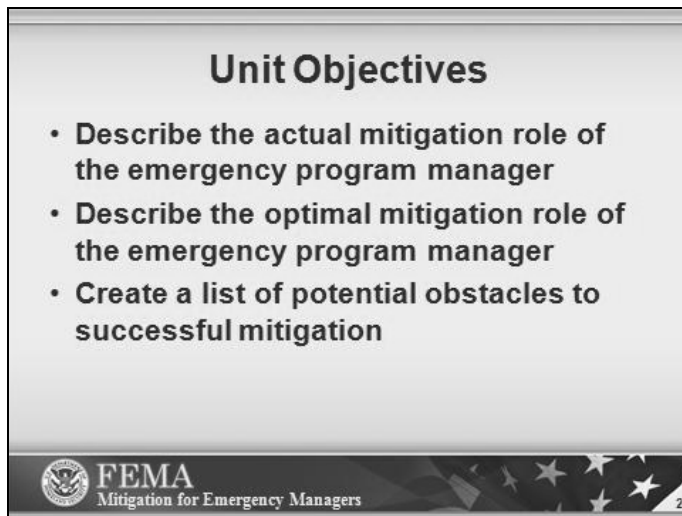




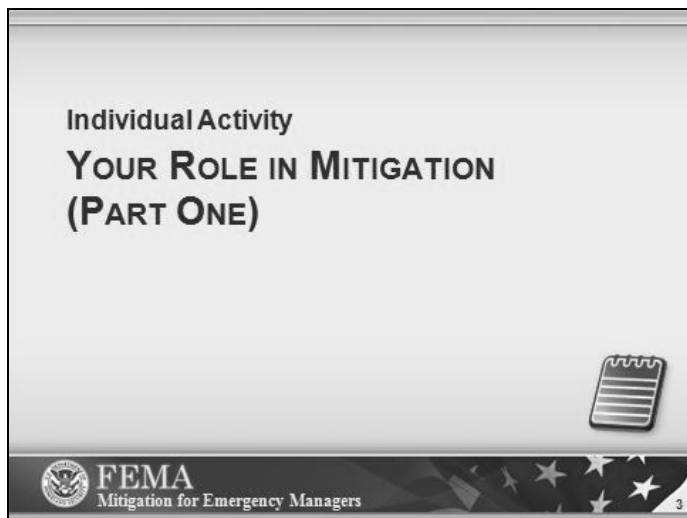
*How does the job of mitigation differ from prevention, preparedness, response, and recovery?*

As an emergency program manager, you play a unique role in helping to mitigate the community's hazards.

Remember, mitigation is defined as sustained actions taken to reduce or eliminate long-term risk to people and property from hazards and their effects. Mitigation measures focus on actions that produce long-term benefits to a community.



By the time you complete this course, you should be able to analyze reasons for differences between optimal and actual mitigation roles of the emergency program manager. You will accomplish this by being able to perform the three tasks listed on the slide.



In this section, we will develop a class profile of mitigation tasks actually performed by emergency program managers and others responsible for the mitigation function.

The instructions for this activity are listed on the next page of this manual.

**Individual Activity: Your Role in Mitigation**

- Think about the particular role you play in mitigation in your community, considering your current and past involvement in mitigation activities.
- In the first column of the worksheet, list all of the ways you encourage and participate in mitigation activities within your jurisdiction.
- You have 10 minutes to complete this part of the activity.
- During the class discussion, use the middle column to list additional mitigation activities.
- During the next portion of the activity (when instructed), complete the last column.

<b>1</b>	<b>2</b>	<b>3</b>
Ways <i>you</i> encourage and participate in mitigation activities within your jurisdiction	Ways <i>others</i> encourage and participate in mitigation activities within their jurisdictions	Mitigation activities you would like to accomplish in your community





## The Optimal Role of the Emergency Program Manager

- Participate in planning team
- Identify hazards and risk
- Identify existing mitigation measures
- Propose additional mitigation measures
- Coordinate with other goals
- Identify incentives and resources
- Create/maintain a mitigation plan
- Increase public awareness



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Now let's compare your current role with the optimal role.

An emergency program manager has eight primary responsibilities:

- Participate in a mitigation planning team.
- Identify community hazards and hazard risk.
- Identify existing mitigation measures.
- Propose additional mitigation measures.
- Coordinate with other community goals.
- Identify incentives and resources.
- Create/maintain a mitigation plan.
- Increase public awareness.

Keep in mind that an up-to-date mitigation plan is a must to be eligible for federal funds. If the community does not have a hazard plan in place, no federal hazard mitigation money will be awarded.

## Participate in a Mitigation Planning Team

**Effective mitigation planning teams need:**

- Community support
- Members with varied skill sets
- Input from the emergency manager





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Building an effective mitigation program requires the support and commitment of the community leadership. This commitment is created by involving the community in the planning process.

## Identify Community Hazards and Hazard Risks

- Cornerstone of mitigation
- All-hazards approach




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It is the emergency program manager's responsibility to be aware of all possible natural and technological hazards to the community, and to analyze the relative risks presented by those hazards.


*Who should be a part of your community's planning team?*

**NOTE:** Risk assessment will be reviewed in Unit 4 of this course.

## Identify Existing Mitigation Measures

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




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To coordinate mitigation activities, emergency program managers need to be aware of all ongoing community programs and activities that affect or relate to mitigation.

## Propose Additional Mitigation Measures

- Address specific community concerns
- Promote community objectives and values



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**NOTE:** You will learn more about identifying mitigation opportunities in Unit 5.


Emergency program managers must identify or facilitate the identification of potential new mitigation measures, often referred to as mitigation opportunities.

## Coordinate with Other Community Goals

**This process promotes:**

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





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Working to achieve mitigation through other community goals is essential to the effectiveness of the mitigation program.

## Identify Incentives and Resources

- Stable funding is required
- Must be economically attractive
- Funding sources may be:
  - Local
  - Private
  - State
  - Federal




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A successful mitigation program has to have stable sources of funding, and it has to be economically attractive to individuals and businesses in the community.


Keep in mind that your mitigation strategy is not determined by the source of mitigation funding. The specific mitigation measures in your strategy should be identified based on the needs of the community.

## Create/Maintain a Mitigation Plan

**Should be:**

- Created prior to a disaster
- Continually updated and maintained



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**NOTE:** You will have the opportunity to evaluate or begin your own community mitigation plan in Unit 7 of this course.

Ideally, the community's mitigation plan is developed prior to the occurrence of a disaster. Once a mitigation plan is developed, it should be continually updated and maintained.

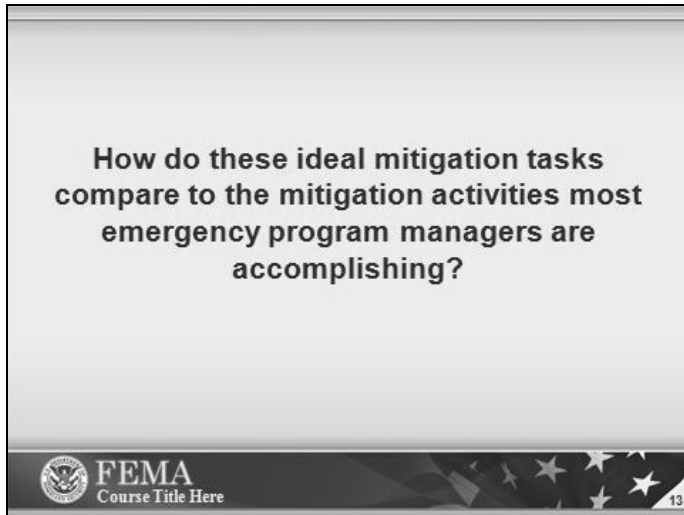
## Increase Public Awareness

- Community members must understand:
  - The impact of disasters
  - How to reduce risks

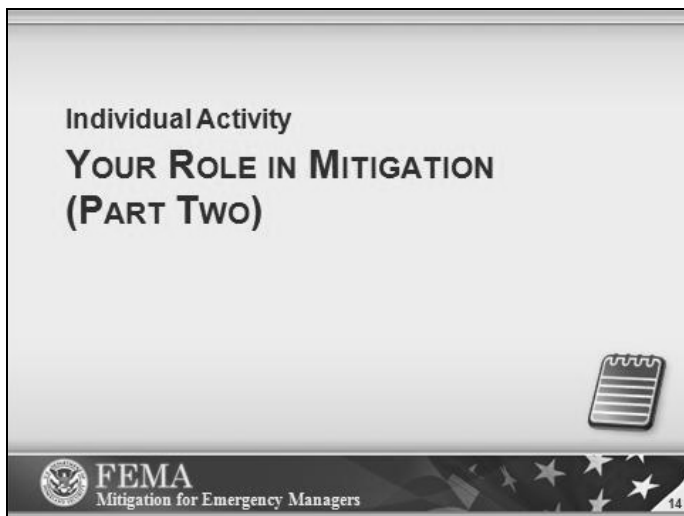


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To have a successful mitigation program, community members must understand the impact of natural or technological disasters and how that risk to the community can be reduced with a mitigation program.



Think about what you would like to accomplish in your community. How does that compare to what is actually being accomplished?





*What more do you think you, as an individual, could be doing to mitigate hazards in your community?*

Return to the worksheet you used for the first part of this activity, on page 3 of this manual. Record your responses in the last column of the worksheet.

**Obstacles to  
Successful Mitigation**

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





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Let's discuss some reasons for the differences between the ideal role of the emergency manager and the actual role you play.

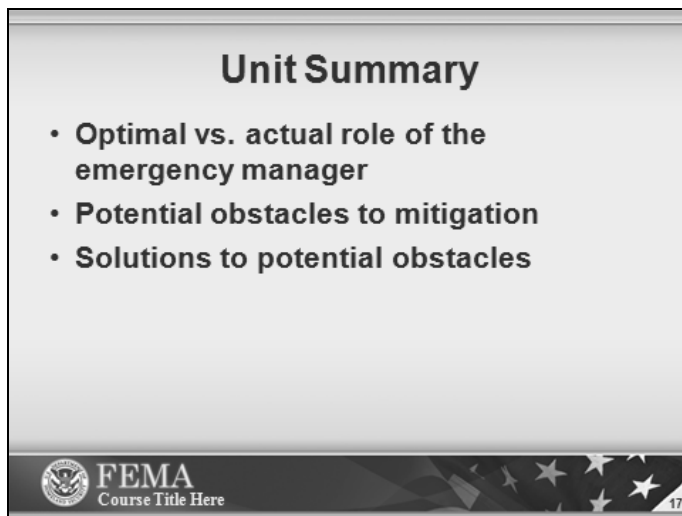
**Group Activity**

**OVERCOMING OBSTACLES**




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Your instructor will assign your table group one of the obstacles you just discussed. Brainstorm with your group about some solutions for overcoming that obstacle.



**Unit Summary**

- **Optimal vs. actual role of the emergency manager**
- **Potential obstacles to mitigation**
- **Solutions to potential obstacles**

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Throughout the course, we'll talk about the list of obstacles and work together to propose solutions for them. As you think of ideas that can help you in your community, be sure to add them to your Action Item List located at the back of this manual.





In this unit, we will discuss how mitigation fits in with overall community objectives and how emergency managers should begin the hazard mitigation planning process.



The first phase of the mitigation planning process, Organize Resources, includes determining the level of support for mitigation to be expected from the community, establishing a planning team, and engaging the public.

### Unit Objectives (1 of 2)

- Explain the characteristics of a disaster-resistant community
- Outline the long-term benefits of public participation in mitigation planning
- Describe the effect of stakeholder interests on mitigation efforts

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In this unit, you will determine strategies to build support for mitigation planning in your community. You will accomplish this by being able to perform the tasks listed on the slides.

### Unit Objectives (2 of 2)

- List organizations, groups, and initiatives that can provide support for mitigation planning
- Identify potential members of a community's mitigation planning team

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**Characteristics of a Disaster-resistant Community**

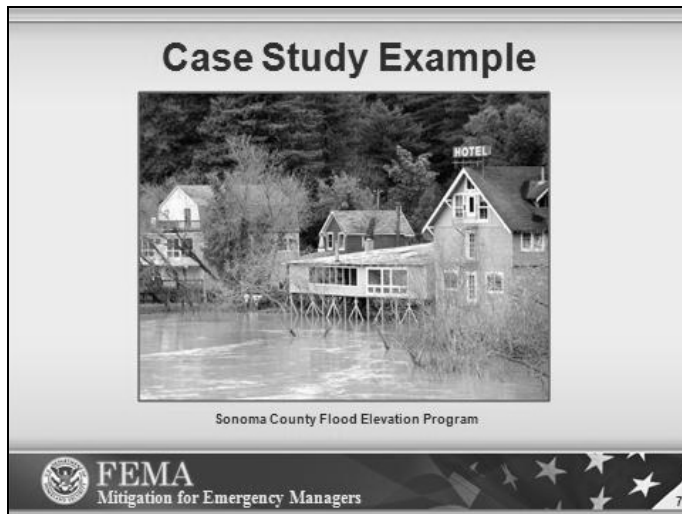
- **Shared vision**
- **Long-term perspective**
- **Community involvement**
- **Political commitment**
- **Strong partnerships**
- **Significant risk reduction measures**

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The term “disaster-resistant community” describes a long-range, community-based approach to mitigation. A disaster-resistant community is one in which significant steps and measures have been taken to reduce the community’s risk to flooding, earthquakes, hurricanes, wildfires, and other natural disasters, as well as man-made disasters such as chemical spills and terrorist attacks.

**How would the mitigation efforts of a disaster-resistant community minimize the impact of a disaster?**

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**NOTE:** For more information about this case study, search the FEMA Library at the website listed below for *Loss Avoidance Study: Sonoma County, California Elevated Structures*. FEMA, April 2008.

<http://www.fema.gov/library/>

Consider the example of the Sonoma County Flood Elevation Program (SCFEP), which assisted homeowners with mitigation for flood-damaged homes along the Russian River and its tributaries in Sonoma County, California. Your instructor will describe the program to you.



Consider how pre-disaster hazard planning enables a better response when disaster strikes.

**Pre-disaster Hazard Planning**

- Meets the community's needs
- Achieves multiple objectives
- Increases funding eligibility
- Guides post-disaster recovery
- Promotes public participation

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Pre-disaster hazard planning is the key element in building an effective mitigation program. Pre-disaster emphasizes actions to be taken *before* a disaster occurs to reduce or prevent future damages.


Consider the following questions:

- ◇ ***What are the benefits of pre-disaster hazard planning?***
  
- ◇ ***How can pre-disaster planning meet the community's needs?***
  
- ◇ ***What does "multi-objective" planning mean?***
  
- ◇ ***When is mitigation planning an eligibility requirement for funding?***
  
- ◇ ***In what ways does the planning process guide post-disaster recovery?***
  
- ◇ ***What are the long-term benefits of public participation in the mitigation planning process?***

**Step 1: Assess Community Support**

- A. Determine the planning area**
- B. Determine if the community is ready**
- C. Remove roadblocks**



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***Task A: Determine the planning area***


In consultation with the state, identify the areas or jurisdictions to be included in the mitigation planning process.


***Task B: Determine if the community is ready to begin the planning process***

In order for your planning process to be successful, you must have the necessary knowledge, support, and resources.

Individual Activity

**ASSESSING YOUR COMMUNITY'S  
READINESS TO PLAN**



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Use the worksheet on the following pages to complete the activity.

### Individual Activity: Assessing Your Community's Readiness to Plan

Working independently, rate your community on each item to assess the level of knowledge, support, and resources available for mitigation planning.

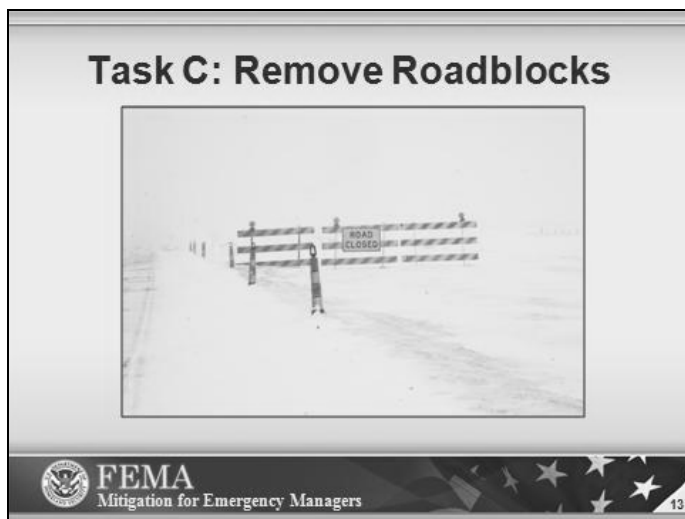
Knowledge	
How much do elected and/or appointed officials know and understand about hazards in their area, including what can be done to reduce their effects?	<input type="checkbox"/> Very knowledgeable <input type="checkbox"/> Somewhat knowledgeable <input type="checkbox"/> Not knowledgeable
How much do the citizens know about hazards in the community?	<input type="checkbox"/> Very knowledgeable <input type="checkbox"/> Somewhat knowledgeable <input type="checkbox"/> Not knowledgeable
How well do officials and citizens understand that their actions, behavior, and decisions affect their vulnerability and that steps can be taken to reduce risks?	<input type="checkbox"/> Very knowledgeable <input type="checkbox"/> Somewhat knowledgeable <input type="checkbox"/> Not knowledgeable
Is there a difference between the risk perceived by the community and the actual risk (to the extent that risk is currently known)?	<input type="checkbox"/> Large difference <input type="checkbox"/> Some difference <input type="checkbox"/> No difference

Support	
Do elected and appointed officials understand how local, state, and federal levels each support hazard mitigation and emergency management?	<input type="checkbox"/> Very knowledgeable <input type="checkbox"/> Somewhat knowledgeable <input type="checkbox"/> Not knowledgeable
<p>How many issues are citizens dissatisfied with that may be located in a hazard area that could be dealt with in context of mitigation planning?</p> <p>Examples: tourism, economic development, blight, transportation issues</p>	<input type="checkbox"/> Many issues <input type="checkbox"/> Some issues <input type="checkbox"/> No known issues
<p>How likely is it that there will be an individual to serve as a champion to provide leadership and/or support for mitigation planning?</p> <p>This could be an individual, an organization, or a business.</p>	<input type="checkbox"/> Very likely <input type="checkbox"/> Somewhat likely <input type="checkbox"/> Not likely

<b>Support</b>	
Is there an existing FMA or CRS flood mitigation plan or other single hazard plan?	<input type="checkbox"/> Yes <input type="checkbox"/> No
Is there an existing system for planning in the community?  Examples: planning department, community plan, local personnel with planning capabilities	<input type="checkbox"/> Yes <input type="checkbox"/> Minimal planning in place <input type="checkbox"/> No existing plans
Is there a history of community interest and/or involvement in environmental, recreational issues, or safety issues?	<input type="checkbox"/> Yes <input type="checkbox"/> Some interest <input type="checkbox"/> No
Is there an existing land use map, GIS system, contour map, soils map, topographic map, or other material that can be used to better understand the hazards context of the community?	<input type="checkbox"/> Several maps <input type="checkbox"/> Some maps <input type="checkbox"/> None of these

<b>Resources</b>	
Are you aware of the range of non-FEMA or non-mitigation programs available to assist in mitigation projects?	<input type="checkbox"/> Yes <input type="checkbox"/> No
Are the major employers, industries, and organizations that help shape the culture of the community willing to be involved?	<input type="checkbox"/> Yes <input type="checkbox"/> Maybe <input type="checkbox"/> No

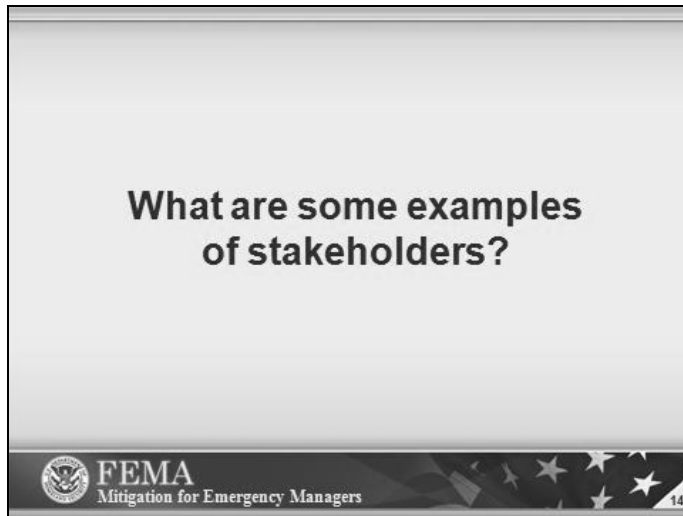




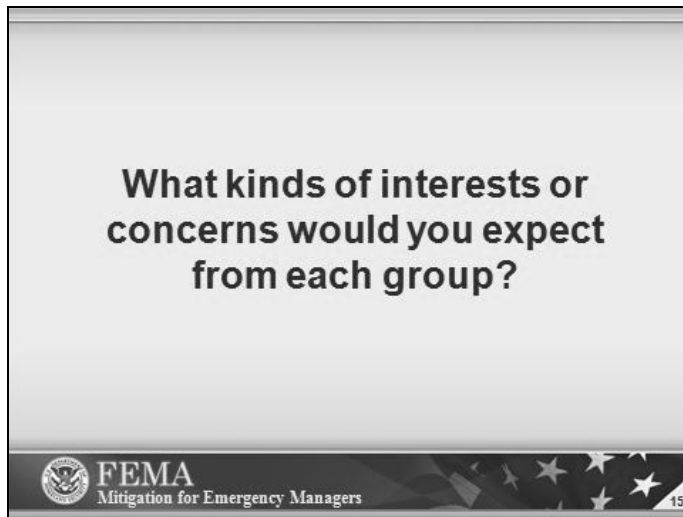
### ***Task C: Remove roadblocks***

Part of assessing community support involves removing roadblocks. In Unit 2, we discussed some of the obstacles you face in mitigation planning and some ways of overcoming those obstacles.

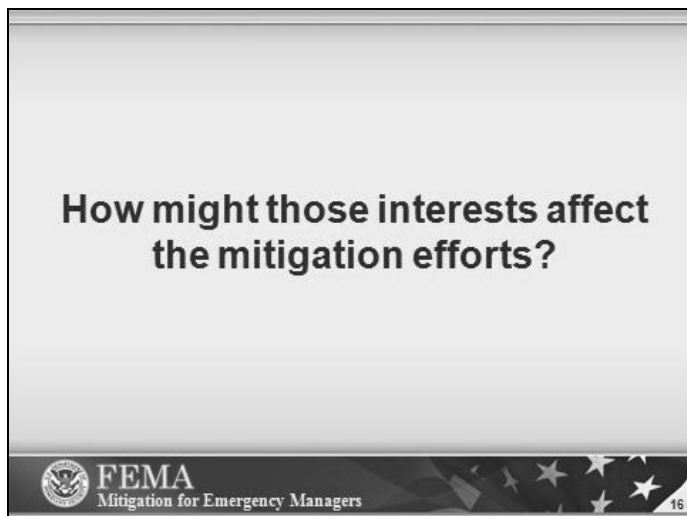
Some of the obstacles that emergency managers face when implementing mitigation strategies are related to resistance from stakeholders.



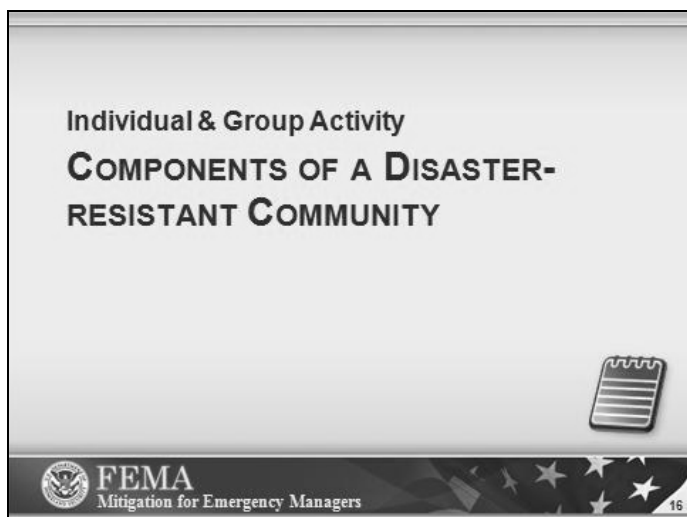
The Emergency Manager should be proactive and include the community and local stakeholders in the process of mitigation strategy identification. If these stakeholders are not involved in the process, they may reject the mitigation strategy.



The interests of all of these stakeholders, as well as the general public, have to be considered and met to gain support for mitigation actions. Remember that effective mitigation measures in a disaster-resistant community must be coordinated with all of these groups.



Each proposal for mitigation must be evaluated to meet criteria that make it acceptable to the stakeholders and the public. It is important to include these stakeholders in the planning process, to gain their buy-in and to ensure that the mitigation strategy is successful.



Use the worksheet on the next page of this manual to complete this activity. First, you will create an individual list, and then (when instructed), you will work together to create a group list.

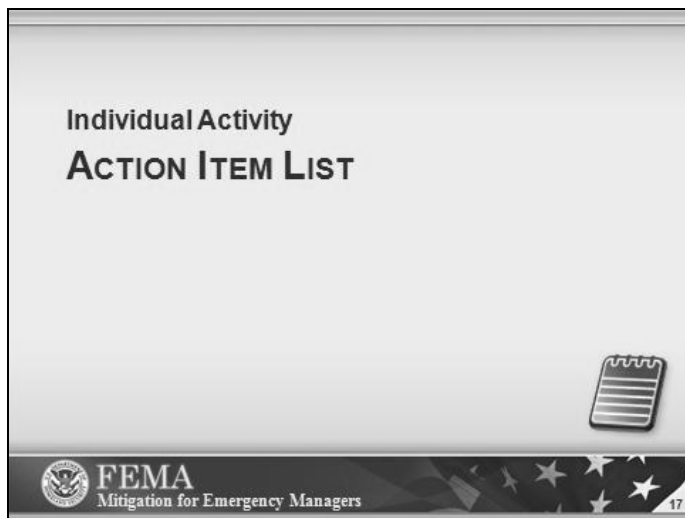


### **Worksheet: Components for a Disaster-resistant Community**

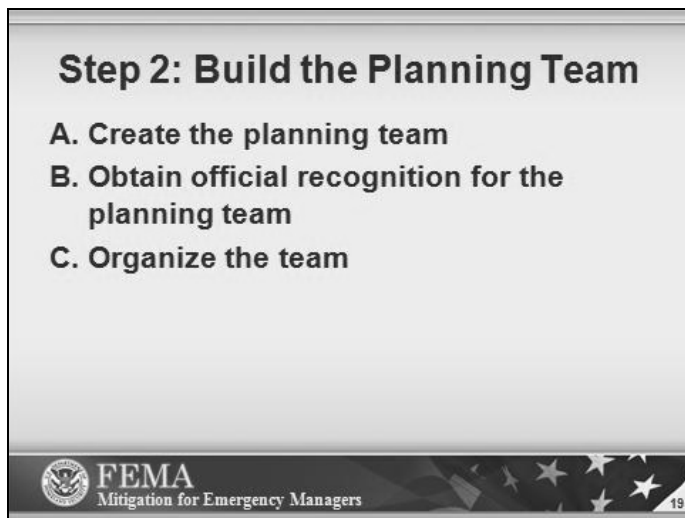
- First, work individually to develop a list of the components that must be in place for a community to achieve the characteristics of disaster resistance discussed earlier
- When directed by your instructor, discuss your list with your table group and work together to create a group list
- Select a spokesperson and be prepared to share the group list with the rest of the class

<b><i>Components Necessary for a Disaster-resistant Community</i></b>





Choose one of the components needed for a disaster-resistant community and, using your Action Item List, create a list of ways you can begin to address that component in your community.



The planning team should be built on existing organizations or boards whenever possible and can welcome anyone who is available to participate regularly in the meetings.

## Task A: Create the Planning Team

### Identify those who will:

- Be affected
- Be responsible
- Mobilize support
- Make the process more effective
- Need representation
- Contribute resources

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### *Task A: Create the planning team*

Consider the individuals and organizations that should be on your community's planning team.

#### Individual Activity

## POTENTIAL MEMBERS OF A PLANNING TEAM

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Use the worksheet on the following page to identify potential members of your community's mitigation planning team.



## Individual Activity: Build the Planning Team

Working independently, check the boxes beside any individuals or organizations your community or state that you believe should be included on your planning team so you can follow up with them. Add “follow up with possible planning team members” to your Action Item List.

<b>Possible Planning Team Members</b>	
<b>Local/Tribal</b>	<b>State</b>
<input type="checkbox"/> Administrator/Manager's Office	<input type="checkbox"/> Adjutant General's Office (National Guard)
<input type="checkbox"/> Budget/Finance Office	<input type="checkbox"/> Board of Education
<input type="checkbox"/> Building Code Enforcement Office	<input type="checkbox"/> Building Code Office
<input type="checkbox"/> City/County Attorney's Office	<input type="checkbox"/> Climatologist
<input type="checkbox"/> Economic Development Office	<input type="checkbox"/> Earthquake Program Manager
<input type="checkbox"/> Emergency Preparedness Office	<input type="checkbox"/> Economic Development Office
<input type="checkbox"/> Fire and Rescue Department	<input type="checkbox"/> Emergency Management Office/SHMO
<input type="checkbox"/> Hospital Management	<input type="checkbox"/> Environmental Protection Office
<input type="checkbox"/> Local Emergency Planning Committee	<input type="checkbox"/> Fire Marshal's Office
<input type="checkbox"/> Planning and Zoning Office	<input type="checkbox"/> Geologist
<input type="checkbox"/> Police/Sheriff's Department	<input type="checkbox"/> Homeland Security Coordinator's Office
<input type="checkbox"/> Public Works Department	<input type="checkbox"/> Housing Office
<input type="checkbox"/> Sanitation Department	<input type="checkbox"/> Hurricane Program Manager
<input type="checkbox"/> School Board	<input type="checkbox"/> Insurance Commissioner's Office
<input type="checkbox"/> Transportation Department	<input type="checkbox"/> NFIP Coordinator
<input type="checkbox"/> Tribal Leaders	<input type="checkbox"/> Natural Resources Office
<b>Special Districts and Authorities</b>	<input type="checkbox"/> Planning Agencies
<input type="checkbox"/> Airport and Seaport Authorities	<input type="checkbox"/> Police
<input type="checkbox"/> Business Improvement District(s)	<input type="checkbox"/> Public Health Office
<input type="checkbox"/> Fire Control District	<input type="checkbox"/> Public Information Office
<input type="checkbox"/> Flood Control District	<input type="checkbox"/> Tourism Department
<input type="checkbox"/> Redevelopment Agencies	<b>Non-Governmental Organizations (NGOs)</b>
<input type="checkbox"/> Regional/Metropolitan Planning Organization(s)	<input type="checkbox"/> American Red Cross
<input type="checkbox"/> School District(s)	<input type="checkbox"/> Chamber of Commerce
<input type="checkbox"/> Transit/Transportation Agencies	<input type="checkbox"/> Community/Faith-Based Organizations
<b>Others</b>	<input type="checkbox"/> Environmental Organizations
<input type="checkbox"/> Architectural/Engineering/Planning Firms	<input type="checkbox"/> Homeowners Associations
<input type="checkbox"/> Citizen Corps	<input type="checkbox"/> Neighborhood Organizations
<input type="checkbox"/> Colleges/Universities	<input type="checkbox"/> Private Development Agencies
<input type="checkbox"/> Land Developers	<input type="checkbox"/> Utility Companies
<input type="checkbox"/> Major Employers/Businesses	<input type="checkbox"/> Other Appropriate NGOs
<input type="checkbox"/> Professional Associations	
<input type="checkbox"/> Retired Professionals	

This worksheet is taken from FEMA's how-to guide 386-1, “Getting Started: Building Support for Mitigation Planning” (September 2002).



## Task B: Obtain Official Recognition

- Council resolution
- Proclamation
- Memorandum of Agreement
- Memorandum of Understanding



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### ***Task B: Obtain official recognition for the planning team***

Official recognition can go a long way toward demonstrating community or state support for mitigation action, and it greatly increases the plan's chances of being formally adopted.

## Task C: Organize the Team

- |  |                            |
|--|----------------------------|
| • Informal kick-off                    | • Regular meeting schedule |
| • Preparation for first formal meeting | • Goals                    |
| • Mission statement                    | • Agendas                  |
| • Responsibilities                     | • Timelines                |
| • Key roles                            | • Subcommittees            |



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### ***Task C: Organize the team***

Once potential candidates for the planning team have been identified, the team needs to be organized.

More information about each of these activities is included in FEMA's how-to guide, "Getting Started: Building Support for Mitigation Planning" (386-1).

**Step 3: Engage the Public**

**A. Identify the public**  
**B. Organize public participation activities**  
**C. Develop a public education campaign**




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***Task A: Identify the public***

- Public officials
- Agency heads
- Neighborhood and other civic organizations
- Business associations
- Institutions
- Individual citizens

***Task B: Organize public participation activities***

Revisit the meeting schedule you developed in Task C and identify points where it is important to inform the public of what is happening and to seek their input to assist you in making a decision.

After each public participation activity, results should be documented so that they can be referred to later.

***Task C: Develop a public education campaign***

You will need a specific way to present information to each type of stakeholder.


***What are some ways to involve the public in mitigation planning?***

***What are some materials you can prepare as part of your educational campaign?***

***How can you distribute them?***

## Unit Summary

- **Characteristics of a disaster-resistant community**
- **Benefits of public participation in planning**
- **Effect of stakeholder interests on mitigation**
- **Resources for mitigation planning support**
- **Potential members of the planning team**



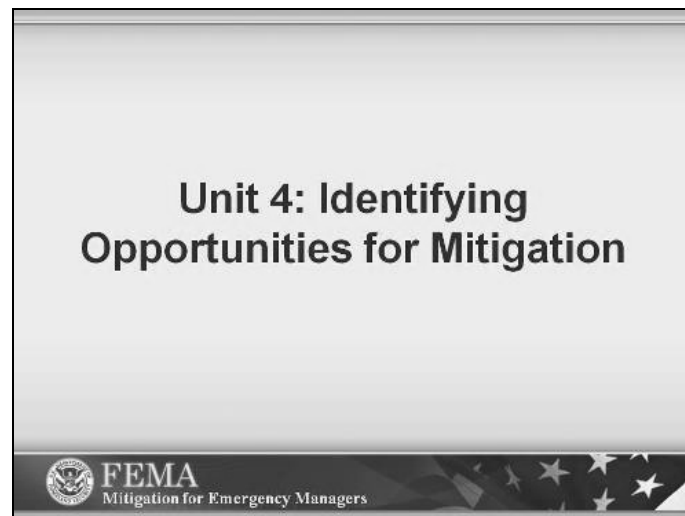
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In this unit, you've learned about the characteristics of a planning team and the benefits of public participation in planning.

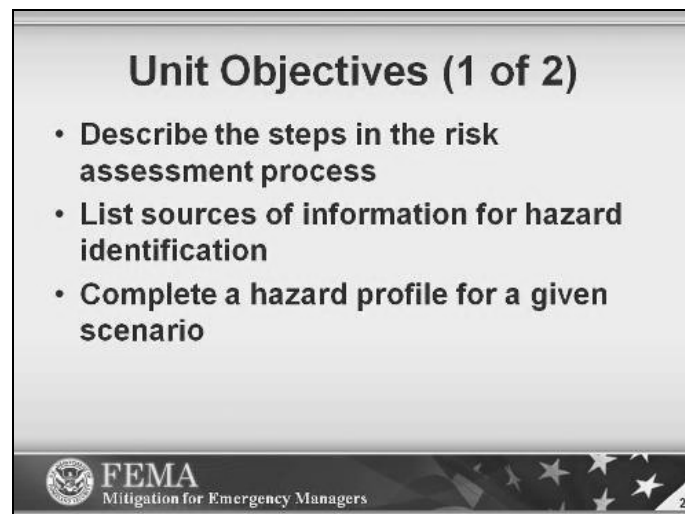
You've thought about stakeholders' interest in the community and the effects of those interests on mitigation efforts.

You've listed organizations, groups, and initiatives that can provide support for mitigation planning and serve as potential members of the mitigation planning team.





In the pursuit of disaster-resistant communities, emergency program managers and other community leaders must be constantly vigilant to recognize needs and opportunities for mitigation.




This unit will focus on the pursuit of those opportunities in pre-disaster and post-disaster environments.

In this unit, you will analyze hazard risks for a given scenario. In order to accomplish this, you will need to be able to perform the tasks listed on the slides.

## Unit Objectives (2 of 2)

- Inventory assets likely to be affected by a particular hazard event
- Estimate losses due to a particular hazard event
- Describe the usefulness of HAZUS-MH in mitigation planning



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## Where are we in the process?



**Organize Resources**

- Assess community support
- Build the planning team
- Engage the public



**Assess Risks**

- Identify hazards
- Profile hazard events
- Inventory assets
- Estimate losses

↑



**Develop a Mitigation Plan**

- Establish goals/objectives
- Identify/prioritize actions
- Prepare the strategy
- Document the process



**Implement the Plan and Monitor Progress**

- Adopt the plan
- Implement the recommendations
- Evaluate results
- Revise the plan

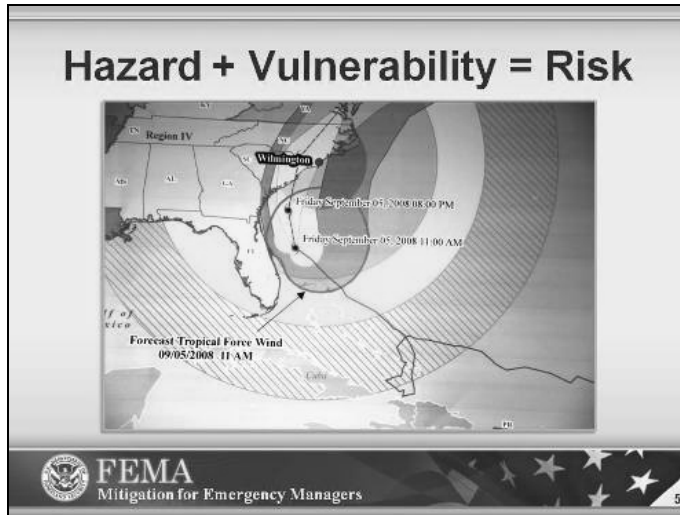


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Conducting a complete risk assessment is a substantial task that requires completion of four steps:

1. Identify hazards
2. Profile hazard events
3. Inventory assets
4. Estimate losses

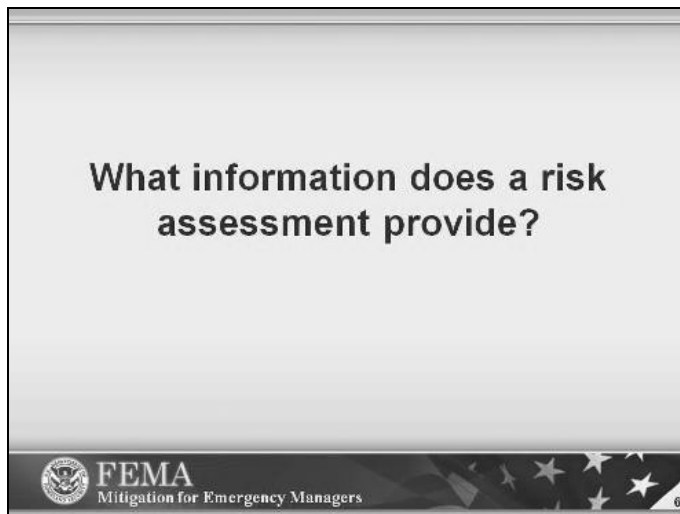





**NOTE:** The risk assessment process is described in detail in FEMA's how-to guide, "Understanding Your Risks: Identifying and Estimating Hazard Losses" (386-2).

Risk assessment is the process of measuring the potential loss of life, personal injury, economic injury, and property damage resulting from hazards.

Risk is determined by identifying a hazard and then determining how vulnerable the community (or a part of the community) is to that hazard.





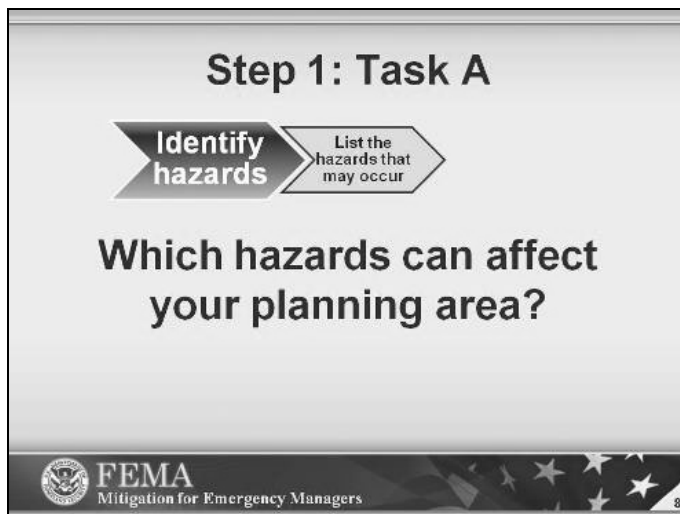
**Step 1: Identify Hazards**

**What types of hazards should be included in a risk assessment?**

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To begin the risk assessment process, you must first identify the hazards that affect your community.



**Step 1: Task A**

**Identify hazards** → List the hazards that may occur

**Which hazards can affect your planning area?**

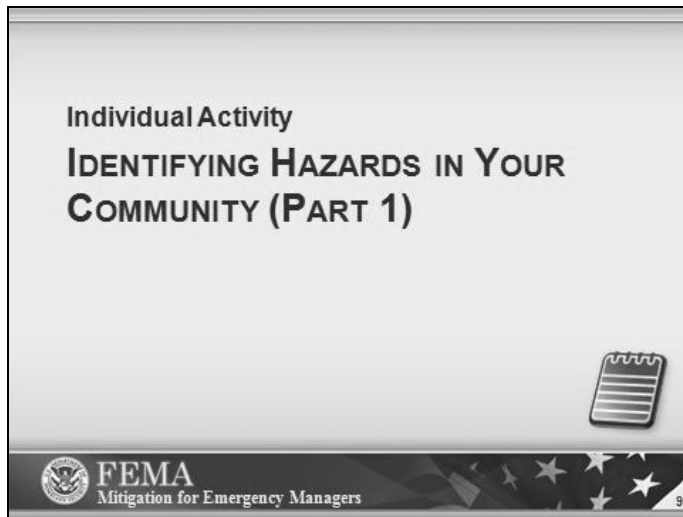
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***Task A: List the hazards that may occur***

Keep in mind that, although the federal regulations apply only to *natural* hazard mitigation planning, communities should take an all-hazards approach.

Planning for manmade disasters as well as natural disasters will help to create a safer community, enable quicker recovery, and lessen the financial impact of disasters.



Use the worksheet on the next page of this manual for this activity. Complete each column separately, as instructed.



### Individual Activity: Identifying Hazards in Your Community

Instructions: Mark the hazards your community faces. Complete each Task (column) separately when directed by your instructor.

***Adaptation of worksheet 1 from FEMA's how-to guide #386-2***

Potential Hazards	Task A: Which hazards <i>may</i> occur in your area?	Task B: Which hazards are most prevalent in your area?
Avalanche		
Coastal Erosion		
Coastal Storm		
Dam Failure		
Drought		
Earthquake		
Expansive Soils		
Extreme Heat		
Flood		
Hailstorm		
Hurricane		
Land Subsidence		
Landslide		
Severe Winter Storm		
Tornado		
Tsunami		
Volcano		
Wildfire		
Windstorm		
Other: _____		
Other: _____		
Other: _____		



**Step 1: Task B**

**Identify hazards** → List the hazards that may occur → Focus on the most prevalent

**Which hazards are the most likely in your area?**

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***Task B: Focus on the most prevalent hazards in your community or state***

Narrow your focus by considering the hazards that have affected your area in the past or those that are most likely to occur.

Individual Activity

**IDENTIFYING HAZARDS IN YOUR COMMUNITY (PART 2)**

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Complete column B of the worksheet on page 6 of this manual.

## Step 2: Profile Hazard Events

- How often is it likely to occur?
- How bad can it get?
- Where is it likely to strike?
- How long is it likely to last?
- When is it more likely to occur?
- How much warning time is there?



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Each hazard type has unique characteristics that can cause different types of damage. Likewise, each community may be affected by disasters in different ways depending on characteristics such as geography, development trends, population distribution, and age/type of buildings.

A thorough review of local applicable codes should accompany your assessment, because new codes will guide you to further risk reduction measures.

Individual or Group Activity

## CREATING A HAZARD PROFILE



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Review the example Hazard Profile Worksheet, Risk Index Worksheet, and Severity Ratings Table included on the following pages of this manual.

Choose one of the hazards you marked under Task B of the previous worksheet and follow the instructions provided.



## Individual or Group Activity: Creating a Hazard Profile

Instructions: As directed by your instructor, work individually or with a partner or group to complete the Hazard Profile Worksheet based on one of the hazards from Task B of the previous worksheet (from the “Identifying Hazards in Your Community” activity).

### HAZARD PROFILE WORKSHEET

**HAZARD:****POTENTIAL MAGNITUDE** (Percentage of the jurisdiction that can be affected):

- Catastrophic:** More than 50%
- Critical:** 25 to 50%
- Limited:** 10 to 25%
- Negligible:** Less than 10%

**FREQUENCY OF OCCURRENCE:**

- Highly Likely:** Near 100% probability in next year
- Likely:** Between 10 and 100% probability in next year, or at least one chance in 10 years
- Possible:** Between 1 and 10% probability in next year, or at least one chance in next 100 years
- Unlikely:** Less than 1% probability in next 100 years

**SEASONAL PATTERN:****AREAS LIKELY TO BE AFFECTED MOST (BY SECTOR):****PROBABLE DURATION:****POTENTIAL SPEED OF ONSET**

(Probable amount of warning time):

- Minimal (or no) warning
- 6 to 12 hours warning
- 12 to 24 hours warning
- More than 24 hours warning

**EXISTING WARNING SYSTEMS:****COMPLETE VULNERABILITY ANALYSIS:**

Instructions: As directed by your instructor, work individually or with a partner or group to complete the first row of the Risk Index Worksheet based on the hazard you listed on the Hazard Profile Worksheet. A Severity Ratings Table has been included on the next page for your reference.

<b>RISK INDEX WORKSHEET</b>						
<b>Hazard</b>	<b>Frequency</b>	<b>Magnitude</b>	<b>Warning Time</b>	<b>Severity</b>	<b>Special Characteristics and Planning Considerations</b>	<b>Risk Priority</b>
	Highly likely Likely Possible Unlikely	Catastrophic Critical Limited Negligible	Minimal 6 – 12 hours 12 – 24 hours 24+ hours	Catastrophic Critical Limited Negligible		
	Highly likely Likely Possible Unlikely	Catastrophic Critical Limited Negligible	Minimal 6 – 12 hours 12 – 24 hours 24+ hours	Catastrophic Critical Limited Negligible		
	Highly likely Likely Possible Unlikely	Catastrophic Critical Limited Negligible	Minimal 6 – 12 hours 12 – 24 hours 24+ hours	Catastrophic Critical Limited Negligible		
	Highly likely Likely Possible Unlikely	Catastrophic Critical Limited Negligible	Minimal 6 – 12 hours 12 – 24 hours 24+ hours	Catastrophic Critical Limited Negligible		
	Highly likely Likely Possible Unlikely	Catastrophic Critical Limited Negligible	Minimal 6 – 12 hours 12 – 24 hours 24+ hours	Catastrophic Critical Limited Negligible		
	Highly likely Likely Possible Unlikely	Catastrophic Critical Limited Negligible	Minimal 6 – 12 hours 12 – 24 hours 24+ hours	Catastrophic Critical Limited Negligible		
	Highly likely Likely Possible Unlikely	Catastrophic Critical Limited Negligible	Minimal 6 – 12 hours 12 – 24 hours 24+ hours	Catastrophic Critical Limited Negligible		

This table is provided for your reference as you complete the Risk Index Worksheet.

**Severity Ratings Table**

<b>Severity Level</b>	<b>Characteristics</b>
Catastrophic	<ul style="list-style-type: none"> <li>➤ Multiple deaths</li> <li>➤ Complete shutdown of facilities for 30 days or more</li> <li>➤ More than 50 percent of property is severely damaged</li> </ul>
Critical	<ul style="list-style-type: none"> <li>➤ Injuries and/or illnesses result in permanent disability</li> <li>➤ Complete shutdown of critical facilities for at least 2 weeks</li> <li>➤ More than 25 percent of property is severely damaged</li> </ul>
Limited	<ul style="list-style-type: none"> <li>➤ Injuries and/or illnesses do not result in permanent disability</li> <li>➤ Complete shutdown of critical facilities for more than 1 week</li> <li>➤ More than 10 percent of property is severely damaged</li> </ul>
Negligible	<ul style="list-style-type: none"> <li>➤ Injuries and/or illnesses are treatable with first aid</li> <li>➤ Minimal quality-of-life impact</li> <li>➤ Shutdown of critical facilities and services for 24 hours or less</li> <li>➤ Less than 10 percent of property is severely damaged</li> </ul>



## Step 2: Task A

```

    graph LR
      A[Profile hazard events] --> B[Obtain a base map]
  
```

- Road maps
- Topographic maps
- DOQs
- Planimetric maps
- Aerial maps

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### **Task A: Obtain or create a base map**

Locate or create a base map so you can show the areas that are subject to various hazards. A base map should be as complete, accurate, and current as possible.

***Look at the Sample Worksheet #2 from FEMA's how-to guide 386-2 while we are discussing this topic.***

## Types of Maps

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Your instructor will discuss some different types of maps. Be sure to ask questions if there are any with which you are unfamiliar.

## Step 2: Task B

Profile hazard events → Obtain a base map → Obtain profile information

How will you find the information you need?


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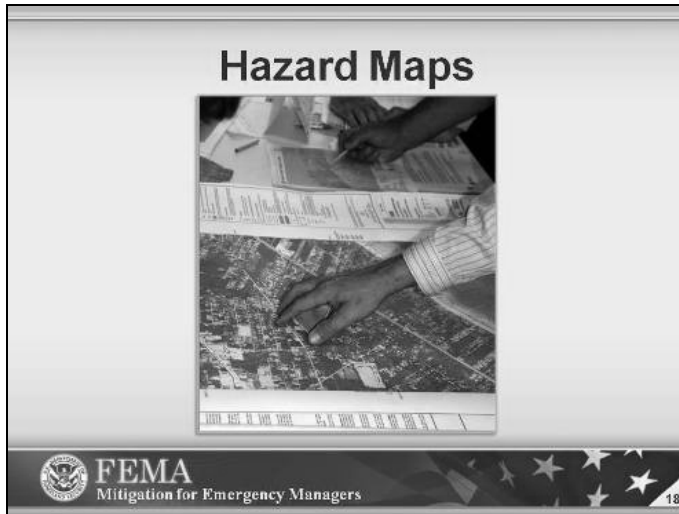
### ***Task B: Obtain hazard event profile information***

You'll need to consider several information sources to obtain the information you need for your plan.

## Information Sources

- Hazard maps
- Historical data
- Existing plans and reports
- Local experts
- Internet websites
- Geographic Information Systems (GIS)
- Hazards U.S. Multi-hazard (HAZUS-MH)

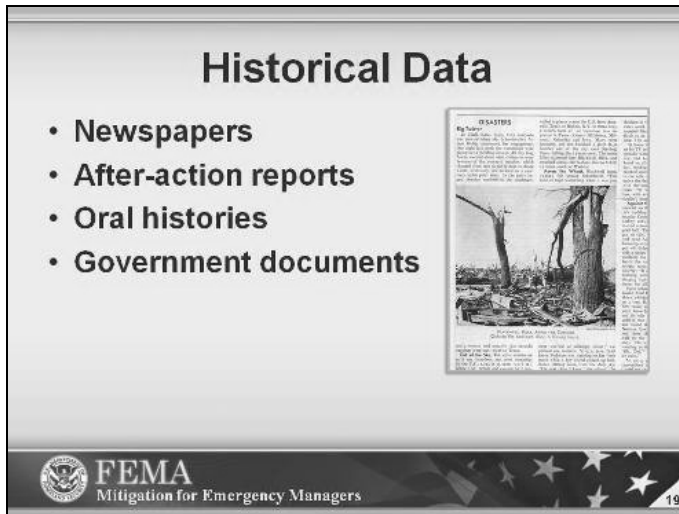
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***What kind of hazard maps can be used?***

***Where can you get them?***

***What information do they provide?***




***What kind of historical data can be used?***

***Where can you get this information?***

## Existing Plans and Reports

- Emergency Operations Plans
- Land Use Plans
- Capital Improvement Plans
- Building Codes
- Land Development Regulations
- Flood Ordinances



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*What are some examples of existing plans and reports you could use?*

*Where can you get them?*

*What information do they provide?*

## Local Experts

- Floodplain Managers
- Public Works Personnel
- Engineers
- Planning and Zoning Department
- Transportation Departments
- State Hazard Mitigation Officer
- Universities and Businesses



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*What kind of experts could provide relevant information?*


*Where can you find these experts?*


*What information can they provide?*



## Internet Websites

- FEMA / DHS
- USGS
- NOAA / NWS
- U.S.A.C.E.
- U.S. Forest Service
- EPA
- CUSEC



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*How can you know the information you find on a website is reliable?*


*What are some of your favorite sources of information on the internet?*


**NOTE:** There is an extensive list of web resources included in Appendix D of this Student Manual.

## GIS

Maps produced with GIS can help with:

- Explaining hazard events
- Predicting outcomes
- Visualizing scenarios
- Planning strategies





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*How can GIS databases help with information gathering?*

## HAZUS-MH

- Estimates damages and losses from:
  - Earthquakes
  - Hurricane winds
  - Floods
- Free software and training





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**How have you used HAZUS-MH to gather information?**

**NOTE:** Free HAZUS-MH software and training is available from FEMA. Information may be found at [www.FEMA.gov/hazus](http://www.FEMA.gov/hazus).

## Step 3: Task C



How will you record the information you found?


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**What methods can you use for record-keeping?**

**Task C: Record the hazard event profile information**

Using the worksheets from FEMA’s how-to guide will assist in the record-keeping process.

**Step 3: Inventory Assets**

**What are your community's assets?**



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**NOTE:** Worksheets #3a and #3b of FEMA's how-to guide 386-2 are designed to assist with inventorying assets.

***Choose one of the hazards you identified that are most likely in your community.***

***What are the assets that would be most affected by the hazard?***


List some of your community's most vulnerable assets on this page.

**Step 3: Task A**

Inventory  
assets

Determine the  
proportion of  
vulnerable  
assets

1. Estimate total number/value of assets
2. Estimate number/value of assets in hazard zone
3. Calculate proportion of assets in hazard areas
4. Consider areas of expected growth



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**Look at the Sample Worksheet #3a of FEMA's how-to guide 386-2 while we discuss the steps in Task A.**

**Task A: Determine the proportion of vulnerable buildings and population**

Determine the proportion of buildings, the value of buildings, and the population in your community or state that are located in hazard areas.

An initial inventory can be done quickly and easily using the baseline data contained in HAZUS-MH.

1. Estimate or count the total number of buildings, value of buildings, and number of people in your community or state.
2. Estimate the total number of buildings, total value of buildings, and number of people in each of your hazard zones.
3. Calculate the proportion of assets located in hazard areas.
4. Determine the location of expected growth in your community.

**Where can you find this information?**

To perform this calculation, divide the number or value in your hazard area by the total number or value in your jurisdiction.


**Step 3: Task B**

**Inventory assets**

Determine the proportion of vulnerable assets

Decide whether to collect more data

- Can you determine how vulnerable each asset is?
- Is there special concern about a particular hazard?
- Is additional data needed to justify expenses?

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***Look at the bottom of Sample Worksheet #3a while we are discussing the steps in Task B.***

***Task B: Determine whether to collect additional inventory data***

Decide whether to continue gathering additional information to identify the extent to which the assets would be damaged by the hazard events.


If you decide to gather additional information, you will then collect details on specific types of population, building stock, infrastructure, and lifelines in the hazard areas in the order of their importance to the community.

This information will be necessary to generate the loss estimations you will make in Step 4.

If you choose to end the inventory collection at this point, you will not proceed to task C.

### Step 3: Task C

1. Determine priorities for inventory collection
2. Gather building-specific information
3. Gather hazard-specific information


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**Look at the Sample Worksheet #3b while we are discussing the steps in Task C.**

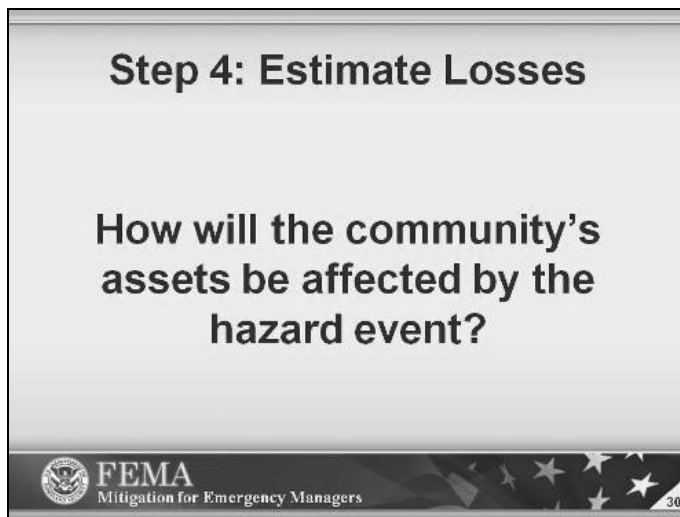
**Task C: Compile a detailed inventory of vulnerable assets**

1. Determine the priorities for your inventory collection efforts.
2. Gather building-specific information about the assets.
  - Size
  - Replacement value
  - Content value
  - Function use or value
  - Displacement cost
  - Occupancy or capacity
3. Gather hazard-specific information about the assets.

**What are the critical facilities in your community?**

**What are some other priorities you should consider?**

**NOTE:** Detailed information and tools for determining building-specific information are included in FEMA's how-to guide 386-2.



In the final step of the risk assessment process, all the information you've gathered comes together as you estimate the expected losses from hazard events to people, buildings, and other important assets.

**NOTE:** This step is not required for approval of a local hazard mitigation plan by FEMA. If it is completed, it does provide a greater degree of dependability upon which to base the hazard mitigation strategy.

***Look at the Sample Worksheet #4 as we discuss the loss estimation process.***


**Step 4: Task A**

**Estimate  
losses**

→

Determine  
extent of  
damages

1. Estimate losses to structures
2. Estimate losses to contents
3. Estimate losses to structure use and function
4. Consider human losses



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**NOTE:** If an abbreviated inventory was conducted in Step 3, the level of damage for each asset in the inventory will not be assessed at this point.

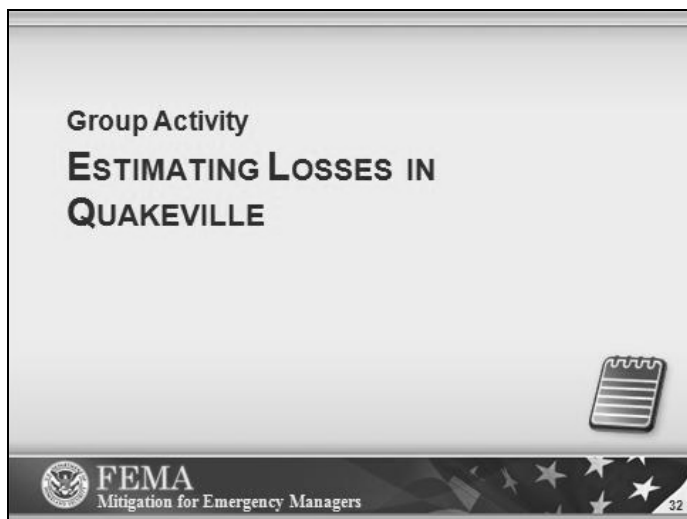
Instead, a level of damage from each hazard for the entire hazard area will be determined using historical evidence of damage and data on population growth.

***Task A: Determine the extent of damages***


1. Estimate the losses to structures by multiplying the structure replacement value by the expected percent.
  
2. Estimate the losses to contents by multiplying the replacement value of the contents by the expected percent damage.
  
3. Estimate the losses to structure use and function by dividing the average annual budget or sales by 365 and then multiplying this value by the displacement time.
  
4. Consider human losses.


**NOTE:** Loss estimation tables for floods, earthquakes, and coastal storms are included in FEMA's how-to guide (386-2).





Group Activity  
**ESTIMATING LOSSES IN  
QUAKEVILLE**



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With your table group, review the Quakeville scenario on the following page and answer the associated questions.

You will work more with the Quakeville scenario in the next two units. For the purposes of this unit, you will focus on estimating losses to some of the residential buildings in the city.



## Group Activity: Estimating Losses in Quakeville

Working with your table group, read the background information and answer the questions.

### **Background Information**

Quakeville is a community of 40,000 located near the Great Northern Fault. The Great Northern Fault is approximately 40 km. in length and is an extension of a larger fault system that runs nearly 200 km. northwest of Quakeville. This fault system has experienced many earthquakes this century, including several with magnitudes over 5 on the Richter scale. (Causing shaking and damage)

Quakeville is an old city, with historic buildings that date back to the early 1800s. The population is proud of its historic district and has made every effort to preserve its integrity. These older buildings are constructed of unstrengthened, unreinforced masonry. They are occupied by older residents whose families have owned them for generations, and by younger professionals who can afford the steep prices the popular historic buildings now cost. The City Council is controlled by the “old money” in the city and has to be convinced, cajoled, and argued into any kind of modernization.

Because it is near an urban area, Quakeville has become a commuter town and many of the buildings in the town are homes. Most of the homes are of wood frame construction and were built using standard construction techniques. Newer wood frame houses are generally earthquake resistant due to changes in the building codes for the area. However, many of the older homes constructed with wood or other materials such as brick, hollow clay tile, or adobe are prone to damage in moderate earthquakes. Many of the older, non-historic homes are owned by residents of a low socioeconomic status.

One of the residential areas also includes two story wood frame apartment buildings with stucco exterior facades. While stucco walls have strength and stiffness, they lack flexibility when stressed.

Municipal buildings and many of the businesses are located in a newer part of town that was built since the building codes were revised to include seismic standards. However, in a recent vulnerability study it was found that two of the older schools are at high risk of both fire and explosion should nearby crude oil pipelines fail. In addition, the community hospital is old and does not meet current building codes for seismic safety.

### **Questions**

The Peak Ground Acceleration (PGA) value for the city’s location is 0.25.

- Using the loss estimation tables on the next page, what is the expected building damage ratio for the historic homes built of unreinforced masonry?
- Using the general rule for earthquakes that contents damage will be one half of the percent structural damage, what is the expected content loss for these homes (as a percentage)?
- How many days can you expect these homes to be unlivable after an earthquake? (Loss of function)

**Earthquake Single Family Residence Loss Estimation Tables (from FEMA's how-to guide #386-2)**

PGA (g)	Building Damage Ratio (%)**									
	Wood Frame Construction				Reinforced Masonry				Unreinforced Masonry	
	High*	Moderate*	Low*	Precode*	High*	Moderate*	Low*	Precode*	Low*	Precode*
0.55	11.6	16.1	30.6	36.8	11.5	27.7	43.9	53.1	45.0	55.6
0.50	10.2	14.0	26.0	31.7	9.6	22.8	36.6	46.1	38.5	46.8
0.45	8.7	11.6	21.1	27.1	8.3	19.7	31.7	40.8	34.0	41.2
0.40	6.1	7.6	13.1	16.7	6.1	12.1	18.6	25.1	22.8	28.1
0.35	4.4	6.3	10.1	12.8	4.9	8.8	15.2	20.8	18.9	23.8
0.30	2.9	3.9	7.2	9.4	3.5	6.1	11.4	16.3	15.4	19.7
0.25	2.3	3.2	4.6	6.1	2.4	3.9	8.7	12.4	10.2	14.9
0.20	1.3	1.7	2.8	3.3	1.3	2.5	6.1	9.0	6.5	9.4
0.15	0.7	1.0	1.3	1.8	0.4	1.5	2.4	4.1	3.0	4.3
0.10	0.3	0.4	0.6	0.7	0.3	0.5	0.8	1.1	1.3	2.0
0.07	0.1	0.2	0.3	0.4	0.1	0.2	0.4	0.5	0.6	1.0
0.05	0.0	0.0	0.1	0.1	0.0	0.1	0.1	0.2	0.2	0.5
0.03	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.2

PGA (g)	Loss of Function (# of Days)									
	Wood Frame Construction				Reinforced Masonry				Unreinforced Masonry	
	High*	Moderate*	Low*	Precode*	High*	Moderate*	Low*	Precode*	Low*	Precode*
0.55	40	79	195	283	61	246	430	542	459	549
0.50	31	69	159	241	51	198	365	484	399	500
0.45	23	51	119	201	44	169	318	439	356	457
0.40	14	27	68	111	24	95	184	276	238	326
0.35	9	23	47	80	18	67	153	236	201	281
0.30	4	10	30	55	14	46	117	189	161	239
0.25	3	8	17	34	9	26	91	150	104	185
0.20	2	3	9	15	4	16	58	106	64	114
0.15	1	2	3	8	1	8	24	51	26	49
0.10	0	1	1	3	1	2	7	14	10	27
0.07	0	0	1	1	0	1	2	7	6	12
0.05	0	0	0	1	0	0	1	1	1	7
0.03	0	0	0	0	0	0	0	1	1	1

### Step 4: Task B

```
graph LR; A[Estimate losses] --> B[Determine extent of damages]; B --> C[Calculate loss from each event];
```

1. Estimate losses to each asset
2. Calculate estimated damages for each hazard event
3. Create a composite map

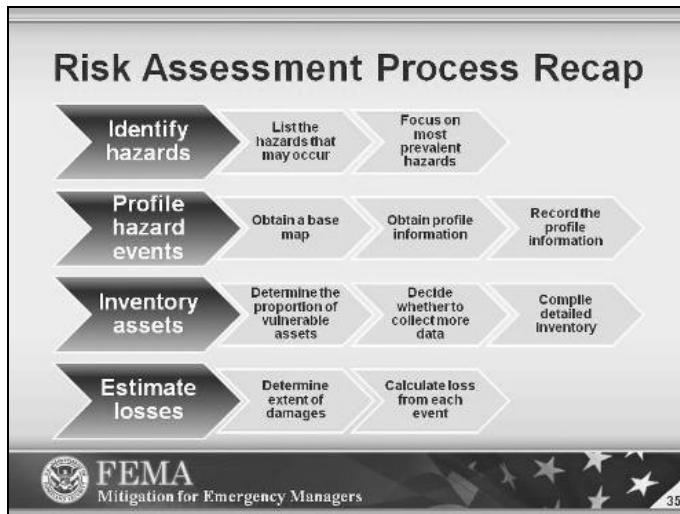
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***Task B: Calculate the loss from each hazard event***

1. Calculate the losses to each asset by adding the structure loss, content loss, and function loss for each asset.
2. Calculate the estimated damages for each hazard event.
3. Create a composite map.

**When is the risk assessment process considered complete?**

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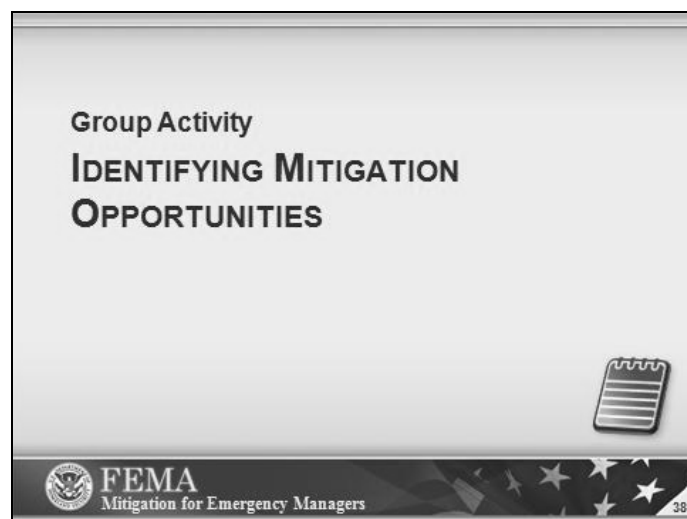
The slide provides an overview of the entire risk assessment process we've discussed in this unit.



When reviewing the existing risk assessment and hazard profiles, determine any changes and/or gaps in the information.



When it can be demonstrated that the community is at risk from one or more hazards, the mitigation planning team has an opportunity to bring attention to the problem and to the possibilities for mitigation solutions.



When a community applies for Public Assistance from FEMA, they are required to submit a Project Worksheet that includes information about the damages caused by the disaster. Completed Project Worksheets are useful historical data for mitigation planning teams.

To complete this activity, refer to the instruction sheet and the sample Project Worksheet for the fictional scenario on the following pages.





**Group Activity: Identifying Mitigation Opportunities**

- Review the information below from the Project Worksheet with your table group. An image of the Project Worksheet form is included on the next page.
- List mitigation needs that are highlighted by the disaster occurrence.
- Do not consider sources of financial assistance in your discussion. Simply look for mitigation opportunities.
- Record ideas on the flipchart. Be sure to describe:
  - The disaster
  - The damages incurred
  - Mitigation opportunities
  - Your rationale

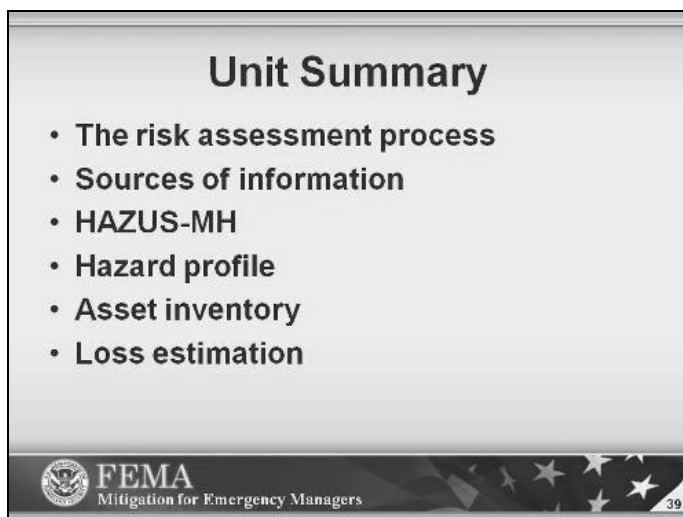
***Excerpts from Project Worksheet:*****Damage Description and Dimensions**

Severe thunderstorm with nearby documented tornado activity removed the roof and damaged electronic controls and pumping systems to a 250 sq ft water and sewer pumping station constructed on elevated concrete pad with high quality wood frame construction and truss roof. The well cared for facility experienced significant windblown rain infiltration and catastrophic roof failure generating an electrical fire likely causing an electrical short to several hundred horsepower pumps, associated control systems and telemetry systems. Emergency repairs were not able to be conducted due to the unsafe conditions from the resulting electrical fire. Portable pumps and vacuum trucks were utilized for emergency operations until a restoration plan and alternate pumping strategies could be implemented. This area has received several severe thunderstorms over the past 4 years, each event causing significant service interruptions to the community and an adjacent hospital and not-for-profit nursing home. The re-activation of this pumping site is critical to the utility network and a cost-benefit analysis further places high values for the project at its current location.

**Scope of Work**


Photograph and document all of the related damages and provide asset management and repair logs on the existing site. Jim Johnson's civil engineering firm, under a recently bid service contract, has provided design and engineering services for the total reconstruction of the site to include removal of all damaged materials, examination of the well casings, as well as adjacent sewer wells, and specified the appropriate pumps, control systems, design and construction costs. Efforts under this mitigation funding request will be to utilize the existing concrete pad and location, as it is not subjected to localized flooding. Rebuild the pump station with heavy-duty concrete block construction along with a high-quality concrete roof decking to mitigate any future impacts and reoccurring damages from future storms, and minimize the potential for potable water service interruption and high-volume flow for fire protection served by this pump station. The site was insured for its present construction type and well-maintained. Rebuilding the site including more robust and weather-resistant pumping systems will exceed our insured value by \$40,000.

U.S. DEPARTMENT OF HOMELAND SECURITY FEDERAL EMERGENCY MANAGEMENT AGENCY <b>PROJECT WORKSHEET</b>			O.M.B. No. 1660-0017 Expires October 31, 2008		
<b>PAPERWORK BURDEN DISCLOSURE NOTICE</b>					
Public reporting burden for this form is estimated to average 90 minutes per response. Burden means the time, effort and financial resources expended by persons to generate, maintain, disclose, or to provide information to us. You may send comments regarding the burden estimate or any aspect of the collection, including suggestions for reducing the burden to: Information Collections Management, U.S. Department of Homeland Security, Federal Emergency Management Agency, 500 C Street, SW, Washington, DC 20472, Paperwork Reduction Project (OMB Control Number 1660-0017). You are not required to respond to this collection of information unless a valid OMB number appears in the upper right corner of this form. <b>NOTE: Do not send your completed questionnaire to this address.</b>					
DISASTER	PROJECT NO.	PA ID NO.	DATE	CATEGORY	
FEMA- <u>2001</u> -DR- <u>001</u>	Collier County, FL 101		J01.21.2011		
DAMAGED FACILITY			WORK COMPLETE AS OF		
Water and Sewer Pumping Station - 3600 Airport Rd.			12/10/2010 : 80 %		
APPLICANT			COUNTY		
Collier County Water and Sewer Authority			Collier County - North Naples Vicinity		
LOCATION			LATITUDE	LONGITUDE	
8075 Lely Cultural Parkway, Naples, FL 34113			34.75.88'	78.45.32"	
DAMAGE DESCRIPTION AND DIMENSIONS					
Severe thunderstorm with nearby documented tornado activity removed the roof and damaged electronic controls and pumping systems to a 250 sq ft water and sewer pumping station constructed on elevated concrete pad with high quality wood frame construction and truss roof. The well cared for facility experienced significant windblown rain infiltration and catastrophic roof failure generating an electrical fire likely causing an electrical short to several hundred horsepower pumps associated control systems and telemetr systems. Emergency repairs were not able to be conducted due to the					
SCOPE OF WORK					
Photograph and document all of the related damages and provide asset management and repair logs on the existing site. Jim Johnson's civil engineering firm, under a recently bid service contract, has provided design and engineering services for the total reconstruction of the site to include removal of all damaged materials, examination of the well casings, as well as adjacent sewer wells, and specified the appropriate pumps, control systems, design and construction costs. Efforts under this mitigation funding request will be to utilize the existing concrete pad and location, as it is not subjected to localized flooding. Rebuild the pump station with heavy-duty concrete block construction along with a high-quality concrete roof decking to mitigate any future impacts and reoccurring damages from future storms, and minimize the potential for potable water service interruption and high-volume flow for fire protection served by this pump					
Does the Scope of Work change the pre-disaster conditions at the site? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No Special Considerations issues included? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Hazard Mitigation proposal included? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No Is there insurance coverage on this facility? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No					
<b>PROJECT COST</b>					
ITEM	CODE	NARRATIVE	QUANTITY/UNIT	UNIT PRICE	COST
1		Post Damage Assessment by Jim Johnson's Civil Engineering	10 hrs	300.00	3,000.00
2		All inclusive design and specifications by Jim Johnson CE	20 hrs	300.00	6,000.00
3		Staff preparation of site survey, permit applications, documents, and printing	5 hrs	65	325.00
4		Construction Bid preparation, bid announcements, bid tabulation, and bid award	10 hrs	65.00	750.00
5		Construction of new wind-resistant block construction pumphouse complete	250 sq ft	600.00	150,000.00
<b>TOTAL COST</b>					<b>160,075.00</b>
PREPARED BY		TITLE	SIGNATURE		
Chris Monroe, PE, Collier County		Engineering Director			
APPLICANT REP.		TITLE	SIGNATURE		
James Delony		Finance Director			



## Unit Summary

- **The risk assessment process**
- **Sources of information**
- **HAZUS-MH**
- **Hazard profile**
- **Asset inventory**
- **Loss estimation**

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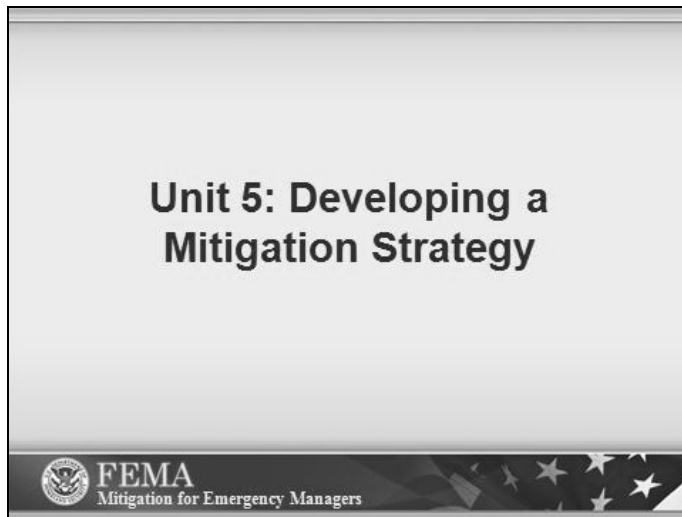
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The ideas developed during the risk assessment can provide the basis for identifying mitigation opportunities such as retrofitting buildings, revising building codes, protecting hospitals, and other mitigation measures.

In this unit, you learned how to use the risk assessment process to analyze risks in your community and how to find the information you need for hazard identification and profiles. You also learned how HAZUS-MH can be used in mitigation planning.

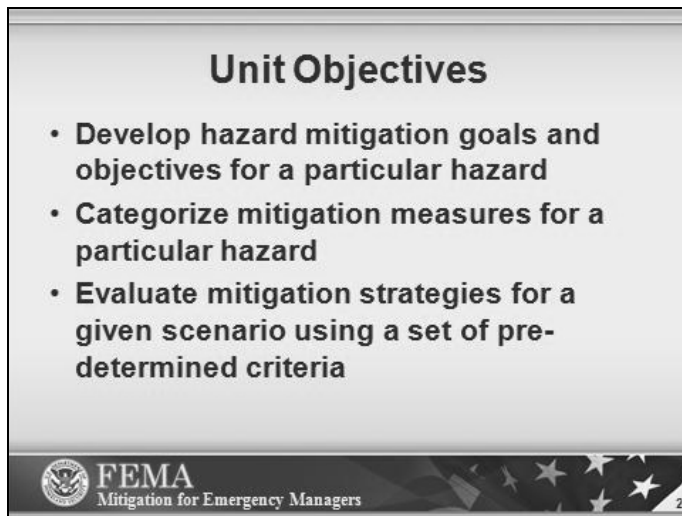
Finally, you identified assets in your community that are vulnerable to hazard events and learned how to estimate losses.





This unit will help you understand how the results of the risk assessment are used for selecting mitigation measures.

A hazard mitigation strategy is part of the overall mitigation plan for the community. It provides direction for the community's efforts to reduce potential losses by identifying measures to mitigate the hazards identified in the risk assessment.



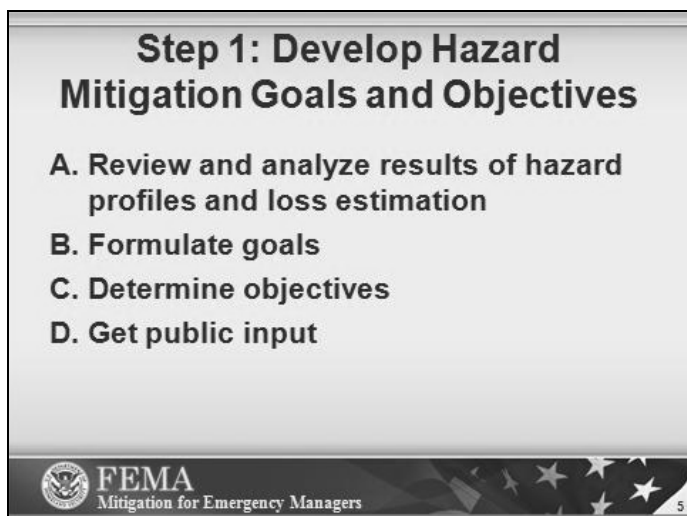
In this unit, you will propose a mitigation strategy for a particular hazard. In order to accomplish this, you will need to be able to perform the tasks listed on the slide.



To develop the community hazard mitigation plan, you'll follow these steps:

1. Develop hazard mitigation goals and objectives.
2. Identify and prioritize hazard mitigation actions.
3. Prepare an implementation strategy.
4. Document the mitigation planning process.


**NOTE:** In this unit, we'll focus on the first two of these steps. We'll discuss the other steps in later units.




Goals are not intended to identify specific mitigation actions, but identify the overall improvements you want to achieve. They are general guidelines.

Group Activity

## DEVELOPING MITIGATION GOALS AND OBJECTIVES




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In a moment, you'll work through the tasks for developing goals and objectives. Before you begin, your instructor has some information to share.

### Task A: Review Hazard Profiles and Loss Estimation

- Review the findings of the risk assessment
- Develop a list of problem statements based on the findings



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***Task A: Review and analyze the results of the hazard profiles and loss estimation***

1. Review the findings of your risk assessment.
2. Develop a list of problem statements based on these findings.

Follow the instructions provided on the next page of this guide to work with your table group through the two steps in Task A.





## **Group Activity: Developing Goals and Objectives (Part 1 of 3)**


### ***Task A: Review and analyze the results of the hazard profiles and loss estimation***


- Review the findings from the hazard profiles and loss estimation for the Quakeville scenario from Unit 4. Refer to pages IV-25 and 26 for information about that scenario.
- Develop a list of problem statements based on these findings and record the problem statements on your group's flipchart.
- You have 10 minutes to complete this part of the activity.
- Be prepared to share your responses with the class.



## Task B: Formulate Goals

- **Develop proposed goal statements**
- **Review existing plans and policy documents to identify conflicts**



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### ***Task B: Formulate goals***

1. Develop proposed goal statements.  
Goals are broad, forward-looking statements that succinctly describe your aims. Several problem statements can lead to one broad goal.
2. Review existing plans and other policy documents to identify potential conflicts.  
Hazard mitigation goals should be consistent with the goals and objectives of other plans in your community

Work with your table group to complete the next part of the activity, following the instructions on the next page of this manual.



## **Group Activity: Developing Goals and Objectives (Part 2 of 3)**


### ***Task B: Formulate goals***



- Working with your table group, develop a goal statement to address each of the problem statements you listed.
- If your group has a long list of problem statements, for the purposes of this activity, limit your list of goals to no more than five.
- Although it won't be possible to review other plans and policies in this activity, consider potential conflicts with local policies and plans and revise the goals as needed.
- Record your goals on your group's flipchart.
- Be prepared to share the proposed goals with the class.
- You have 10 minutes to complete this part of the activity.



## Task C: Determine Objectives

- **Formulate objectives to support goals**
  - More specific and narrower in scope than goals
  - Should be measurable



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### ***Task C: Determine objectives***

Objectives define strategies or steps to achieve the goals that have been set. They are more specific and narrower in scope than goals. It is important that the objectives be measurable so you will know when you have successfully implemented the strategy.

To help you measure progress toward your goals, you may wish to include time frames and specific targets within those time frames.

Complete the last part of the activity with your table group, following the instructions on the next page.





## **Group Activity: Developing Goals and Objectives (Part 3 of 3)**


### ***Task C: Determine objectives***

- Working with your table group, choose one of the goals you developed and write measurable objectives to support that goal.
- For the purposes of this activity, limit your list of objectives to no more than five.
- Record your objectives on your group's flipchart.
- Be prepared to share the objectives with the class.
- You have 15 minutes to complete this part of the activity.



## Task D: Get Public Input

- Organize public forums to solicit input
- Develop consensus on goals and objectives



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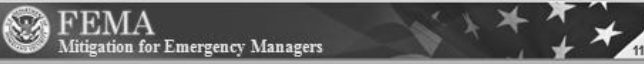
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### ***Task D: Get public input***

The more that the public or those who will be affected by your plan participate in the process, the more likely it is that they will support the process and the plan.

Ideally, the procedures you use to obtain public input should be established earlier in the planning process, when you form the planning team and secure support for the process.

## How can you involve the public and promote buy-in for your community's mitigation goals and objectives?




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## Step 2: Identify and Prioritize Mitigation Actions

- A. Identify alternative mitigation actions
- B. Identify and analyze state and local mitigation capabilities
- C. Evaluate, select, and prioritize mitigation actions



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The evaluation and prioritization of mitigation actions will produce a list of recommended mitigation actions to incorporate into the mitigation plan. The planning team will address a number of important questions, including:

- Which actions can help us meet our mitigation objectives?
- What capabilities do we have to implement these actions?
- What impacts (if any) will these actions have on our community?

## Categories of Mitigation Measures

- Prevention
- Property protection
- Critical facilities protection
- Public education and awareness
- Natural resource protection
- Structural projects




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**NOTE:** A list of sample mitigation measures, organized by categories, is included as Appendix E of the Student Manual.

## Prevention

- **Planning and zoning**
- **Open space preservation**
- **Land development regulations**
- **Storm water management**
- **Coastal barrier protection**
- **Capital improvement planning**
- **Building codes**





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A disaster-resistant community design should include a strategy to minimize the risk to new construction. Prevention measures are intended to keep a hazard risk problem from getting worse.

## Property Protection

- **Acquisition**
- **Relocation**
- **Rebuilding**
- **Retrofitting**
- **Floodproofing**




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Each disaster resistant community should adopt a strategy for reducing the risk to existing development.

Property protection measures are used to modify buildings subject to hazard risk, or their surroundings, rather than to prevent the hazard from occurring.

## Emergency Services

- Warning systems
- Emergency response operations
- Public health and safety
- Critical facilities




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Actions in this category are those that protect people and property during and immediately after a disaster or hazard event.

Critical facilities protection is essential because critical facilities can have a huge effect on the scope of the damage as well as the ability of the community to respond and recover from a hazard event.

## Public Education and Awareness

- Outreach projects
- Real estate disclosure
- Hazard information centers
- Technical assistance
- School-age and adult education programs


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This category includes measures such as outreach projects, real estate disclosure, hazard information centers, technical assistance, and school-age and adult education programs.

## Natural Resource Protection

- Erosion and sediment control
- Wetlands protection
- Dunes restoration
- Reforestation
- Terracing
- Beach nourishment





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Natural resource protection measures are intended to reduce the intensity of hazard effects as well as to improve the quality of the environment and wildlife habitats.

## Structural Projects

- Dams and reservoirs
- Dikes, levees, floodwalls, and seawalls
- High flow diversions and spillways
- Channel modifications
- Storm sewers




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Structural measures directly protect people and property at risk. They are called “structural” because they involve construction of man-made structures to control hazards.

## Task A: Identify Alternative Mitigation Actions

**Brainstorm mitigation measures to accomplish the objectives**

- Review existing literature and resources
- Review success stories
- Solicit public opinion and input
- Summarize your findings





### ***Task A: Identify alternative mitigation actions***

To generate the most complete list of mitigation actions that may provide solutions for the community, you'll need to use a variety of sources and document the ideas and information the team discovers.

1. Review existing literature and resources.
2. Review success stories.
3. Solicit public opinion and input.
4. Summarize your findings.

## Group Activity

### BEST PRACTICES

Refer to the instructions on the next page of this manual, as well as the Best Practices Examples in Appendix F, to complete this group activity.

**NOTE:** Worksheet #1 from FEMA's how-to guide, "Developing the Mitigation Plan: Identifying Mitigation Actions and Implementation Strategies," (386-3) is designed to assist with this task.

This how-to guide also contains a Job Aid for identifying alternative mitigation actions by hazard and a reference library with many resources that could serve as a starting point for the planning team.

Another valuable resource that can assist the planning team with this task is FEMA's how-to guide, "Using Benefit-Cost Review in Mitigation Planning" (386-5).



## **Group Activity: Best Practices**

- Your instructor will assign your group a “best practices” example to focus on for this activity. These examples are located in Appendix F of the Student Manual.
- Working with your group, read the example and answer the questions.
- You have 10 minutes to complete the activity.
  - What was the mitigation goal?
  
  
  
  
  
  
  
  
  
  
  - What methods did the planning team use to attain the goal?
  
  
  
  
  
  
  
  
  
  
  - What other methods could they have used?
  
  
  
  
  
  
  
  
  
  
  - What ideas, if any, does this example give you to use in your community?



## Task B: Identify and Analyze Mitigation Capabilities

- Review the state capability assessment
- Complete a local capability assessment




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### ***Task B: Identify and analyze state and local mitigation capabilities***

Review and analyze programs, policies, regulations, funding, and practices that affect mitigation.

1. First, review the state capability assessment.
2. Then, complete a local capability assessment.

## Task C: Evaluate, Select, and Prioritize Mitigation Actions

- Evaluate all alternative mitigation actions
- Summarize and document recommended mitigation actions
- Prioritize selected mitigation actions


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### ***Task C: Evaluate, select, and prioritize mitigation actions***


Select suitable mitigation actions and decide in what order to pursue these actions.

**NOTE:** You can use Worksheet #3, “Local Mitigation Capability Assessment” and the corresponding Job Aid to complete this subtask. The Job Aid will help the planning team identify specific regulatory tools, staff, and financial resources that exist in your jurisdiction.

**NOTE:** The planning team can use Worksheet #4 from FEMA’s planning team to record the team’s discussions.

### The STAPLE Criteria

- **S**ocial
- **T**echnical
- **A**ministrative
- **P**olitical
- **L**egal
- **E**conomic / **E**nvironmental



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1. Evaluate alternative mitigation actions. You may use the “STAPLE” criteria to complete this evaluation:
  - Social
  - Technical
  - Administrative
  - Political
  - Legal
  - Economic
  - Environmental
2. Summarize and document recommended mitigation actions.
3. Prioritize selected mitigation actions.

**NOTE:** Table 2-1 in FEMA’s how-to guide lists some considerations and sources of information for each STAPLE criterion to use when completing Worksheet #4.

***Is the strategy socially acceptable?***

***Is it technically feasible, cost-effective, and useful?***

***Is the community capable of implementing it?***

***Do you have the necessary political and public support?***


***Does the community have the proper authority?***

***Can the community afford it?***

***Does it promote a sustainable and environmentally healthy community?***

### Prioritization Questions

- How easily can the action be implemented?
- Will the action accomplish multiple objectives?
- How long will the action take?
- Are post-disaster mitigation funds available?





**NOTE:** Using Worksheet #5 from FEMA's how-to guide 386-3 can help the planning team prioritize the mitigation actions.

Some common ways to rank mitigation actions are:

- Ease of implementation
- Multi-objective actions
- Time
- Funding availability

### Group Activity

## MITIGATION SOLUTIONS FOR QUAKEVILLE



### Group Activity: Mitigation Solutions for Quakeville

Refer to the instructions on the next page to complete this group activity that gives you the opportunity to walk through the process of selecting the best mitigation solutions to a community's hazard risk problems.



**Group Activity: Mitigation Solutions for Quakeville**


- Review the mitigation goals and objectives you developed for the Quakeville scenario. See pages V-4, 6, and 8 of this manual.
- Working with your group, suggest 4-5 mitigation measures that can apply to the scenario.
- Evaluate these measures based on the STAPLE criteria. A set of questions to consider for each criterion is included on the next page.
- Based on your evaluation, suggest a mitigation strategy for the Quakeville community.
- Take about 30 minutes to work on your solution.
- Assign a group spokesperson to report your group's findings to the class.

<b>THE STAPLE CRITERIA</b>
<b>SOCIAL</b>
<ul style="list-style-type: none"> <li>➤ Will the action be socially acceptable to the community?</li> <li>➤ Will it cause any one segment of the population to be treated unfairly?</li> <li>➤ Will the action disrupt established neighborhoods, break up voting districts or cause the relocation of low and reduced income people?</li> <li>➤ Is the action compatible with present and future community values?</li> </ul>
<b>TECHNICAL</b>
<ul style="list-style-type: none"> <li>➤ What consequences are created by this approach?</li> <li>➤ Most importantly, will it solve the problem?</li> <li>➤ In light of other community goals, is it the most useful?</li> </ul>
<b>ADMINISTRATIVE</b>
<ul style="list-style-type: none"> <li>➤ Does the community have the capability to implement the action?</li> <li>➤ Can the community provide any maintenance necessary?</li> <li>➤ Are staff, technical experts, and funding sufficient?</li> <li>➤ Can it be accomplished in a timely manner?</li> </ul>
<b>POLITICAL</b>
<ul style="list-style-type: none"> <li>➤ Have all of the stakeholders been offered an opportunity to participate in the planning process?</li> <li>➤ How can the mitigation goals be accomplished at the lowest cost to the stakeholders?</li> <li>➤ Is there public support both to implement and maintain this measure?</li> <li>➤ Is the political leadership willing to propose and support the favored measure?</li> </ul>
<b>LEGAL</b>
<ul style="list-style-type: none"> <li>➤ Does the community have the authority to implement the proposed measure?</li> <li>➤ Is there a clear legal basis for the mitigation action?</li> <li>➤ Is enabling legislation necessary?</li> <li>➤ What are the legal ramifications?</li> <li>➤ Will the community be liable for the actions or support of actions, or lack of action?</li> <li>➤ Is it likely to be challenged?</li> </ul>
<b>ECONOMIC</b>
<ul style="list-style-type: none"> <li>➤ What are the costs and benefits of this measure?</li> <li>➤ How will the implementation of this measure affect the fiscal capability of the community?</li> <li>➤ What burden will be placed on the tax base or local economy?</li> <li>➤ Does the action contribute to other community economic goals such as capital improvements or economic development?</li> </ul>
<b>ENVIRONMENTAL</b>
<ul style="list-style-type: none"> <li>➤ How will this action affect the environment?</li> <li>➤ Will this measure comply with local, State, and Federal environmental regulations?</li> <li>➤ Is the action consistent with community environmental goals?</li> </ul>



**Unit Summary**

- **Mitigation goals and objectives**
- **Categories of mitigation measures**
- **STAPLE criteria**

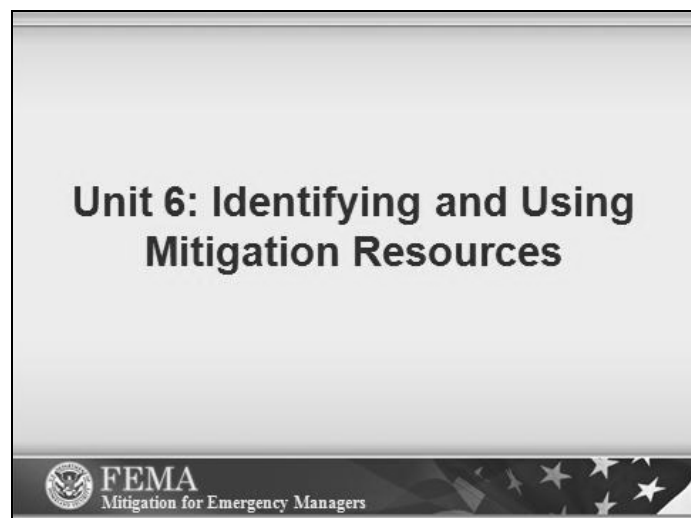
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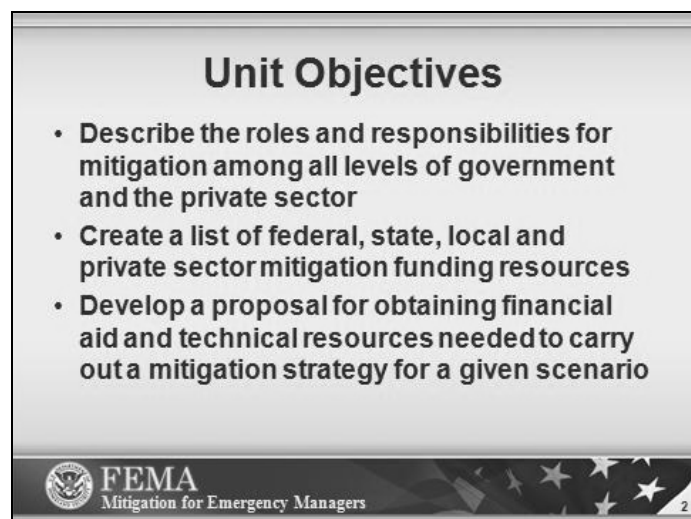
**NOTE:** Remember to add any new ideas to your Action Item List.

In this unit, you practiced writing mitigation goals and objectives, identified categories of mitigation measures, and evaluated mitigation actions using the STAPLE criteria to propose a mitigation strategy.





The last two units concentrated on identifying mitigation opportunities and developing a mitigation strategy. This unit will focus on identifying and obtaining the resources required to implement the mitigation strategy.



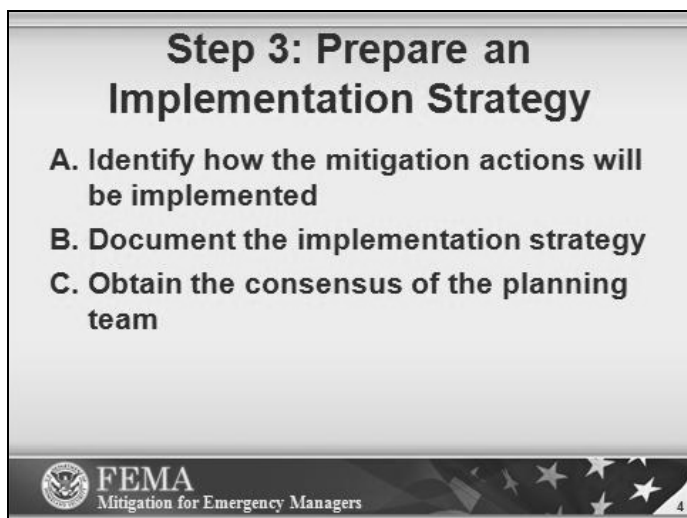
By the time you complete this unit, you should be able to develop a mitigation plan implementation strategy for a given scenario.

You will accomplish this by being able to perform the tasks listed on the slide.



In the previous unit, we discussed the first two steps under Phase 3 of the hazard mitigation planning process. In this unit, we'll discuss the remaining two steps in this phase.

There will be a variety of hazard mitigation actions in the mitigation strategy and multiple ways to implement them.



The implementation strategy is an essential part of the hazard mitigation plan. The implementation strategy identifies *how* the hazard mitigation actions will be funded, *who* is responsible for which actions, and *when* the actions are to be completed.

## Task A: Identify How to Implement the Actions

- Identify parties, define responsibilities, and confirm partners
- Identify resources to implement the actions
- Define the time frame for implementing the actions

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**NOTE:** Table 3-1 of FEMA's how-to guide #386-3 contains a list of subtasks involved in accomplishing this task.

### ***Task A: Identify how the mitigation actions will be implemented***

In this task, the planning team will:

- Identify parties, define responsibilities, and confirm partners.
- Identify resources to implement the actions.
- Define the time frame for implementing the actions.

## Resources for Mitigation Implementation

- Funding Sources
  - Local
  - State
  - Federal
- Technical Assistance


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Individuals or organizations responsible for implementing the community's mitigation plan must be familiar with a variety of sources for mitigation funding and technical assistance.

## Mitigation Responsibilities

- Local government
- Private sector
- State government
- Federal government



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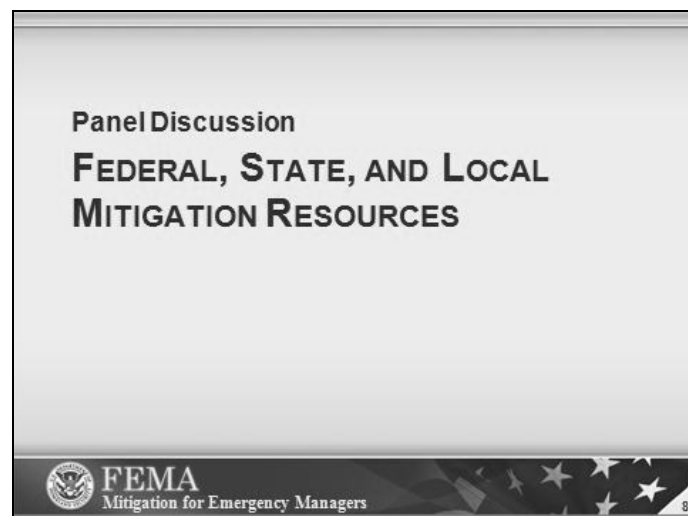
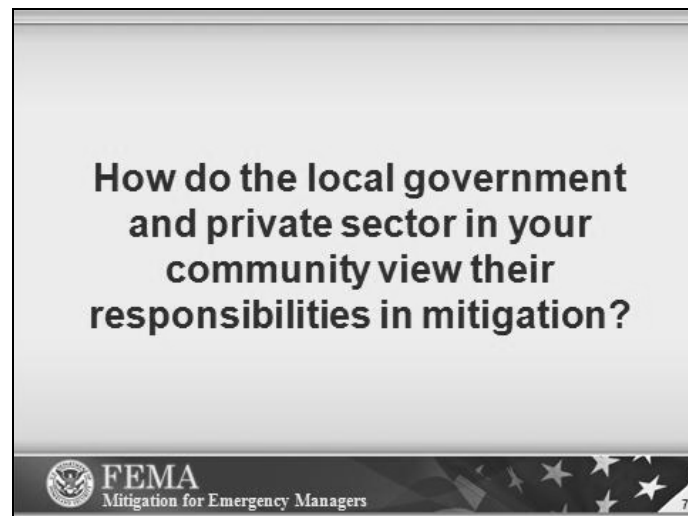
*Local governments* must do everything possible to protect their citizens from hazard risks, including enacting and enforcing building codes and zoning ordinances, making the public aware of hazards and risk reduction measures, and complying with regulations designed to reduce losses.

*The private sector* has a responsibility to comply with applicable zoning and land use regulations, as well as to take other necessary measures to reduce or eliminate damage from known hazards.

*The State* is required to uphold Federal regulations intended to reduce hazard losses. The State also must provide resources to achieve these goals and emphasize to its constituents the importance of substantially risk reduction.

*Federal agencies* are expected to:


- Take the lead in mitigation by ensuring proper mitigation of their own facilities
- Collaborate with other groups to speed development and application of mitigation technologies
- Support applied research on priority mitigation issues
- Administer programs to support and encourage local mitigation efforts




Now you will have the opportunity to hear about some of the resources available for mitigation from representatives of the organizations that manage those resources. You'll also have a chance to ask questions of the panel members.

**Group Activity**  
**IDENTIFYING MITIGATION  
RESOURCES**

**Local = 4 points**  
**Private = 3 points**  
**State = 2 points**  
**Federal = 1 point**



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Refer to the instructions on the next page to complete this group activity.



**Group Activity: Identifying Mitigation Resources**

- Working with your table groups, create a list of resources for mitigation actions.
  - If you record your list on your group's flipchart, be sure to turn the flipchart so no other groups can see it, because you are competing with the other groups in this activity.
  - Include the ideas you heard from the panel members and add any others you have used or read about.
  - Be imaginative and innovative.
  - Separate your list into the four categories listed below.
- The group with the most points wins.
  - Each local resource is worth 4 points.
  - Each private resource is worth 3 points.
  - Each State resource is worth 2 points.
  - Each Federal resource is worth 1 point.
- You have 20 minutes to complete your list.



## Categories of Mitigation Resources

- Pre-disaster
- Post-disaster
- Disaster-applicable



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Programs that provide financial and technical assistance resources for mitigation activities may be divided in three categories.

- Pre-disaster programs
- Post-disaster programs
- Disaster-applicable programs

## Task B: Document the Implementation Strategy

- Action
- Goal(s) and objective(s) addressed
- Lead agency
- Support agency or agencies
- Budget
- Funding source(s)
- Start and end date

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**NOTE:** The slide shows one example format the planning team can use when documenting the implementation strategy.

### ***Task B: Document the implementation strategy***

Determine the format for presenting your implementation strategy. This, along with discussions of goals and objectives, and identification and prioritization of actions, will comprise your overall mitigation strategy

## Task C: Obtain the consensus of the planning team

### Confirm that:

- The timeline and use of resources are realistic
- Responsibilities are assigned to the appropriate parties
- The strategy is headed in the right direction

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### ***Task C: Obtain the consensus of the planning team***

The planning team should review the resulting strategy and come to a consensus on the timing of the mitigation actions and on the agencies or other parties responsible.

### Group Activity

## SELECTING MITIGATION RESOURCES FOR QUAKEVILLE

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In this activity, you'll select resources for carrying out the mitigation strategy you proposed in Unit 5 for the fictional city of Quakeville. Refer to the instructions on the next page of this manual.


**Group Activity: Selecting Mitigation Resources**

- Working with your table group, review the Quakeville mitigation strategy you developed in the previous unit.
- Create two columns on your group's flipchart and label the columns "Resource" and "Action."
- Develop a proposal for obtaining the financial and technical resources needed to carry out the strategy. To do this, list on the flipchart the resources needed and the actions you propose to take to obtain those resources.
- You have 15 minutes to develop the proposal.
- Be prepared to present your proposal to the full group.



## Step 4: Document the Mitigation Planning Process

- A. Make decisions about the style of the document
- B. Write the plan
- C. Review the plan




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The hazard mitigation plan is a guide to keep you on track and serves as documentation of the thoughts and considerations that were the foundation of the planning process. As community leadership changes, and during intense decision-making situations, the plan will serve as representation of the community's principles for hazard loss reduction.

## Task A: Make Style Decisions

- Length
- Format and sections
- Language level
- Level of detail
- Schedule for writing the plan
- Who should write the plan




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### ***Task A: Make decisions about the style of the document***

- Decide how to make the document readable.
- Determine how detailed the planning document should be.
- Establish the schedule for writing the plan.
- Determine who should write the plan.

## Task B: Write the Plan

- Assemble information from previous phases
- Conform to FEMA program requirements



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**NOTE:** DMA 2000 requires state plans to be updated every 3 years and local plans every 5 years.

### ***Task B: Write the plan***

- Assemble information and write-ups from previous phases of the process.
- Write the plan in conformance with FEMA program requirements.

## Task C: Review the Plan

- Planning team review
- Agency review
- Public review
- Final draft

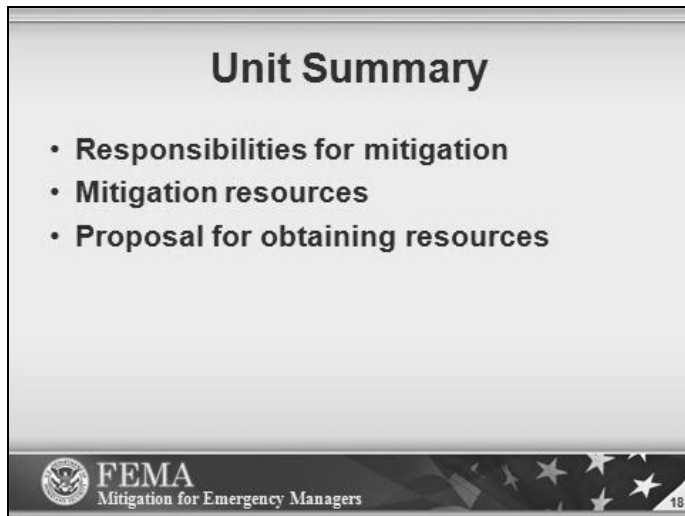
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**NOTE:** Under the Community Rating System, a public meeting must be held at least two weeks before the plan is voted on by the governing board, and the meeting must be properly publicized.

### ***Task C: Review the plan***


- Planning team review
- Agency review
- Public review
- Final draft





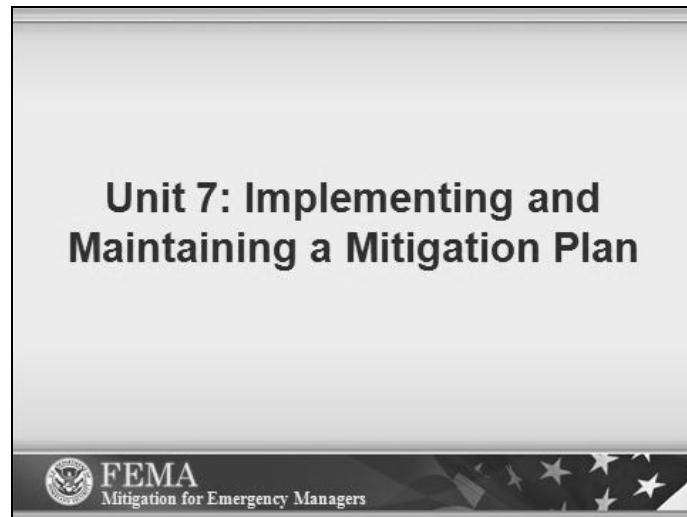
## Unit Summary

- **Responsibilities for mitigation**
- **Mitigation resources**
- **Proposal for obtaining resources**

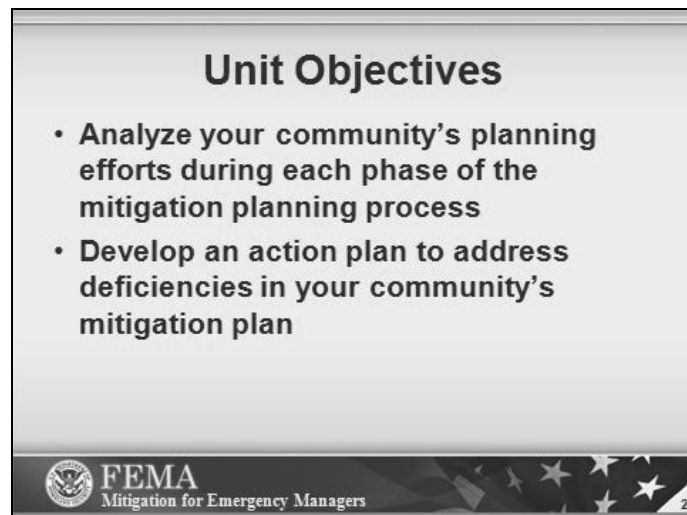
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During this unit, we discussed the responsibilities of each level of government in mitigation, identified mitigation resources, and developed a proposal for obtaining financial and technical resources to accomplish a mitigation plan.





In earlier units we discussed the role of the emergency program manager in mitigation and the importance of creating disaster-resistant communities. We have discussed the need for identifying opportunities, solutions, and resources for mitigation.



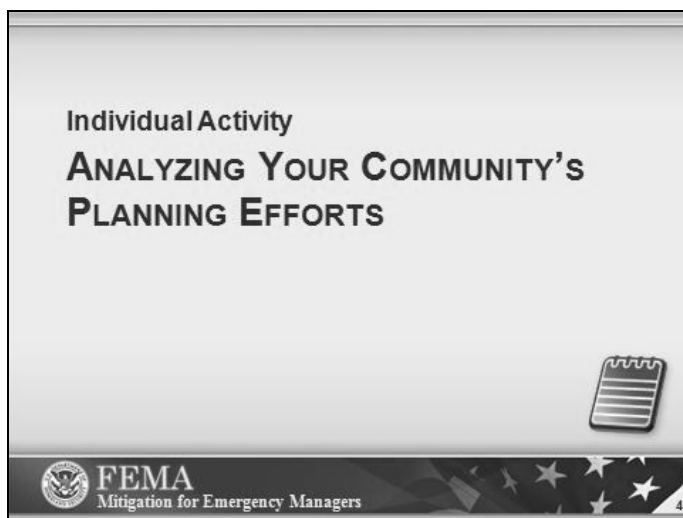
In this unit, you will evaluate the effectiveness of your community's mitigation planning efforts.

In order to accomplish this, you will need to be able to perform the tasks listed on the slide.



The phases of the mitigation planning process that we've discussed so far are.

- Organize resources
- Assess risks
- Develop a mitigation plan
- Implement the plan and monitor progress



As we review the steps within the phases of the mitigation planning process, use the corresponding checklists provided on the following pages of this manual to analyze your community's planning efforts during each phase of the process.



Evaluate your community's resource organization efforts using the checklist for Phase One, located on the next page of this manual.



## Individual Activity: Analyzing Your Community's Planning Efforts

As the instructor reviews each step in the mitigation planning process, use the following checklists to evaluate your community's planning efforts.

For each action item, check the appropriate status:

- Needs Development (ND)
- Needs Updating (NU)
- Sufficient/Satisfactory (S)

### ***Phase 1: Organize Resources***

ND	NU	S	Action Items
			<b>Step 1: Assess community support.</b>
			Task A: Determine the planning area.
			Task B: Determine if the community is ready to begin the planning process.
			Task C: Remove roadblocks
			<b>Step 2: Build the planning team.</b>
			Task A: Create the planning team.
			Task B: Obtain official recognition for the planning team.
			Task C: Organize the team.
			<b>Step 3: Engage the public.</b>
			Task A: Identify the public.
			Task B: Organize public participation activities.
			Task C: Develop a public education campaign.







Evaluate your community's risk assessment efforts using the checklist for Phase Two, located on the next two pages of this manual.



**Phase 2: Identify Hazards**

ND	NU	S	Action Items
			<b>Step 1: Identify hazards.</b>
			Task A: List the hazards that may occur.
			Research newspapers and other historical records.
			Review existing plans and reports.
			Talk to the experts in your community, state, or region.
			Gather information on internet websites.
			Task B: Focus on the most prevalent hazards in your community or state.
			Examine hazard maps to determine whether your community or state is located in a high-risk area.
			Obtain localized information for particular hazards as needed.
			Refine your list of most prevalent hazards as needed.
			<b>Step 2: Profile hazard events.</b>
			Task A: Obtain or create a base map.
			Task B: Obtain hazard event profile information.
			Task C: Record your hazard event profile information.
			<b>Step 3: Inventory assets.</b>
			Task A: Determine the proportion of buildings, the value of buildings, and the population in your community or state that are located in hazard areas.
			Estimate or count the total number of buildings, value of buildings, and number of people in your community or state.
			Determine the total number of buildings inside your community or state.
			Determine the total estimated value of the buildings inside your community or state.
			Determine the number of people inside your community or state.
			Estimate the total number of buildings, total value of buildings, and number of people in each of your hazard zones.
			Determine the total number of buildings inside the hazard area.
			Determine the total estimated value of the buildings inside the hazard area.
			Determine the number of people inside the hazard area.
			Calculate the proportion of assets located in hazard areas.
			Determine the location of expected growth in your community.
			Task B: Determine whether (and where) you want to collect additional inventory data.

ND	NU	S	Action Items
			Is there enough data to determine which assets are subject to the greatest potential damage?
			Is there enough data to determine whether certain areas of historic, environmental, political, or cultural significance are vulnerable to potential hazards?
			Is there concern about a particular hazard because of its severity, repetitiveness, or likelihood of occurrence?
			Is additional data needed to justify the expenditure of community or state funds for mitigation initiatives?
			Task C: Compile a detailed inventory of what can be damaged by a hazard event.
			Determine the priorities for your inventory collection efforts.
			Identify critical facilities.
			Identify vulnerable populations.
			Identify economic elements of importance.
			Identify areas with special considerations.
			Identify historic, cultural, and natural resource areas.
			Identify other important facilities.
			Gather building-specific information about the assets.
			Determine the size of the building.
			Determine the replacement value.
			Determine the content value.
			Determine the function use or value.
			Determine the displacement cost.
			Determine the occupancy or capacity.
			Gather hazard-specific information about the assets.
			<b>Step 4: Estimate losses.</b>
			Task A: Determine the extent of damages.
			Estimate the losses to structures.
			Estimate the losses to contents.
			Estimate the losses to structure use and function.
			Consider human losses.
			Task B: Calculate the loss from each hazard event.
			Calculate the losses to each asset.
			Calculate the estimated damages for each hazard event.
			Create a composite map.



Evaluate your community's mitigation plan development efforts using the checklist for Phase Three, located on the next two pages of this manual.



**Phase 3: Develop a Mitigation Plan**

ND	NU	S	Action Items
			<b>Step 1: Develop mitigation goals and objectives.</b>
			Task A: Review and analyze the results of the hazard profiles and loss estimation.
			Review the findings of your risk assessment.
			Note the causal factors of each hazard.
			Note the hazard characteristics.
			Note which important and/or critical assets (historic, civil, emergency facilities, transportation, lifelines, etc.) identified in Phase 2 are located in hazard areas.
			Identify specific characteristics of assets in hazard areas that contribute to their vulnerability.
			Review the composite map of vulnerabilities and loss estimate tables to identify the areas and hazards that would produce the most potential losses.
			Develop a list of problem statements based on these findings.
			Task B: Formulate goals
			Develop proposed goal statements.
			Review existing plans and other policy documents to identify potential conflicts
			Task C: Determine objectives.
			Task D: Get public input.
			Organize public forums to solicit input on community goals and objectives. Town hall meetings Working groups or advisory committees Facilitated meetings
			Develop consensus on goals and objectives.
			<b>Step 2: Identify and prioritize mitigation actions.</b>
			Task A: Identify alternative mitigation actions.
			Review existing literature and resources.
			Review "success stories."
			Solicit public opinion and input.
			Summarize your findings.
			Task B: Identify and analyze state and local mitigation capabilities.
			Review the state capability assessment.
			Complete a local capability assessment.

ND	NU	S	Action Items
			Task C: Evaluate, select, and prioritize mitigation actions.
			Evaluate alternative mitigation action.
			Summarize and document recommended mitigation actions.
			Prioritize selected mitigation actions.
			<b>Step 3: Prepare an implementation strategy.</b>
			Task A: Identify how the mitigation actions will be implemented.
			Identify parties, define responsibilities, and confirm partners.
			Identify resources to implement the action.
			Define the time frame for implementing the actions.
			Task B: Document the implementation strategy.
			Task C: Obtain the consensus of the planning team.
			<b>Step 4: Document the mitigation planning process.</b>
			Task A: Make decisions about the style of the document.
			Decide how to make the document readable.
			Determine how detailed the planning document should be.
			Establish the schedule for writing the plan.
			Determine who should write the plan.
			Task B: Write the plan.
			Assemble information and write-ups from previous phases of the process.
			Write the plan in conformance with FEMA program requirements. Description of the planning process Risk assessment Mitigation strategy A plan maintenance process section
			Task C: Review the plan.
			Planning team review
			Agency review
			Public review
			Final draft





**NOTE:** FEMA's how-to guide, "Bringing the Plan to Life," contains more information and guidance about this phase in the process (FEMA 386-4).

### ***Implement the Plan and Monitor Progress***

During this phase, the mitigation planning team will:



- Adopt the plan.
- Implement the recommendations.
- Evaluate results.
- Revise the plan.

In this unit, we'll look more closely at these steps in Phase 4.

You'll complete the checklist for this phase at the end of this unit.

## Step 1: Adopt the Plan

- A. Brief local leadership**
- B. Demonstrate the support of partner organizations**
- C. Have the plan adopted by the proper legislative or executive authorities**
- D. Submit your plan for approval**
- E. Publicize the adoption and approval of the plan**

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**NOTE:** In order to meet DMA 2000 regulations, your jurisdiction's governing body must formally adopt the plan in accordance with state and local laws.

Adoption of the plan lends it authority, gives it legal status, certifies its approval, and helps ensure continuity of mitigation programs over time.

### ***Task A: Brief local leadership***

Periodically brief community decision makers and elected officials on your progress.

### ***Task B: Demonstrate the support of partner organizations***

The community's governing body may view the plan more favorably if it has the support of neighborhood and civic organizations.

### ***Task C: Have the plan adopted by the proper legislative or executive authorities***

Depending on the laws in your state and jurisdiction, adoption of the plan will give the jurisdiction legal authority to enact ordinances, policies, or programs to reduce hazard losses and to implement other mitigation actions.

### ***Task D: Submit your plan for approval***



Once your local governing body has approved the plan, it must be submitted to the State Hazard Mitigation Officer (SHMO).

### ***Task E: Publicize the adoption and approval of the plan***

Once the plan has been approved, stakeholders should be informed of your success.

## Step 2: Implement the Plan Recommendations

- A. Confirm and clarify responsibilities
- B. Begin to integrate mitigation actions
- C. Monitor and document implementation
- D. Establish indicators of effectiveness
- E. Celebrate success

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***Task A: Confirm and clarify responsibilities***

Consider putting a Memorandum of Agreement (MOA) into place among the different agencies and organizations who are working together.

***Task B: Begin to integrate mitigation actions throughout government operations***

The planning team should work with chief administrative officials to begin to integrate the newly adopted hazard mitigation goals and actions into general operations.

***Task C: Monitor and document the implementation of your projects and actions***

The planning team must continuously monitor and document the progress of the plan's recommended actions.

***Task D: Establish indicators of effectiveness or success***



To be able to evaluate the effectiveness of your mitigation project and initiatives, it is important to establish measurable indicators of effectiveness.

***Task E: Celebrate success***

Keep the community informed about the incremental progress and success of the program.

### Step 3: Evaluate Your Planning Results

- A. Evaluate the effectiveness of the planning process
- B. Evaluate the effectiveness of actions
- C. Determine why the actions worked or did not work
- D. Keep the community updated and involved

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***Task A: Evaluate the effectiveness of the planning process***

To conduct the evaluation, you'll need to reconvene the planning team and review your planning process.

***Task B: Evaluate the effectiveness of your actions***

Consider the following questions when assessing the effectiveness of the planning team's actions:

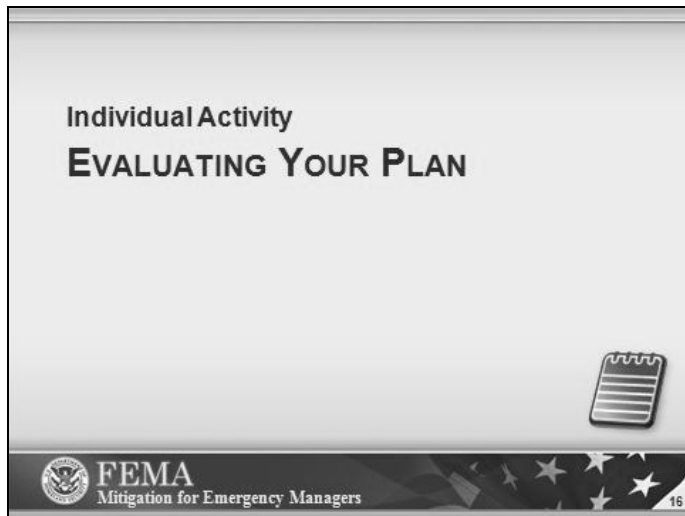
- Did they achieve the goals and objectives?
- Were they cost-effective?
- Were they slow to get started?

***Task C: Determine why the actions worked or did not work***

After verifying that an action was or was not implemented and its overall results, the planning team should try to document why the action worked or did not work.

***Task D: Keep the community updated and involved, and celebrate your successes***

Project implementation brings the community's hard work to fruition. The planning team should be sure to keep all stakeholders in the community informed of the progress of the projects.



Use the worksheet on the next page of this manual to evaluate your community's mitigation plan.



### Individual Activity: Evaluating Your Plan

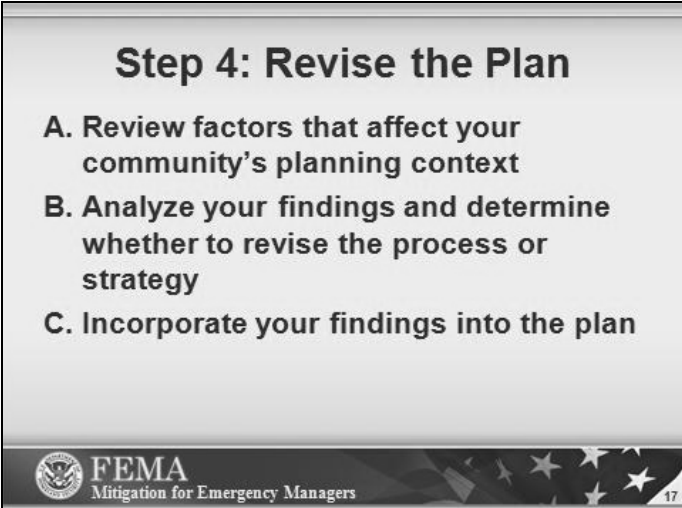
Use the table below to evaluate your community's mitigation plan.

Criteria	YES	NO	Solution
Are the goals still applicable?			
Have any changes in the state or community made the goals obsolete or irrelevant?			
Do the plan's priorities correspond with state priorities?			
Can actions be implemented with available resources?			

From Worksheet #5, "Revise the Plan," of FEMA's how-to guide 386-4








## Step 4: Revise the Plan

- A. Review factors that affect your community's planning context**
- B. Analyze your findings and determine whether to revise the process or strategy**
- C. Incorporate your findings into the plan**

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The final step in the mitigation planning process is to determine whether you need to make changes to the planning process or the mitigation plan.

***Task A: Review those factors that affect your community's planning context***

Consider shifts in development, disaster-affected areas, new studies or technologies, and re-estimation of losses.

***Task B: Analyze your findings and determine whether to revise your planning process or mitigation strategy***

Important questions to discuss with the team include:


- Are the goals and objectives still applicable?
- Do the plan's priorities correspond with state priorities?
- Do existing actions need to be prioritized for implementation?
- Are actions appropriate for available resources?


***Task C: Incorporate your findings into the plan***

Include your most recent findings about the community, tribe, or state, your hazards and vulnerabilities, as well as the applicable original actions of the plan, into a revised plan.

Individual Activity

**ANALYZING YOUR COMMUNITY'S  
PLANNING EFFORTS (PHASE 4)**



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**NOTE:** You should spend additional time to do a full analysis of planning efforts when you return to your communities and meet with the rest of the planning team.

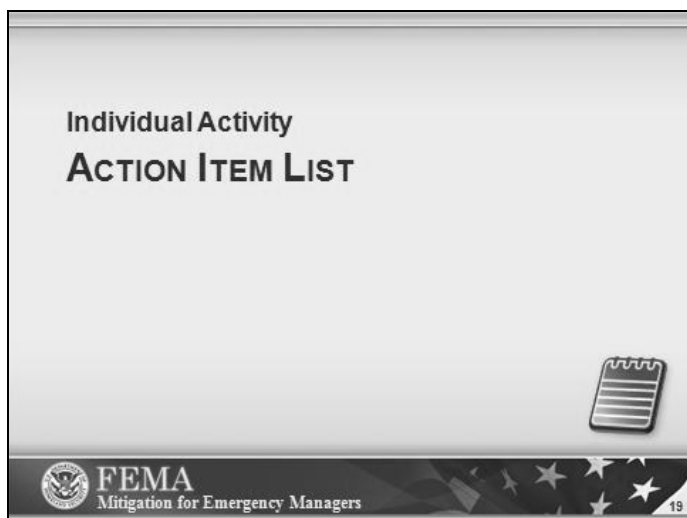
Complete the checklist for Phase 4 on the next two pages of this manual.

Refer to the mitigation plan or other materials you brought to the course as necessary.

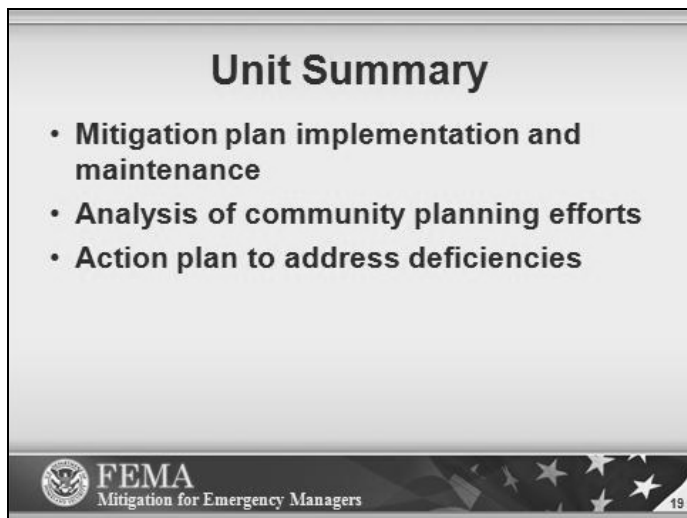
**Phase 4: Implement the Plan and Monitor Progress**

ND	NU	S	Action Items
			<b>Step 1: Adopt the mitigation plan.</b>
			Task A: Brief local leadership.
			Task B: Demonstrate the support of partner organizations.
			Task C: Have the plan adopted by the proper legislative or executive authorities.
			Task D: Submit your plan for approval.
			Task E: Publicize the adoption and approval of the plan.
			<b>Step 2: Implement the plan recommendations.</b>
			Task A: Confirm and clarify responsibilities.
			Task B: Begin to integrate mitigation actions throughout government options.
			Use processes that already exist.
			Secure traditional sources of financing.
			Develop creative partnerships, funding, and incentives.
			Task C: Monitor and document the implementation of your projects and actions.
			Task D: Establish indicators of effectiveness or success.
			Task E: Celebrate success.
			<b>Step 3: Evaluate your planning results.</b>
			Task A: Evaluate the effectiveness of the planning process.
			Reconvene the planning team.
			Review your planning process.
			Building the planning team
			Engaging the public
			Data gathering and analysis
			Coordinating with other agencies
			Task B: Evaluate the effectiveness of your actions.
			What were the results of the implemented action? Did the results achieve the goals/objectives outlined in the plan? Did the actions have the intended results?
			Were the actions cost-effective? Did (or would) the project result in the reduction of potential losses?
			Document actions that were slow to get started or not implemented.
			Task C: Determine why the actions worked (or did not work).
			Task D: Keep the community updated and involved, and celebrate your successes.

ND	NU	S	Action Items
			<b>Step 4: Revise the plan.</b>
			Task A: Review those factors that affect your community's planning context.
			Revisit the risk assessment to incorporate updated estimates of cost of living and replacement costs, new scientific data on hazard areas, the effect of hazards on the community, changes in growth patterns, and, particularly, reduction in vulnerability due to completion of projects.
			Revisit your capability assessment to determine changes in laws, authorities, community and state resources, and availability of financial and technical tools that may affect what you can do.
			Task B: Analyze your findings and determine whether to revise your planning process or mitigation strategy.
			Are the goals and objectives still applicable? Have any changes in the state or community made the goals or objectives obsolete or irrelevant?
			Do the plan's priorities correspond with state priorities?
			Do existing actions need to be reprioritized for implementation?
			Are actions appropriate for available resources?
			Task C: Incorporate your findings into the plan.

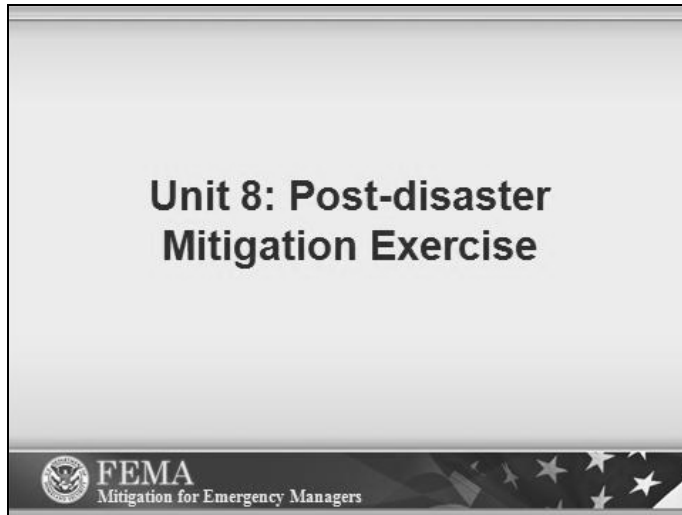


Write the solutions you proposed in the previous activity on your Action Item Lists, along with any other ideas you've generated throughout this unit.



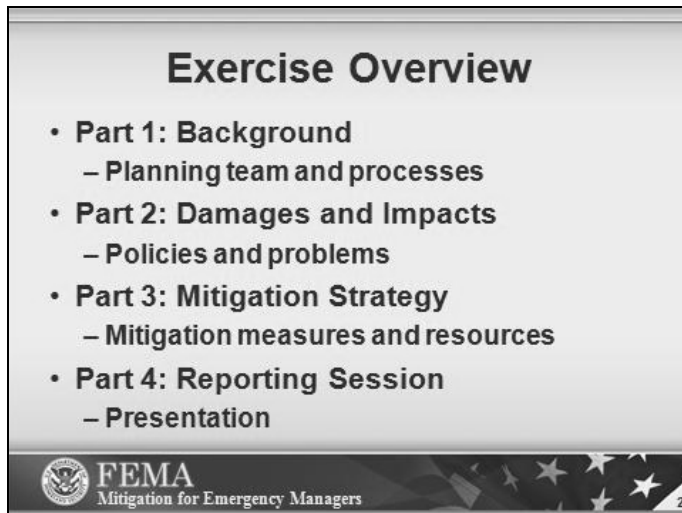
In this unit, you've learned about the steps for implementing and maintaining a mitigation plan. You've analyzed your community's planning efforts during each phase of the mitigation planning process and developed an action plan to address deficiencies in your community's mitigation plan.





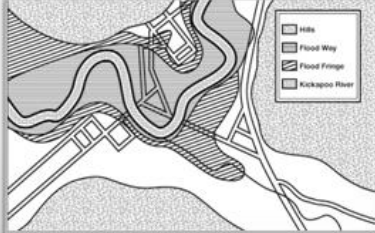
Up to this point in this course, we have emphasized the importance and desirability of planning and implementing mitigation actions *before* a disaster occurs.

This exercise will provide an opportunity for you to examine the mitigation opportunities and requirements that exist *after* a disaster occurs.



This exercise will allow you to work with your table group to analyze a scenario and solve for a flooding problem.

**Group Exercise**  
**PART ONE: BACKGROUND**



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Review the background information for the scenario and the instructions for part 1 of the exercise on the following page. Then follow the instructions that appear below the scenario information.



## Group Exercise: Part 1

Read the background information about the city of Waterville and follow the instructions that appear below.

### ***Background Information***

Like many riverside communities around the nation, the folks who founded Waterville had not knowingly developed their village in a floodplain. In 1857 a sawmill was built on the banks of the Kickapoo. The river supplied mechanical power and floated logs to the mill from upriver, where loggers harvested trees from the Kickapoo Valley's hilly, heavily wooded terrain. The mill gradually became the nucleus of a town. By 1888, the settlement, with its own post office and about 300 citizens, incorporated.

At the turn of the century, the villagers' dependence upon the river deepened. Two businessmen built the Kickapoo Valley's first hydroelectric plant, furnishing electricity to the hamlet.

No one remembers any flooding in the early years of the community's life. But gradually, as loggers cleared the upstream terrain, the watershed's ability to absorb rainfalls and snow melts diminished. Eroded soil carried by the runoff settled in the Kickapoo's riverbed so that it could not contain as much water. The village's first recorded flood occurred in 1907. More floods hit in 1912 and 1917.

As highways, parking lots, streets and buildings were constructed in the Kickapoo Valley watershed, they too contributed to runoff by covering up the earth so it could not easily absorb water.

The first flood that would be classified as a disaster occurred in 1935, severely damaging buildings in Waterville and the Kickapoo Valley's other riverside communities. Valley residents realized that flooding was a serious and potentially recurring problem.

Waterville and several other Kickapoo communities petitioned Congress in the late 1930s for a flood control project. Congress ordered the Corps of Engineers to study flood control options in the valley. Interrupted by World War II and the Korean War, then spurred by the 1951 flood, those studies continued for years. Finally, Congress authorized the Corps to build a dam and recreational lake 36 miles upriver from Waterville. Since the dam was so far away, it would protect only about nine percent of Waterville's floodplain land. The Corps proposed that a levee be built around the village.

It took many more years before the Corps of Engineers began purchasing farmland for the new dam and lake and preparing it for construction. But by the time the work began, environmental consciousness was growing strong around the nation and Congress had passed the National Environmental Policy Act. Environmentalists quickly challenged the Kickapoo River dam, alleging in a lawsuit that the Corps had not done sufficient environmental impact studies on the project.

The controversy intensified. Although environmentalists were unsuccessful in their lawsuits, their objections forced several reviews of the project and eventually encouraged the Governor and the members of the State's congressional delegation to begin questioning the dam. Meanwhile, the Corps continued work, spending more than \$18 million on land purchases and construction of the dam itself.

State and Federal officials began pressuring Waterville to pass a floodplain-zoning ordinance, or face a cutoff of Federal grants and loans within the floodplain.

For communities with few or relatively unimportant buildings in the floodplain, such an ordinance wasn't much of a hardship. But in Waterville, it hurt. The village's entire central business district - including nearly 40 commercial and municipal buildings - and 22 residences were in the floodplain. Floodplain zoning could mean the death of the community's economic heart.

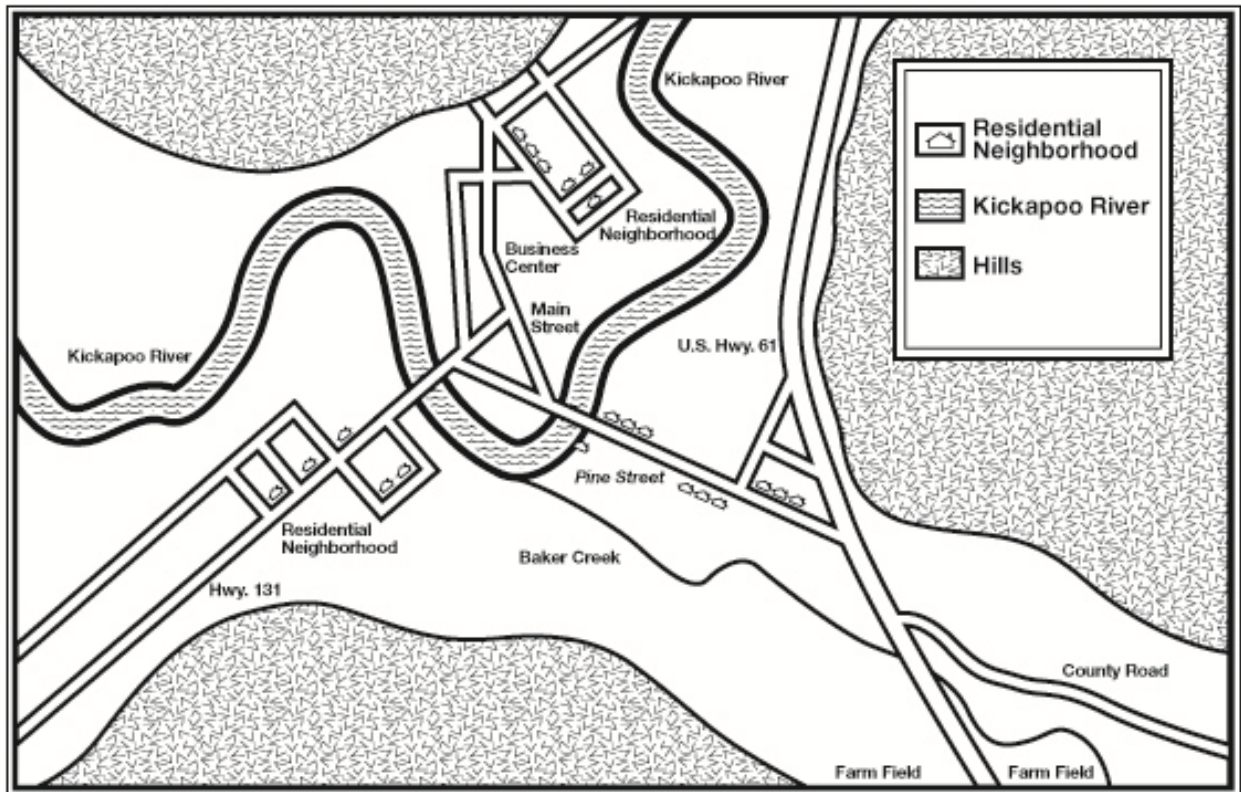
The villagers viewed floodplain zoning as even more threatening than the Kickapoo River. Nevertheless, the village passed floodplain zoning under protest, hoping that the dam and levee would be completed, and floodplain zoning eventually could be removed.

### ***Instructions***

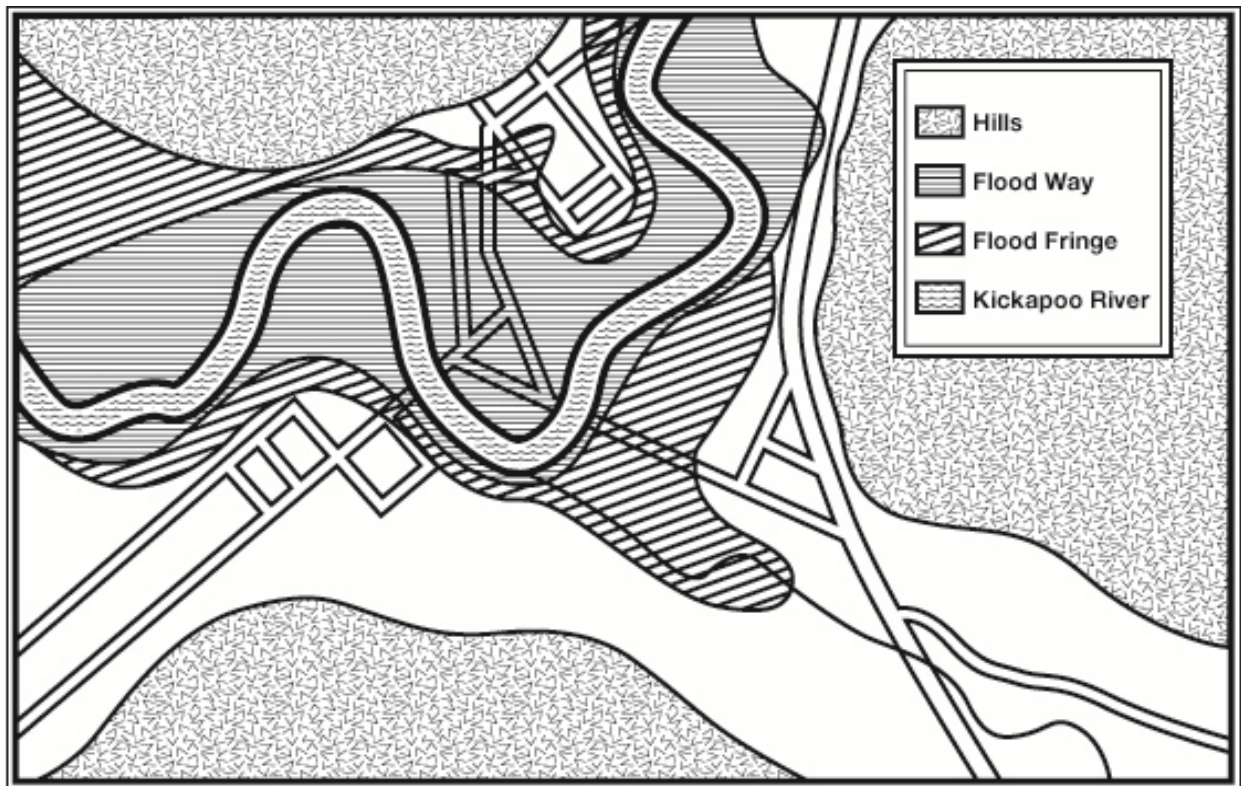
- Select a group spokesperson. This person has been hired by the Village of Waterville as a part-time emergency program manager.
- The rest of the group members serve as members of the mitigation planning team.
- The planning team is charged with the responsibility to coordinate an effort to solve the community's repetitive flooding problems.
- Record your plan of action on your group's flipchart, including the following information:
  - Types of organizations on the planning team
  - A brief description of process for developing a mitigation program
- Do not develop a complete mitigation strategy at this point.
- A street map and a floodplain map of Waterville are included on the next page.

The maps on the following page were adapted from William S. Becker's case study, "Come Rain, Come Shine."

**Map of Waterville**



**Waterville Floodplain Map**





**Group Exercise**  
**PART TWO: DAMAGES AND IMPACTS**






Photo by Betty France, courtesy of FEMA



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When instructed, review the damages and impacts information and the instructions for part 2 of the exercise on the following page. Then follow the instructions that appear below the scenario information.



## **Group Exercise: Part 2**

Read the information about damages and impacts, and then follow the instructions.

### ***Damages and Impacts***

In July, intense rainstorms resulted in the worst flood damage Waterville had ever experienced. Preliminary damage assessment estimated total public and private damages in Waterville at over one million dollars. Flooding affected all of the property and structures in the floodway and the flood fringe.

Eight of the 39 commercial structures in the floodplain were more than 50% damaged, including a new, concrete-block bank. Every business received some damage.

Seven of the 22 floodplain residences were destroyed. All received flood damage.

High winds associated with the storms also resulted in lost electric power in Waterville for almost a week.

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 again because of flood damage and because so many employees were unable to get to work. Two deaths and several injuries were attributed to the storms.

### ***Instructions***

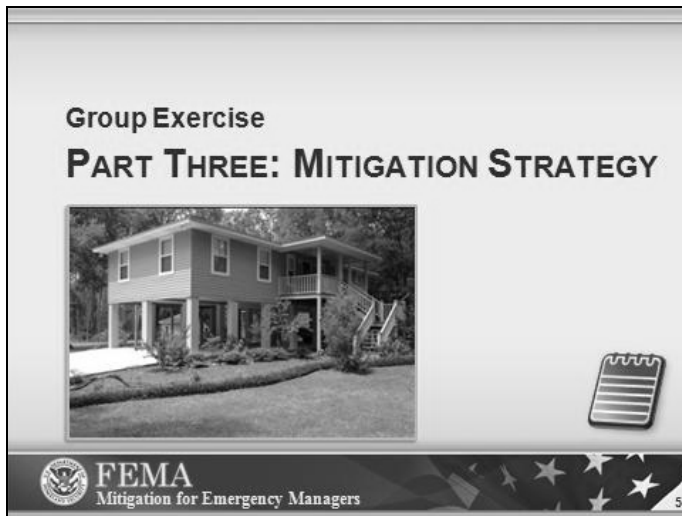
Work in your table groups to answer the following questions:

- What is your policy for repairing/replacing damaged buildings?
  
- Do you anticipate any problems in processing permits for repairs?
  
- How will you handle the increased need for building inspectors?





**Group Exercise: Part 3**



When instructed, review the instructions for part 3 of the exercise on the following page.



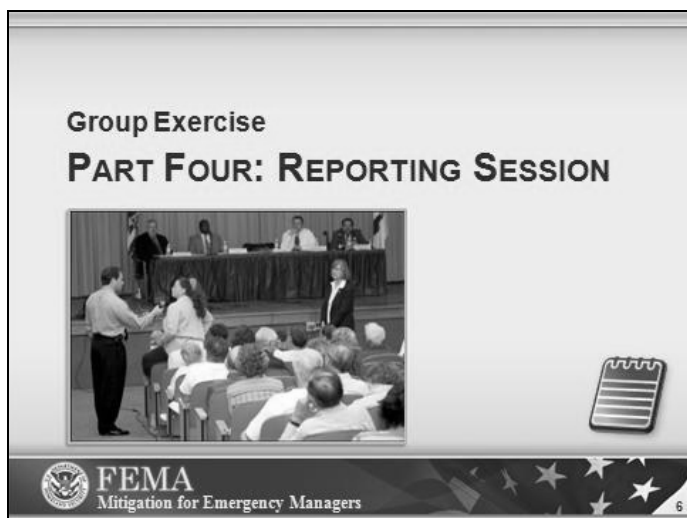
## Group Exercise: Part 3

### *Instructions*

Work in your table groups to complete the following actions:

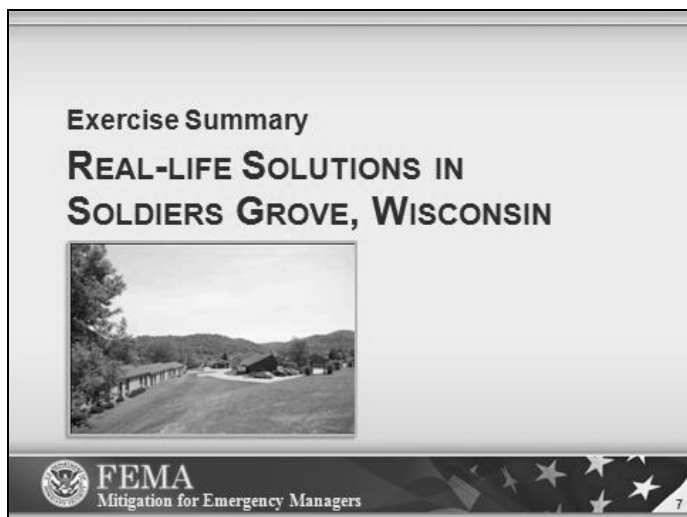
- Identify any mitigation measures that are already in place and describe how effective they have been.
- Brainstorm several mitigation measures that might prevent these disaster damages in the future. Refer to Unit Five for ideas. List at least four feasible measures.
- Evaluate your choices using the STAPLE criteria reviewed in Unit Five.
- Select one or more mitigation measures that satisfy the STAPLE criteria, and develop your overall mitigation strategy.
- Research all possible resources for funding and technical assistance to implement the measures you have selected.
  - Refer to Unit Six for information about funding sources and list every one that you believe Waterville is 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.
- Prepare to present the strategy to the representatives of the resource agencies you will approach for financial and/or technical assistance. You will make this presentation through a role play activity in Part 4 of the exercise.





This reporting session will consist of a role-play in which the group spokesperson plays the part of the Waterville emergency program manager and other group members will play the part of other planning team members.

Instructors and class members will role play representatives of the organizations from whom you may be seeking technical or financial assistance, as well as community members.



The scenario for this exercise was adapted from William S. Becker's case study on Soldiers Grove, Wisconsin, called "Come Rain, Come Shine."

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

The case study can be downloaded from:

<http://dnr.wi.gov/org/water/wm/dsfm/Flood/Documents/ComeRainComeShine.pdf> (16.75 MB)

## Recap of Proposed Solution

- **Levee construction: \$3.5 million**
- **Levee maintenance: \$10,000/year**



- U.S.A.C.E. recommended a levee that would cost \$3.5 million to construct.
- Maintenance of the levee would cost approximately \$10,000 per year.

## Problems with Proposed Solution


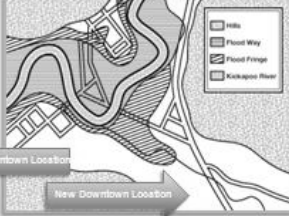
- **Property value: >\$1 million**
- **Declining population**
- **Poor economic conditions**




- The value of the property in the floodplain was less than \$1 million.
- The community's population and economy were declining.

## Alternative Solution

- Relocate downtown out of floodplain
- Relocate or floodproof homes


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- Community members proposed relocation of the downtown businesses to higher ground.
- Acquired property would become recreational areas to draw tourists and serve local needs.
- Homes in the floodplain were acquired and relocated or demolished, and some homes along the fringe were floodproofed or elevated.
- Funding was obtained through a variety of local, state, and federal sources.

## Solar Village

- Incorporate solar heating to qualify for additional funding
- Attract tourists




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Compare the solutions you proposed with the course of action taken by the village of Soldier's Grove, Wisconsin.

## Unit Summary

In this unit, you practiced:

- Organizing a planning team
- Anticipating post-disaster problems
- Proposing mitigation measures
- Evaluating actions with STAPLE criteria
- Identifying funding and technical resources



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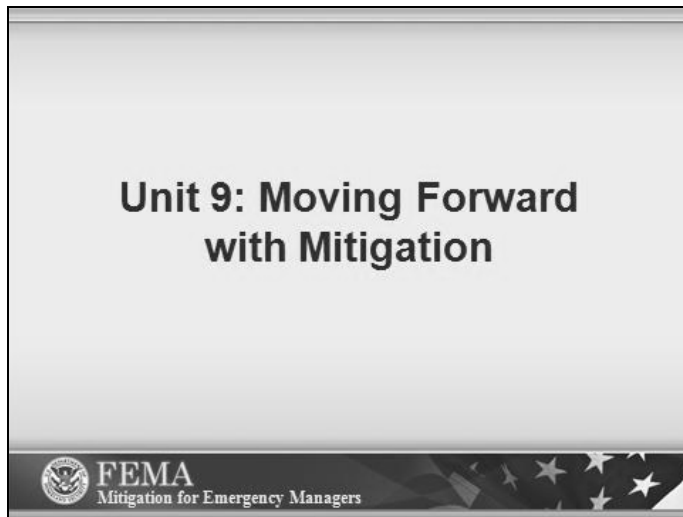
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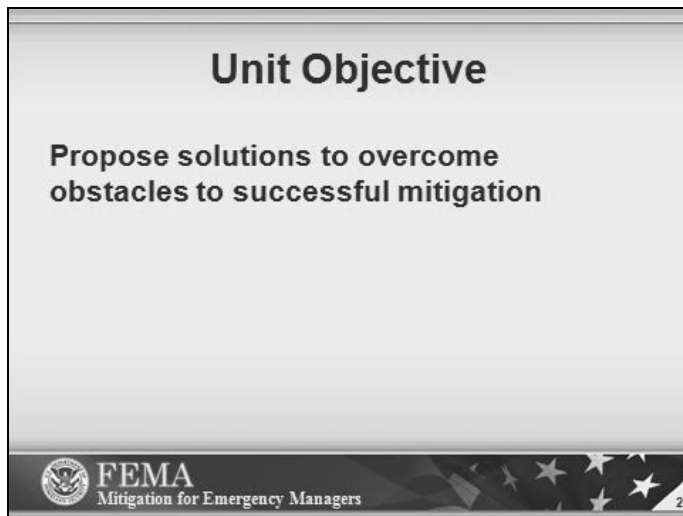
The Soldiers Grove, Wisconsin, story occurred decades ago, but it is an excellent example of the ingenious use of local, State and Federal resources to solve a community's hazard risk problems

During this unit, you applied what you've learned throughout the course to a real-life scenario by proposing solutions to a flooding problem. You also had the opportunity to compare your proposed solutions with the solution that was decided upon by the real community.







During this course, we have discussed several complications related to mitigation and the strategies and solutions that can be used to help overcome these obstacles.



In this unit, you will recommend actions to optimize the mitigation role of the emergency program manager. You will accomplish this by proposing solutions to overcome obstacles to successful mitigation.


Whole Group Activity  
**SOLUTIONS TO OBSTACLES**




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Let's review the solutions that were provided to help overcome the obstacles you mentioned. If you know of a way to address a remaining obstacle, please share that idea or experience with the class.

Whole Group Activity  
**REVIEW OF COURSE OBJECTIVES**



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For each objective of this course, consider the following questions:


- ❖ ***Did the course cover this objective thoroughly?***
- ❖ ***Do you believe you can accomplish the task described in the objective?***
- ❖ ***Is there anything you're still confused about related to this objective?***

**Analyze reasons for differences between optimal and actual mitigation roles of the emergency program manager**

- Did we cover it?
- Can you do it?
- Do you have any questions?

Review Question




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**Determine strategies to build support for mitigation planning in your community**

- Did we cover it?
- Can you do it?
- Do you have any questions?

Review Question




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**Propose mitigation solutions for a given scenario**

- Did we cover it?
- Can you do it?
- Do you have any questions?

Review Question




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**Analyze hazard risks for a given scenario**

- Did we cover it?
- Can you do it?
- Do you have any questions?

Review Question




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**Develop a mitigation plan implementation strategy for a given scenario**

- Did we cover it?
- Can you do it?
- Do you have any questions?

Review Question




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**Evaluate the effectiveness of a community's mitigation planning efforts**

- Did we cover it?
- Can you do it?
- Do you have any questions?

Review Question






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**Recommend actions to optimize the mitigation role of the emergency program manager**


- **Did we cover it?**
- **Can you do it?**
- **Do you have any questions?**



Review Question 

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**Thank you for attending!**

- **Course Evaluation**
- **Closing Remarks**
- **Final Exam**
- **Certificates**



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