G0393: Mitigation for Emergency Managers

FEMA

Student Manual

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Contents

Mitigation for Emergency Managers - Prepatory Information -

Course Goals

The purpose of this course is to enable participants to build a disaster-resilient community by carrying out mitigation responsibilities in accordance with applicable regulations and standards.

Course Objectives

At the conclusion of this course, participants will 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.
- Develop a mitigation plan implementation strategy for a given scenario
- Develop a proposal for obtaining financial aid and technical resources needed to carry out a mitigation 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 1: Course Introduction

Visual 1: G0393

Unit 1: Introduction and Course Overview

Visual 2: Learning Objective

Identify the objectives and expectations of the course.

Visual 3: Administrative

- Emergency Exits
- Restrooms
- Pagers/Cell Phones
- Timesheets
- Course Materials

Administrative

Review class rules and safety items:

- Emergency Exits
- Restrooms
- Turn pages and cell phones to vibrate
- Timesheets
- Course Materials

Visual 4: Course Goal

To enable participants to build a disaster-resilient community by carrying out mitigation responsibilities in accordance with applicable regulations and standards.

Course Goal

The goal of this course is to enable participants to build a disaster-resilient community by carrying out mitigation responsibilities in accordance with applicable regulations and standards.

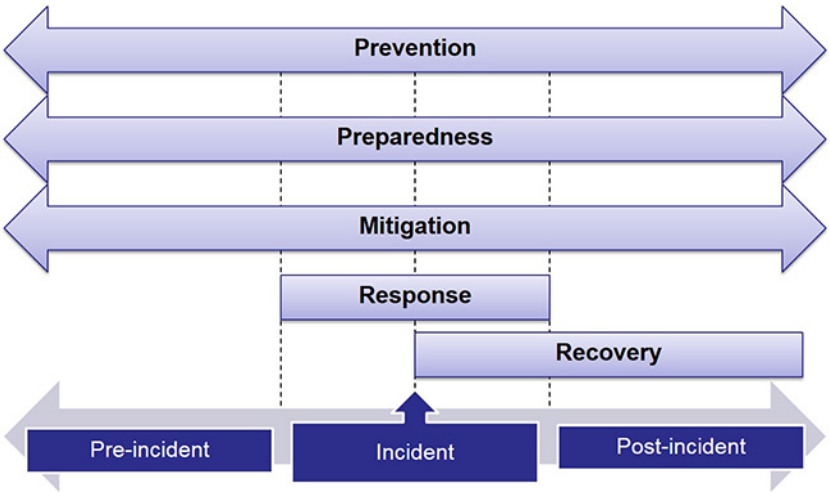
Visual 5: Course Objectives

- Analyze reasons for differences between optimal and actual mitigation roles of the emergency manager
- Determine strategies to build support for mitigation in a community
- Analyze hazard risks for a given scenario
- Develop a mitigation plan implementation strategy for a given scenario

Visual 6: Course Objectives

- Develop a proposal for obtaining financial aid and technical resources needed to carry out a mitigation 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 manager.

Visual 7: Emergency Management Cycle



Emergency Management Cycle Description

Process chart depicting the emergency management cycle - prevention, preparedness, and mitigation are ongoing during pre-incident, incident, and post-incident. Response occurs during the duration of the incident, and response occurs after the incident until post-incident.

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Emergency Management Cycle

Mitigation occurs throughout the lifecycle of an emergency management.

Visual 8: Introductions

- Name
- Position/Organization
- Mitigation Experience
- Course Expectations

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Introductions

Introduce yourself by sharing your:

- Name
- Position/organization
- Mitigation experience
- Course expectations

Unit 2: The Emergency Manager's Role in Mitigation

Visual 1: Unit Overview

Unit 2: The Emergency Manager's Role in Mitigation

Unit Overview

As an emergency 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.

Visual 2: Learning Objectives

- Compares the actual mitigates role of the emergency manager to the optimal mitigation role
- Create a list of potential obstacles to successful mitigation

Visual 3: Emergency Management Mission Areas

Emergency Management Mission Areas

Mission areas are groups of core capabilities, including Prevention, Protection, Mitigation, Response, and Recovery. Each mission area is comprised of the capabilities required for achieving the function at any time (before, during, or after an incident) and across all threats and hazards.

- **Prevention:** The capabilities necessary to avoid, prevent, or stop a threatened or actual act of terrorism. As defined by PPD-8, the term “prevention” refers to preventing imminent threats
- **Protection:** The capabilities necessary to secure the homeland against acts of terrorism and manmade or natural disasters
- **Response:** The capabilities necessary to save lives, protect property and the environment, and meet basic human needs after an incident has occurred
- **Recovery:** The capabilities necessary to assist communities affected by an incident to recover effectively
- **Mitigation:** The capabilities necessary to reduce loss of life and property by lessening the impact of disasters

Refer to the National Preparedness Goal -Mission Areas (https://www.fema.gov/mission-areas) to learn more.

Visual 4: Mitigation Planning Process

Mitigation Planning Process

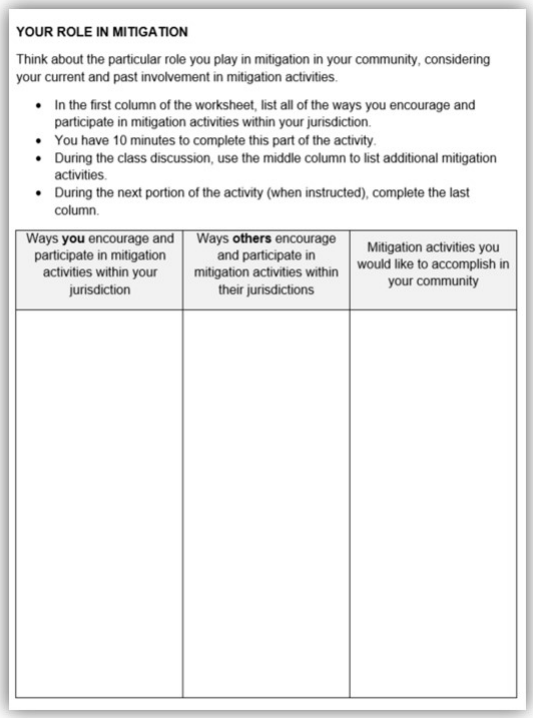
In this course, we will discuss the mitigation planning process in four phases. Each phase includes tasks that are outlined in the Local Mitigation Planning Guide.

- Phase 1: Organize Resources
  - Determine the planning area and resources (Task 1)
  - Build the planning team (Task 2)
  - Create an outreach strategy (Task 3)
- Phase 2: Assess Risks
  - Review community capabilities (Task 4)
  - Conduct a risk assessment (Task 5)
- Phase 3: Develop the Mitigation Plan
  - Develop a mitigation strategy (Task 6)
- Phase 4: Implement the Mitigation Strategy and Monitor Progress
  - Keep the plan current (Task 7)
  - Review and adopt the plan (Task 8)

Visual 5: Activity 1: Your Role in Mitigation (Part 1)

 Activity	***Activity 1: Your Role in Mitigation (Part 1)*** In this section, we will develop a class profile of mitigation tasks actually performed by emergency managers and others responsible for the mitigation function. Allotted Time: 10 Minutes

Visual 6: Activity 1: Your Role in Mitigation (Part 1)



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.

Ways **you** encourage and participate in mitigation activities within your jurisdiction	Ways **others** encourage and participate in mitigation activities within their jurisdictions	Mitigation activities you would like to accomplish in your community

Visual 7: Emergency Manager's Role

- Identify hazards and risk
- Identify existing mitigation measures
- Propose additional mitigation measures
- Coordinate with other community goals
- Identify incentives and resources
- Participate in a mitigation planning team
- Support the creation/maintenance of a mitigation plan
- Increase public awareness

Emergency Manager's Role

Optimally, an emergency manager has eight primary responsibilities:

- Identify community hazards and hazard risk
- Identify existing mitigation measures
- Propose additional mitigation measures
- Coordinate with other community goals
- Identify incentives and resources
- Participate in a mitigation planning team
- Support the creation/maintenance of a mitigation plan
- Increase public awareness

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

Visual 8: Participate in a Planning Team

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.

Crucial to the success of any mitigation program is the formation of a mitigation planning team. This team consists of individuals with a variety of skills and expertise needed to accomplish mitigation. The emergency manager is a key member of that team, and your role will be to help assemble the rest of the team and coach other members as needed.

Visual 9: Identify Hazards and Risks

Risk analysis is the cornerstone of mitigation. It is the emergency 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.

Risk assessment will be reviewed in Unit 4 of this course, as will the role of the emergency manager in ongoing monitoring of hazards and hazard risks.

Visual 10: Identify Existing Mitigation Measures

Many communities are already involved in mitigating local hazards.

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

Visual 11: Propose Additional Mitigation Measures

- Address specific community concerns
- Promote community objectives and values

Propose Additional Mitigation Measures

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

All mitigation measures must address a specific community concern, from the risk analysis, such as repetitive flooding, high winds, wildfires, or earthquakes. When identifying mitigation opportunities to incorporate into the mitigation strategy, you must consider whether the measures promote other community objectives and values.

You will learn more about identifying mitigation opportunities in Unit 4.

Visual 12: 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

Coordinate with Other Community Goals

Working to achieve mitigation through other community goals is essential to the effectiveness of the mitigation program. This coordination promotes:

- Improved access to technical assistance and financial resources.
- Better solutions to multiple problems.
- Broader support for implementation.
- Reduced chance for duplicating efforts.

Visual 13: Identify Incentives and Resources

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

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.

It is the responsibility of the emergency manager to identify potential sources of funding

- These sources may be local, private, State, Federal, or a combination of different sources
- Specific programs will be discussed in Unit Six of this course

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.

Visual 14: Support the Creation/Maintenance of a Mitigation Plan

Mitigation plan should be:

- Created prior to disaster
- Continually updated and maintained

Support the Creation/Maintenance of a Mitigation Plan

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.

In Unit 7 of this course, you will have the opportunity to evaluate or begin your own community mitigation plan.

Visual 15: Increase Public Awareness

Community members must understand:

- The impact of disasters
- How to reduce risks

Increase Public Awareness

One of the most important components of a mitigation program is public awareness.

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.

Developing and enhancing public involvement and awareness is an integral part of mitigation planning and will be discussed again in Unit 3.

Visual 16: Actual vs. Ideal Roles

Discussion Question

Actual vs. Ideal Roles

How do these ideal mitigation tasks compare to the mitigation activities most emergency program managers are accomplishing?

Actual vs. Ideal Roles

The mitigation tasks we discussed are intended to give you some ideas for defining your own role in mitigating the hazards in your own community.

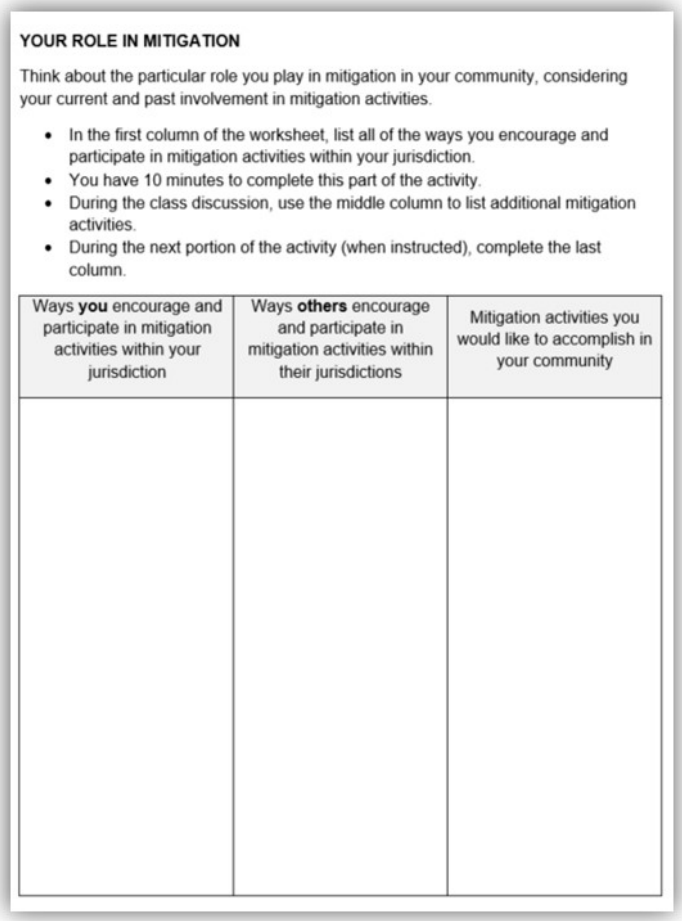
Visual 17: Individual Activity: Your Role in Mitigation (Part Two)

Activity

Activity 1: Your Role in Mitigation (Part 2)

Allotted Time: 5 Minutes

Visual 18: Your Role in Mitigation



YOUR ROLE IN MITIGATION

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- During the next portion of the activity (when instructed), complete the last column.

Ways **you** encourage and participate in mitigation activities within your jurisdiction	Ways **others** encourage and participate in mitigation activities within their jurisdictions	Mitigation activities you would like to accomplish in your community

Visual 19: Obstacles to Successful Mitigation

Discussion Question

Obstacles to Successful Mitigation

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

Visual 20: Activity 2: Overcoming Obstacles

Activity

Activity 2: Overcoming Obstacles

Allotted Time: 10 Minutes

Visual 21: Unit Summary

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

Unit 3: Building Support for Disaster Resilience

Visual 1: G393

Unit 3: Building Support for Disaster Resilience

Unit Overview

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

From the start, communities should focus on organizing the resources needed for successful mitigation.

Visual 2: Learning Objectives

- Explain the characteristics of a disaster-resilient community.
- Outline the long-term benefits of public participation in mitigation
- Describe the effect of stakeholder interests on mitigation efforts.
- List organizations, groups, and initiatives that can provide support for mitigation
- Identify potential members of a community's mitigation planning team.

Learning Objectives

Review the learning objectives for this unit:

- Explain the characteristics of a disaster-resilient community
- Outline the long-term benefits of public participation in mitigation
- Describe the effect of stakeholder interests on mitigation efforts
- List organizations, groups, and initiatives that can provide support for mitigation
- Identify potential members of a community's mitigation planning team

Visual 3: Where are we in the process?

Phase 1: Organize Resources

Determine the planning area and resources

Build the planning team

Create an outreach

Where are we in the process?

The first phase of the disaster resilience process, organizing resources, includes:

- Determining the planning area and resources (Task 1)
- Building the planning team (Task 2)
- Creating an outreach strategy (Task 3)

The tasks associated with each phase in this process are referenced in the Local Mitigation Planning Handbook.

Visual 4: Resilience

The ability to adapt to changing conditions and prepare for, withstand, and rapidly recover from disruption.

Visual 5: Disaster-Resilient Community Characteristics

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

Disaster-Resilient Community Characteristics

The term “disaster-resilient community” describes a long-range, community-based approach to mitigation. A disaster-resilient community is one in which significant steps and measures have been taken to reduce the community’s risk to potential hazard events.

Some characteristics of a disaster-resilient community include:

- Sustainability
- Shared vision
- Strong partnerships
- Political commitment
- Long-term perspective
- Community involvement
- Commitment to lessons learned
- Significant risk reduction measures

Visual 6: Disaster-Resilient Community Characteristics (2 of 2)

Discussion Question

Disaster-Resilient Community Characteristics (2 of 2)

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

Visual 7: Case Study Example

Sonoma County Flood Elevation Program

Case Study Example

Due to extensive flooding resulting in presidential disaster declarations between 1995 and 1997, Sonoma County established the Sonoma County Flood Elevation Program (SCFEP). The purpose of the SCFEP was to assist homeowners with mitigation for flood-damaged homes along the Russian River and its tributaries in Sonoma County, California.

Assistance was provided for properties that met the following criteria:

- The structure was a primary residence with year-round occupancy by owners or tenants,
- The structure was impacted by the 1995 or 1997 floods, and

- The structure needed to be elevated above the 100-year flood level.

To support its local cost share match, the SCFEP has received over $729,997 in Community Development Block Grant funds and $547,804 in Disaster Recovery Initiative funds from the U.S. Department of Housing and Urban Development.

A loss avoidance study conducted in 2008 revealed that the elevation project helped Sonoma County avoid $13.5 million in losses, representing a 96% return on the investment.

Details of this case study can be found in Loss Avoidance Study: Sonoma County, California Elevated Structures. (This link can also be accessed at the following URL: https://www.fema.gov/media-library/assets/documents/16559.)

Visual 8: Benefits of Mitigation Planning

Discussion Question

Benefits of Mitigation Planning

What are the benefits of pre-disaster hazard planning?

Visual 9: Pre-disaster Hazard Planning

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

Pre-Disaster Hazard Planning

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.

This type of planning can:

- Meet the community's needs
- Achieve multiple objectives
- Increase funding eligibility
- Guide post-disaster recovery
- Promote public participation

Visual 10: Pre-Disaster Hazard Planning (2 of 3)

Discussion Question

Pre-Disaster Hazard Planning (2 of 2)

- 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?

Visual 11: Pre-Disaster Hazard Planning (3 of 3)

Discussion Question

Pre-Disaster Hazard Planning (3 of 3)

- 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?

Visual 12: Gaining Public Support

Discussion Question

Gaining Public Support

- What are some examples of community groups that would be considered mitigation stakeholders?
- What kinds of interests or concerns would you expect from each group?
- How might those interests affect the mitigation efforts?

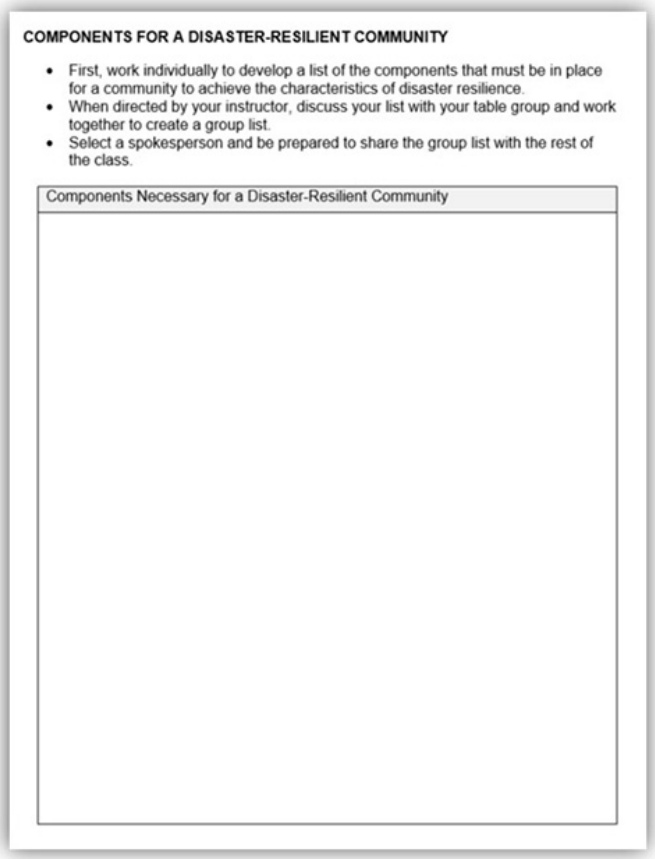
Visual 13: Activity 1: Components of a Disaster-Resilient Community

Activity

Activity 1: Component of a Disaster-Resilient Community

Allotted Time: 5 Minutes

Visual 14: Activity 1: Components for a Disaster-Resilient Community



COMPONENTS FOR A DISASTER-RESILIENT 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 resilience.
- 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.

Components Necessary for a Disaster-Resilient Community

Visual 15: Activity 2: Action Item List

Activity

Activity 2: Action Item List

Allotted Time: 5 Minutes

Visual 16: Activity 2: Action Item List

Allotted Time: 5 Minutes

APPENDIX B: ACTION ITEM LIST

How to use the action item list:

Throughout the course, as ideas come to you about improving your community's mitigation efforts, write them on this Action Item List.

At the end of the workshop, circle three items on your action item list that you will commit to doing in the following week. After three weeks of continuing to implement these new ideas, choose three more items on the list to put into practice, and so on, until all the items are completed and new habits are formed.

Following these suggestions is a good way to ensure that the ideas from the course will get implemented. If you try to do everything at once, you will quickly become overwhelmed.

Visual 17: Phase 1: Organizing Resources (1 of 3)

Task 1: Determine the Planning Area and Resources

Establish the planning area, keeping existing partnerships and planning efforts in mind.

Task 1: Determining the planning area & resources

The first task of organizing resources is to determine the planning area and resources.

The planning area refers to the geographic area covered by the plan, usually following the local government jurisdictional boundaries.

Consider possible options for the planning area based on existing planning projects, relationships, and partnerships. Also, determine if other planning efforts could be aligned or integrated with the mitigation plan to save time and money and create better outcomes for your community.

Visual 18: Phase 1: Organizing Resources (2 of 3)

Task 2: Build the planning team

Create the planning team

Obtain official recognition for the planning team

Organize the team

Task 2: Build the Planning Team

Once you have determined the planning area and resources, it is time to identify a group of dedicated and interested individuals to be on your planning team.

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. Selecting members who are a good fit will become critical to the eventual success of your community's mitigation planning process.

Visual 19: Build the Planning Team – Create the Planning Team

- Create the planning team
- Identify those who will:
  - Be affected
  - Be responsible
  - Mobilize support
  - Make the process more effective
  - Need representation
  - Contribute resources
- Create a planning team structure (if multi-jurisdictional)

Build the Planning Team – Create the Planning Team

- Create the planning team
  - Identify those:
    - Who are the representatives of those most likely to be affected.
    - Who might be responsible for what is intended
    - Who is likely to mobilize in support of the mitigation planning process.
    - Who can make the planning process more effective through their participation.
    - Who are the "voiceless" for whom special efforts may have to be made.
    - Who can contribute financial or technical resources.
  - If you are developing a multi-jurisdictional plan, creating a planning team structure that allows for coordination and accountability among and within the jurisdictions is important. This may include having at least one representative for each jurisdiction or including a core group of individuals from each jurisdiction participating on the planning team.

Visual 20: Activity 3: Potential Members of a Planning Team

Allotted Time: 10 Minutes

 Student Manual	***Activity 3: Potential Members of a Planning Team*** This worksheet can also be found in FEMA's Getting Started: Building Support for Mitigation Planning. (This link can also be accessed at the following URL: https://www.fema.gov/media-library-data/20130726-1521-20490-3966/howto1.pdf.)

Visual 21: Activity 3: Potential Members of a Planning Team

Build a Planning Team

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.

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

Visual 22: Build the Planning Team - Obtain Official Recognition

- Obtain official recognition for the planning team
- Council resolution
- Proclamation
- Memorandum of Agreement
- Memorandum of Understanding

Obtain Official Recognition

The planning team's efforts will be more successful if your team is designated with the official authority to develop a mitigation plan and if the team is organized.

- Obtain official recognition for the planning team
    - Your planning team should consider obtaining official recognition in the form of a council resolution, a proclamation, a Memorandum of Agreement (MOA), or a Memorandum of Understanding (MOU). This 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.

Visual 23: Build the Planning Team - Organize the Team

- Organize the team
- Confirm plan purpose
- Review the current mitigation plan
- Refine plan scope and schedule
- Establish responsibilities
- Develop an outreach strategy

Organize the Team

- Organize the team
  - Confirm plan purpose: Have the planning team agree on the overall purpose of the planning process and the outcome of the plan. (i.e., mission statement)
  - Review the current mitigation plan: Review the previously-approved plan, if available.

Refine plan scope and schedule: Have the planning team agree upon the overall scope of work and schedule for developing or updating the mitigation plan and review the requirements of the plan for FEMA approval. A sample schedule can be found in Local Mitigation Planning Handbook – Appendix A, Worksheet 2.2. (This link can also be accessed at the following URL: https://www.fema.gov/media-library-data/20130726-1910-25045-9160/fema_local_mitigation_handbook.pdf.)

  - Establish responsibilities: Establish roles and responsibilities, as well as time each person need to dedicate to the project.
  - Develop an outreach strategy: Develop an outreach strategy that identifies the stakeholder groups that are important to involve in the process and how to engage them. The planning team also develops ideas for how to involve the general public in the planning process.

Visual 24: Phase 1: Organizing Resources (3 of 3)

Task 3: Create an Outreach Strategy

- Identify stakeholders and public
- Organize public participation activities

Task 3: Create an Outreach Strategy

Involving stakeholders who are not part of the core team in all stages of the process will introduce the planning team to different points of view about the needs of the community. It will also provide opportunities to educate the public about hazard mitigation, the planning process, any findings, and could be used to generate support for the mitigation plan.

- Identify stakeholders and public
  - Stakeholders: A stakeholder is any person, group, or institution that can affect or be affected by a course of action. Stakeholders that must be included in the planning process may include:
    - Neighboring communities
    - Local and regional agencies involved in hazard mitigation activities
    - Agencies that have the authority to regulate development
    - Businesses, academia, and other private and nonprofit interests
  - Public: A good public outreach effort not only informs, but educates the public and motivates them to take action.
- Organize public participantion activities
  - Brainstorm outreach activities
  - Determine public outreach objectives and schedule
  - Identify appropriate outreach methods

Visual 25: 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

Unit 4: Identifying Opportunities for Mitigation

Visual 1: Unit Objectives (1 of 2)

In the pursuit of disaster-resilient communities, emergency 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.

Visual 2: Learning Objectives

- Identify the primary types of capabilities for reducing long-term vulnerability
- Describe the steps in the risk assessment process
- Develop hazard profile and description
- Identify your community assets
- Estimate losses due to a scenario-based hazard event
- Describe the usefulness of Hazus

Learning Objectives

- Review the learning objectives for this unit:
  - Identify the primary types of capabilities for reducing long-term vulnerability.
  - Describe the steps in the risk assessment process.
  - Develop hazard profile and description.
  - Identify your community assets.
  - Estimate losses due to a scenario-based hazard event.
  - Describe the usefulness of Hazus.

Visual 3: Where are we in the process?

Phase 2: Assess Risks

- Review community capabilities
- Conduct a risk assessment

Where Are We in the Process?

After organizing resources for mitigation, the next phase is risk assessment. Before attempting to solve the problem, it is necessary to define and quantify it. Assessing risks involves:

- Reviewing community capabilities (Task 4)
- Conducting a risk assessment (Task 5)

The tasks associated with each phase in this process are referenced in the Local Mitigation Planning Handbook.

Visual 4: Phase 2: Assess Risks

Task 4: Review Community Capabilities

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

Task 4: Review Community Capabilities

The previous three tasks under the first phase (Organize Resources) focused on the process of mitigation planning. Beginning with Task 4, the remaining tasks describe what is accomplished during the planning process.

The purpose of a capability assessment is to:

- Identify capabilities that currently reduce disaster losses or could be used to reduce losses in the future.
- Identify capabilities that inadvertently increase risks in the community.

Training Chest

Task 4: Appendix C

One way to identify these capabilities is to distribute a capabilities worksheet for each planning team member's community or agency to complete. A Capability Assessment Worksheet can be found in Appendix C.

Visual 5: Phase 2: Assess Risk (2 of 4)

Types of Capabilities

- Planning and regulatory
- Administrative and technical
- Financial
- Education and outreach

Types of Capabilities

The primary types of capabilities for reducing long-term vulnerability are:

- **Planning and regulatory:** These capabilities are based on the implementation of ordinances, policies, local laws and State statutes, and plans and programs that relate to guiding and managing growth and development. Examples include:
  - Comprehensive land use plans
  - Capital improvement programs
  - Transportation plans
  - Small area development plans
  - Disaster recovery and reconstruction plans
  - Emergency preparedness and response plans
- **Administrative and technical:** This refers to the community's staff and their skills and tools that can be used to implement specific mitigation actions. Examples include:
  - Engineers
  - Planners
  - Emergency managers
  - Geographic Information Systems (GIS) analysts
  - Grant writers
- **Financial:** These are the resources that a jurisdiction has access to or is eligible to use to fund mitigation actions.
- **Education and outreach:** This type of capability refers to education and outreach programs and methods already in place that could be used to implement mitigation activities and communicate hazard-related information. Examples include:
  - Fire safety programs delivered at local schools
  - Activites conducted as part of hazard awareness campaigns

Visual 6: Phase 2: Assess Risks (3 of 4)

Documentation of community capabilities provides the factual evidence for how the jurisdictions developed the plan.

Visual 7: Phase 2: Assess Risk (4 of 4)

Task 5: Conduct a Risk Assessment

Risk Assessment-Product or process that collects information and assigns values to risks for the purpose of informing priorities, developing or comparing courses of action, and informing decision making.

Task 5: Conduct a Risk Assessment

Documentation of community capabilities provides the factual evidence for how the jurisdictions developed the plan. It can include narrative descriptions, tables, lists, citations, and footnotes.

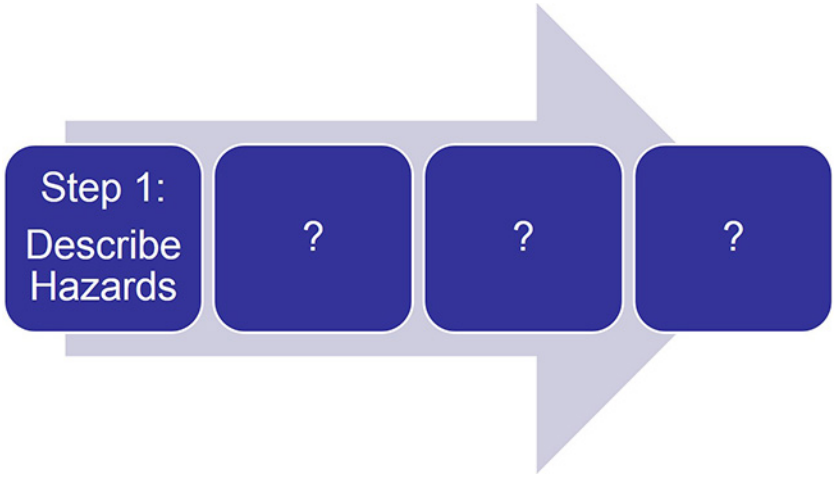
Visual 8: Risk Assessment

Discussion Question

Risk Assessment

What information does a risk assessment provide?

Visual 9: Risk Assessment - Step 1



Risk Assessment - Step 1

There are four steps in risk assessment. The first step is to describe hazards.

Visual 10: Types of Hazards to Include

Discussion Question

Types of Hazards to Include

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

Visual 11: Describe Hazards

Describing Hazards may involve:

- Hazard Descriptions
  - 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?

Describe Hazards

When you have identified the potential hazards, you need to describe them. Describing hazards may involve:

- Hazard descriptions: These include description of location, extent, previous occurrences, and probability of future events. You may want to answer questions, such as:
  - 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?

Visual 12: Describe Hazards

Describing hazards may involve:

- Maps that display hazard information
- Discussion of the climate change and its impacts
- Discussion of technological hazards and human-caused threats

Describe Hazards

- **Maps:** Figures and maps are necessary to support descriptions of location, extent, previous occurrences, and/or probability of future events for various hazards. A community most likely has maps (i.e. city or county map, floodplain map, zoning map, etc.) that can be used for this purpose.
- **Climate change:** The planning team may decide to include a discussion of the impacts of climate change in the risk assessment. This is not required by Federal mitigation planning regulation, but can provide a better understanding of how risk may change in the future, especially if it may change the characteristics of the hazards that currently affect the planning area.
- **Technological hazards and human-caused threats:** This is also not required by Federal mitigation planning regulation, but may be included in the plan. Technological hazards result from accidents or the failure of systems and structures, such as hazardous materials spills or airplane accidents. Human-caused incidents, also known as threats, result from intentional actions of an adversary, such as a chemical or cyber attack.

Visual 13: Activity 1: Identifying Hazards in Your Community (1 of 2)

Activity

Activity 1: Identifying Hazards in Your Community

Allotted Time: 10 Minutes

Student Manual

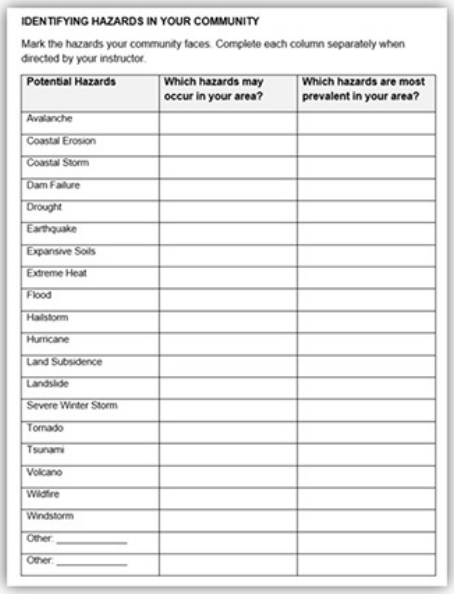
Activity 1: Identifying Hazards in Your Community

This worksheet can also be found in FEMA's Getting Started: Building Support for Mitigation Planning. (This link can also be accessed at the following URL: https://www.fema.gov/media-library-data/20130726-1521-20490-3966/howto1.pdf.)

Visual 14: Describe Hazards

Describing hazards may involve:

- Maps that display hazard information
- Discussion of the climate change and its impacts
- Discussion of technological hazards and human-caused threats



IDENTIFYING HAZARDS IN YOUR COMMUNITY

Mark the hazards your community faces. Complete each column separately when directed by your instructor.

Potential Hazards	Which hazards may occur in your area?	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: _____		

Visual 15: Activity 2: Profiling and Describing Your Hazards (1 of 2)

Activity

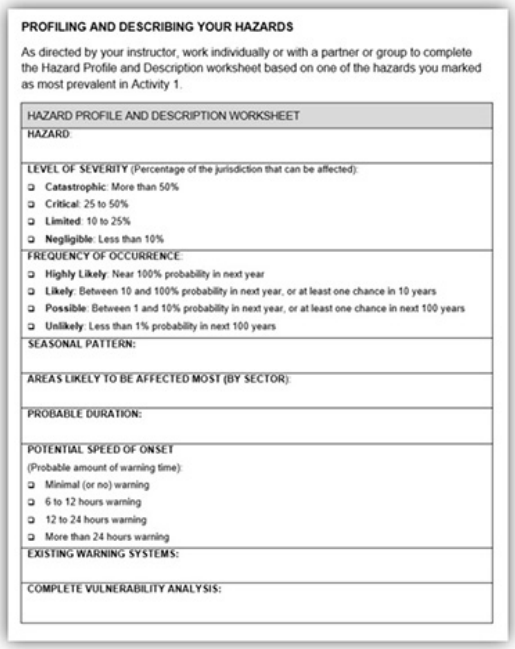
Activity 2: Profiling and Describing Your Hazards

Allotted Time: 15 Minutes

Visual 16: Describe Hazards

Describing hazards may involve:

- Maps that display hazard information
- Discussion of the climate change and its impacts
- Discussion of technological hazards and human-caused threats

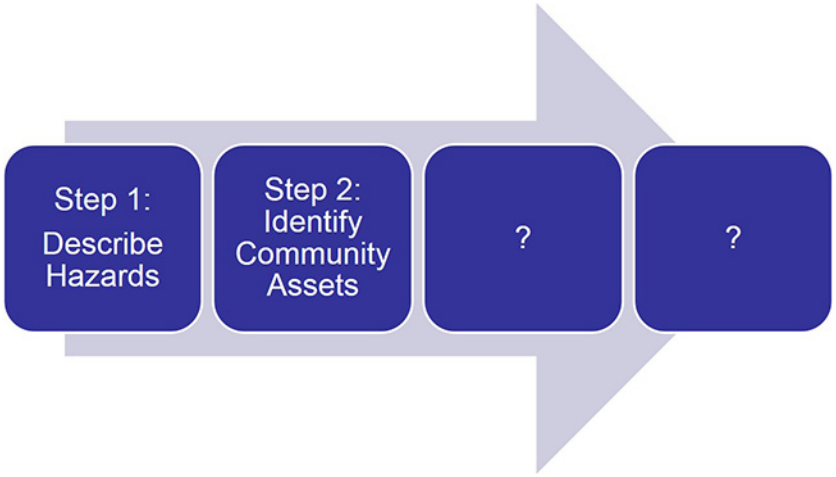


PROFILING AND DESCRIBING YOUR HAZARDS

As directed by your instructor, work individually or with a partner or group to complete the Hazard Profile and Description worksheet based on one of the hazards you marked as most prevalent in Activity 1.

HAZARD PROFILE AND DESCRIPTION WORKSHEET
HAZARD:
LEVEL OF SEVERITY (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:

Visual 17: Step 2



Risk Assessment - Step 2

After identifying and describing hazards, the second step of the risk assessment is to identify community assets.

Visual 18: Identify Community Assets (1 of 3)

Discussion Question

Identify Community Assets

- What are your community's assets?
- What are the assets that would be most affected by a hazard?

Visual 19: Identify Community Assets (2 of 3)

Discussion Question

Identify Community Assets

- Where can you find information about the total number of buildings, their values, number of people in your community, etc.?
- What are critical facilities?
- What other priorities should emergency managers consider?

Visual 20: Identify Community Assets (3 of 3)

Discussion Question

Identify Community Assets

- Assets - Anything that is important to the character and function of a community
- Categories of assets
  - People
  - Economy
  - Built environment
  - Natural environment

Identify Community Assets

Assets are defined broadly to include anything that is important to the character and function of a community and can be described very generally in the following four categories:

- People:
  - Identify concentrations of residents and employees to help target preparedness, response, and mitigation actions.
  - Identify the types of visiting populations and their likely locations to assess potential problems.
  - Identify locations and concentrations of access and functional needs populations to develop mitigation actions that will best assist them.
  - Consider demographics of projected population growth to predict vulnerability.
  - Identify locations that provide health or social services that are critical to disaster recovery.
- Economy:
  - Identify major employers, primary economic sectors (e.g., agriculture), and commercial centers whose losses or inoperability would have severe impacts on the community and its ability to recover from a disaster.
  - Assess dependencies between economic sectors and businesses and the infrastructure needed to support them.
- Built environment:
  - Identify existing structures such as buildings.
  - Develop an inventory of the location, construction standards, age, and life expectancy of specific critical infrastructure and facilities in the planning area.
  - Assess dependencies between infrastructure systems, critical facilities, and the people they serve.

  - Review state and national historic registries and identify cultural assets, such as museums, that have significance to the community.
  - Identify areas planned and zoned for future development.
- Natural environment
  - Identify the most valuable areas that can provide protective functions that reduce the magnitude of hazard events.
  - Identify critical habitat areas and other environmental features that are important to protect.

Visual 21: Information Sources

- Hazard maps
- Historical data
- Existing plans and reports
- Local experts
- Internet websites
- Geographic Information Systems (GIS)
- Hazus

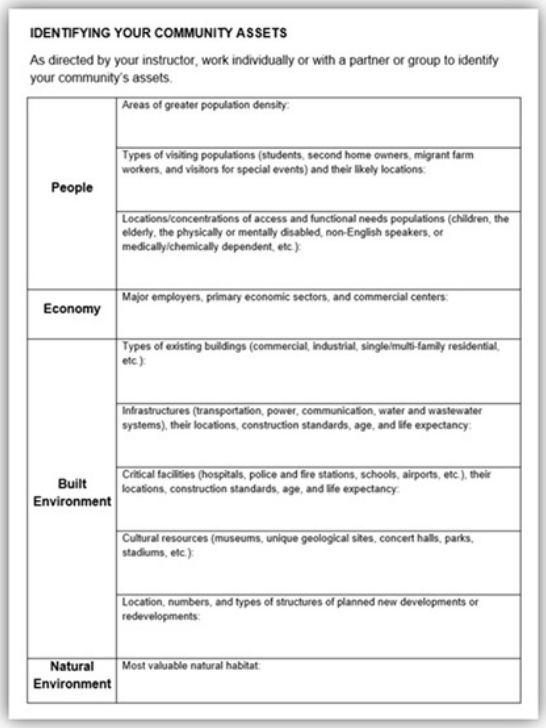
Visual 22: Activity 3: Identifying Your Community Assets (1 of 2)

Activity

Activity 3: Identifying Your Community Assets

Allotted Time: 15 Minutes

Visual 23: Identifying Your Community Assets

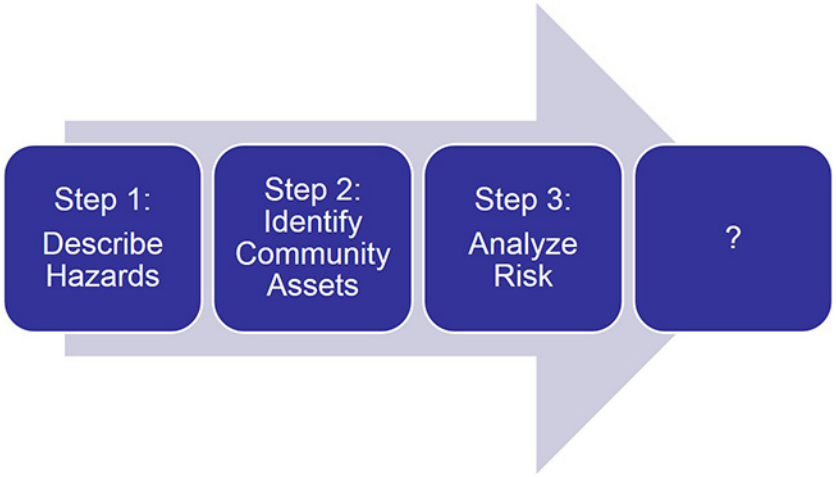


IDENTIFYING YOUR COMMUNITY ASSETS

As directed by your instructor, work individually or with a partner or group to identify your community's assets.

People	Areas of greater population density:
	Types of visiting populations (students, second home owners, migrant farm workers, and visitors for special events) and their likely locations:
	Locations/concentrations of access and functional needs populations (children, the elderly, the physically or mentally disabled, non-English speakers, or medically/chemically dependent, etc.):
Economy	Major employers, primary economic sectors, and commercial centers:
Built Environment	Types of existing buildings (commercial, industrial, single/multi-family residential, etc.):
	Infrastructures (transportation, power, communication, water and wastewater systems), their locations, construction standards, age, and life expectancy:
	Critical facilities (hospitals, police and fire stations, schools, airports, etc.), their locations, construction standards, age, and life expectancy:
	Cultural resources (museums, unique geological sites, concert halls, parks, stadiums, etc.):
	Location, numbers, and types of structures of planned new developments or redevelopments:
Natural Environment	Most valuable natural habitat:

Visual 24: Risk Assessment - Step 3



Step 3

After you've created hazard descriptions and identified your community assets, the next step is the analyze risk.

Visual 25: Analyze Risk (1 of 2)

Analyzing risk - Evaluating vulnerable assets, describing potential impacts, and estimating losses for each hazard.

Analyze Risk

Analyzing risk involves evaluating vulnerable assets, describing potential impacts, and estimating losses for each hazard. Losses may include:

- Losses to structures
- Losses to contents
- Losses to structure use and function
- Human losses

Visual 26: Analyze Risk (2 of 2)

Methods

- Exposure analysis
- Historical analysis
- Scenario analysis

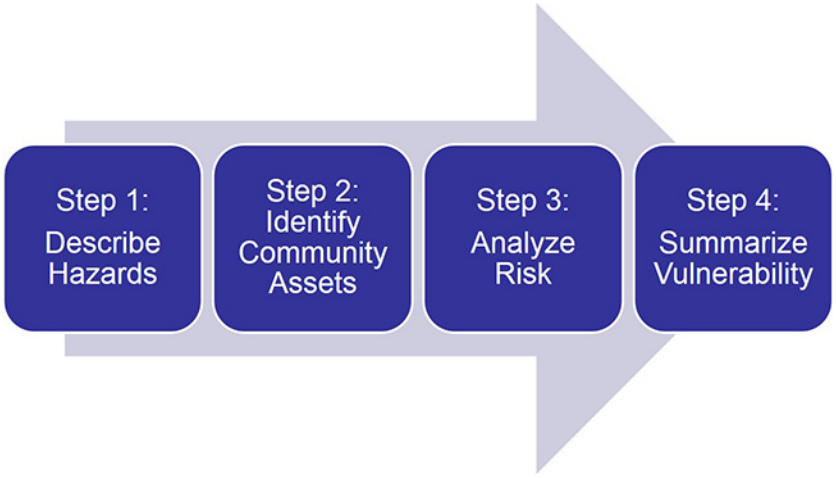
Analyze Risk (2 of 2)

Methods of analyzing risk include:

- **Exposure analysis:** This method identifies the existing and future assets located in identified hazard areas, often by using GIS for analysis and maps for visualization. Exposure analysis can quantify the number, type, and value of structures, critical facilities, and infrastructure located in identified hazard areas, as well as assets exposed to multiple hazards.
- **Historical analysis:** This method uses information on impacts and losses from previous hazard events to predict potential impacts and losses during a similar future event. This can be especially useful for weather-related hazards, such as severe winter storms, hail, and drought.
- **Scenario analysis:** This method predicts the impacts of a particular event. Scenarios can be an especially helpful tool for low frequency, high consequence events, such as earthquakes, for which historical information is not available.

The planning team will likely use a combination of methods for analyzing risk.

Visual 27: Risk Assessment Step 4



Step 4

After you've developed the hazard descriptions, identified community assets, and analyzed each risk, the final step of risk assessment is to summarize the information on vulnerability.

Visual 28: Summarize Vulnerability

Information collected in previous three steps need to be summarized:

- To inform the mitigation strategy to community
- To communicate findings to elected officials and other stakeholders to support their decision making
- Develop problem statements

Summarize Vulnerability

The previous three steps of the risk assessment process provide a large amount of information about your community's vulnerability to hazards. This information needs to be summarized:

- To inform the mitigation strategy to community.
- To communicate findings to elected officials and other stakeholders to support their decision making.

One approach to summarizing the information is to develop problem statements. There could be problem statements for each hazard, or those that apply to all hazards.

The following are example problem statements:

- The North Creek Sewage Treatment Plant is located in the 100-year floodplain and has been damaged by past flood events. It serves 10,000 residential and commercial properties.
- The schools are a central focus of the community and offer opportunities to educate the public about hazards, risk, and mitigation. In addition, many school facilities are vulnerable to one or more hazards, including flooding, earthquake, tornado, and severe winter storms.

Visual 29: Activity 4: Analyzing Risk and Summarizing Vulnerability in Quakeville (1 of 2)

Activity 4: Analyzing Risk and Summarizing Vulnerability in Quakeville

Activity

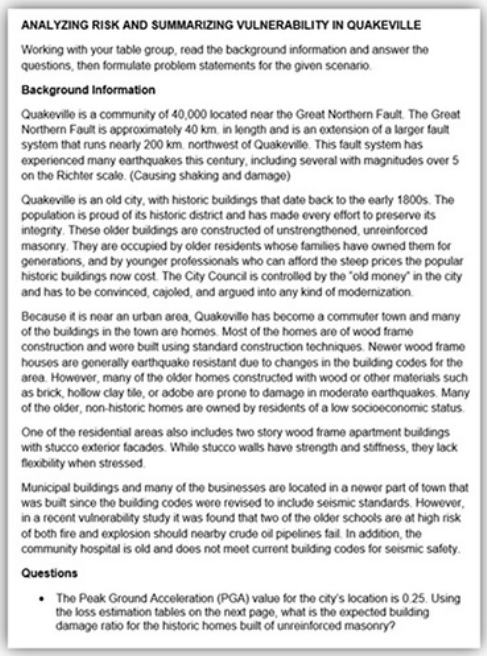
Allotted Time: 10 Minutes

Activity 4: Analyzing Risk and Summarizing Vulnerability in Quakeville

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

Alternatively, you may provide a replacement scenario more applicable to your state or region.

Visual 30: Activity 4: Analyzing Risk and Summarizing Vulnerability in Quakeville



ANALYZING RISK AND SUMMARIZING VULNERABILITY IN QUAKEVILLE

Working with your table group, read the background information and answer the questions, then formulate problem statements for the given scenario.

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?

Visual 31: Completion of Risk Assessment

Discussion Question

Completion of Risk Assessment

When is the risk assessment process considered complete?

Visual 32: Monitor the Risks

- Are the hazards still a threat?
- Are there other hazards not included?
- Are cascading hazards considered?
- Are any profiles missing?
- Is other information missing?
- Have threats or priorities changed?

Visual 33: Mitigation Opportunities

Discussion Question

Mitigation Opportunities

What are the ideal times for identifying mitigation opportunities?

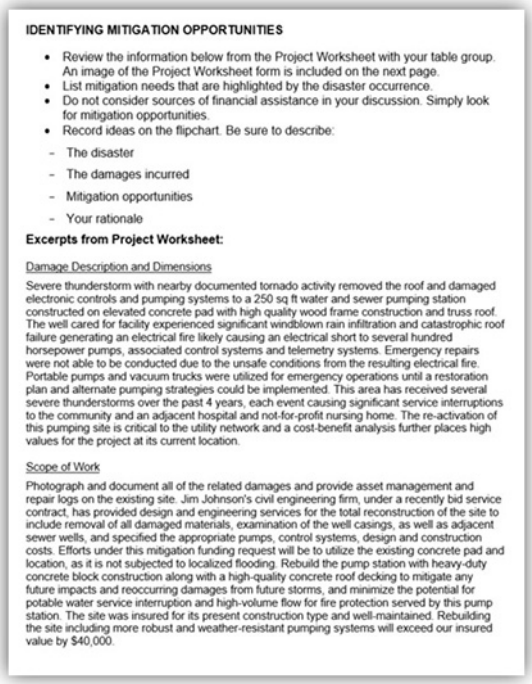
Visual 34: Activity 5: Identifying Mitigation Opportunities (1 of 2)

Activity

Activity 5: Identifying Mitigation Opportunities

Allotted Time: 25 Minutes

Visual 35: Activity 5: Identifying Mitigation Opportunities



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

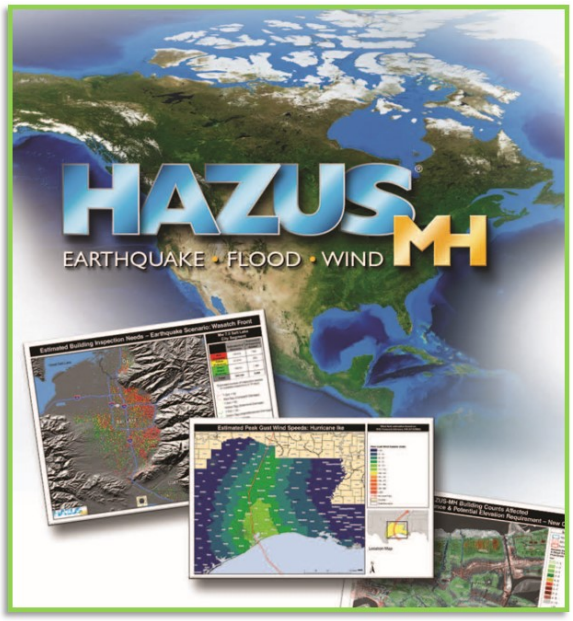
Photograph and document all of the related damages and provide asset management and repair logs on the existing site. Jim Johnson's civil engineering firm, under a recently bid service contract, has provided design and engineering services for the total reconstruction of the site to include removal of 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.

Visual 36: HAZUS

Estimates damages and losses from:

- Earthquakes
- Hurricane winds
- Floods

Free software and training



Hazus

Hazus has evolved into a powerful tool for mitigation and recovery planning and analysis. An increasing number of states and localities are using Hazus in the preparation of risk assessments and mitigation plans. Hazus is also being used to support post-disaster planning for recovery from hurricanes, earthquakes, and floods.

Hazus can be used by individuals and organizations with limited knowledge of hazard analysis, as well as by those with extensive expertise in the earth, building, and GIS sciences due to its diverse range of options.

Visual 37: Unit Summary

- The risk assessment process
  - Describing hazards
  - Identifying community assets
  - Analyzing risk
  - Summarizing vulnerability
- Monitoring the risk
- Hazus

Unit Summary

Briefly review the topics discussed in this unit:

- The risk assessment process
  - Describing hazards
  - Identifying community assets
  - Analyzing risk
  - Summarizing vulnerability
- Monitoring the risk
- Hazus

Unit 5: Developing a Mitigation Strategy

Visual 1: Unit Overview

Unit 5: Developing Mitigation Strategies

Overview

After a risk assessment has been accomplished, your community can determine appropriate options for mitigating the risks.

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 community's overall mitigation process. It provides direction for the community's efforts to reduce potential losses by identifying measures to mitigate the hazards identified in the risk assessment.

Visual 2: Learning Objectives

- Develop hazard mitigation goals and actions for a given scenario
- Identify the mitigation action types
- Evaluate mitigation strategies for a given scenario using a set of pre-determined criteria

Learning Objectives

- Review the learning objectives for this unit:
  - Develop hazard mitigation goals and actions for a given scenario.
  - Identify the mitigation action types.
  - Evaluate mitigation strategies for a given scenario using a set of pre-determined criteria.

Visual 3: Where are we in the process?

Phase 3

Develop a mitigation strategy

Where are we in the process?

After conducting a risk assessment, the next phase in the disaster resilience process is to develop the plan, which aligns to Task 6 in the Local Mitigation Planning Handbook.

This unit will focus on the first two steps in developing a mitigation strategy. The next unit, Unit 6: Identifying and Using Mitigation Resources, will discuss the rest of the Task 6 efforts.

Visual 4: Step 1: Develop Hazard Mitigation Goals and Objectives

Task 6: Develop a Mitigation Strategy

- Step 1 - Develop hazard mitigation goals
- Step 2 - Identify and prioritize mitigation actions

Phase 3: Develop a Mitigation Plan

Task 6: Develop a mitigation strategy

Developing a mitigation strategy involves four steps. The first two steps in the process are:

- Step 1 – Develop hazard mitigation goals
  - Review results of hazard analysis
  - Formulate goals
  - Get public input
- Step 2 – Identify and prioritize mitigation actions
  - Identify alternative mitigation actions
  - Identify and analyze state and local mitigation capabilities
  - Evaluate, select, and prioritize mitigation actions

Visual 5: Step 1: Develop Hazard Mitigation Goals (1 of 4)

- Review results of hazard analysis
- Formulate goals
- Get public input

Step 1: Develop a Hazard Mitigation Goals (1 of 4)

The first step of developing a mitigation strategy is to develop hazard mitigation goals.

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

- Protect and expand essential facilities.
- Improve the quality of life in the community.
- Ensure that public funds are used in the most efficient manner.

To develop the hazard mitigation goals and objectives, you'll need to:

- Review results of hazard analysis
- Formulate goals
- Get public input

Optionally, you may also want to develop objectives. Objectives are broader than specific actions, but are measurable, unlike goals. Objectives connect goals with the actual mitigation actions.

Visual 6: Activity 1: Developing Mitigation Goals

Activity

Developing Mitigation Goals

Allotted Time: 1 Hour

Activity 1: Developing Mitigation Goals

(1 hour)

In this activity, we'll walk through the tasks for developing goals and objectives. First, you'll write mitigation goals for the Quakeville scenario from Unit 4.

This activity is conducted in segments, with mini-lectures provided by the instructor.

Visual 7: Step 1: Develop Hazard Mitigation Goals (2 of 4)

- Review results of hazard analysis
  - Review the findings of the risk assessment
  - Review the list of problem statements that are based on the findings
- Formulate goals
- Get public input

Step 1: Develop Mitigation Goals

In order to develop hazard mitigation goals, review the results of the hazard analysis conducted during Phase 2.

This includes reviewing the findings of the risk assessment, as well as the list of problem statements you have developed based on those findings.

Visual 8: Step 1: Develop Hazard Mitigation Goals (3 of 4)

- Review results of hazard analysis
- Formulate goals
  - Develop proposed goal statements
  - Review existing plans and policy documents to identify conflicts
- Get public input

Step 1: Develop Hazard Mitigation Goals

A major component of developing hazard mitigation goals is to formulate goals. Goals are broad, forward-looking statements that succinctly describe your aims. Several problem statements can lead to one broad goal. An example of a goal statement to address flooding problems could be:

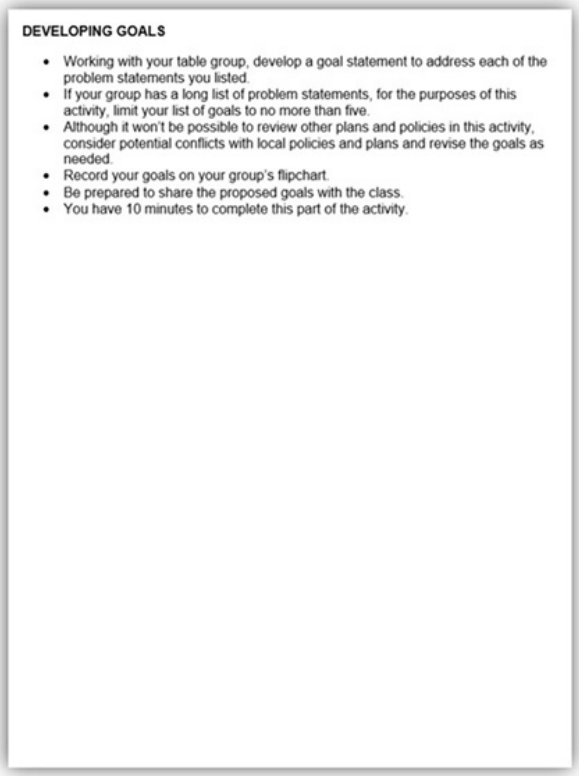
- Minimize losses to existing and future structures within hazard areas.

Hazard mitigation goals should be consistent with the goals of other plans in your community. Review existing plans and list the goals established in these plans to assess whether they conflict with those for reducing the effects of hazards.

Look for plans or policies that address topics that are closely related to mitigating the effects of hazards, including:

- Sustainability
- Economic growth
- Growth management
- Environmental preservation
- Historic preservation
- Redevelopment
- Health and/or safety
- Recreation
- Land use/zoning
- Public education and outreach
- Transportation

Visual 9: Developing Mitigation Goals



Visual 10: Step 1: Develop Hazard Mitigation Goals (2 of 4)

- Review results of hazard analysis
- Formulate goals
- Get public input
  - Organize public forums to solicit input
  - Develop consensus on goals

Step 1: Develop Mitigation Goals

Developing hazard mitigation goals also involves getting the public's input by organizing forums and developing consensus on goals.

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. Involve the public when developing the community's goals and objectives to ensure fair representation of all sectors in the community.

The method you choose to use to involve the public depends on the size of your jurisdiction, the style of public input that normally is used for community issues, the established timeline, and the resources available. 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.

Visual 11: Getting Public Input

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

Visual 12: Step 2: Identify and Prioritize Mitigation Actions (1 of 4)

- Identify alternative mitigation actions
- Identify and analyze state and local mitigation capabilities
- Evaluate, select, and prioritize mitigation actions

Step 2: Identify and Prioritize

In the next step of the process for developing a mitigation plan, you will identify, evaluate, and prioritize mitigation actions that address the goals and objectives developed by the planning team in Step 1.

It is important to take time to evaluate the relative merits of alternative mitigation actions and the local conditions in which these activities would be pursued. In this way, you can be confident that the actions you end up with will have public, government, and political support, and will be the appropriate technical response to the hazard issues in your community.

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?

Visual 13: Types of Mitigation Actions

- Local plans and regulations
- Structure and infrastructure projects
- Natural systems protection
- Education and awareness programs

Types of Mitigation Actions

The primary types of mitigation actions to reduce long-term vulnerability include:

- Local plans and regulations
- Structure and infrastructure projects
- Natural systems protection
- Education and awareness programs

Visual 14: Prevention

Government authorities, policies, or codes that influence the way land and buildings are developed and built

Local Plans and Regulations

Local plans and regulations refer to government authorities, policies, or codes that influence the way land and buildings are developed and built.

Examples include:

- Comprehensive plans
- Land use ordinances
- Subdivision regulations
- Development review
- Building codes and enforcement
- NFIP Community Rating System
- Capital improvement programs
- Open space preservation
- Stormwater management regulations and master plans

Visual 15: Property Protection

- Modify existing structures and infrastructure to protect them from a hazard or remove them from a hazard area
- Applies to public or private structures as well as critical facilities and infrastructure

Structure and Infrastructure Projects

Structure and infrastructure projects involve modifying existing structure and infrastructure to protect them from a hazard or remove them from a hazard area. This applies to public or private structures as well as critical facilities and structure.

They can also include projects to construct manmade structures to reduce the impact of hazards.

Examples include:

- Acquisitions and elevations of structures inflood prone areas
- Utility undergrounding
- Structural retrofits
- Floodwalls and retaining walls
- Detention and retention structures
- Culverts
- Safe rooms

Visual 16: Natural Systems Protection

- Minimize damage and losses of natural systems
- Preserve or restore the functions of natural systems

Natural Systems Protection

Natural systems protection minimizes damage and losses and also preserve or restore the functions of natural systems.

Examples include:

- Sediment and erosion control
- Stream corridor restoration
- Forest management
- Conservation easements
- Wetland restoration and preservation

Visual 17: Education and Awareness Programs

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

Education and Awarenss Programs

Education and awareness programs inform and educate citizens, elected officials, and property owners about hazards and potential ways to mitigate them. These actions may also include participation in national programs.

Examples include:

- Radio or television spots
- Websites with maps and information
- Real estate disclosure
- Presentations to school groups or neighborhood organizations
- Mailings to residents in hazard-prone areas.
- StormReady
- Firewise Communities

Visual 18: Step 2: Identify and Prioritize Mitigation Actions (2 of 4)

Identify alternative mitigation actions

- Brainstorm mitigation types to accomplish the goals
- Review existing literature and resources
- Review success stories
- Solicit public opinion and input
- Summarize your findings

Identify and analyze state and local mitigation capabilities

Evaluate, select, and prioritize mitigation actions

Step 2

The purpose of identifying alternative mitigation actions is to determine a variety of possible actions to address the mitigation objectives you developed in Step 1. Activities may include:

- Reviewing existing literature and resources – Identify alternative actions that may achieve these mitigation goals. Existing literature can help identify alternative mitigation actions and shed light on specific issues to consider when you evaluate the alternatives later. A number of publications, Web site, and other resources provide information on the structural integrity, specific design features, and approximate cost ranges of actions.
- Reviewing success stories – Other communities or states may have already addressed the same problems and developed a solution that may also work for your community. You can find out what other communities have done by asking your State Hazard Mitigation Officer or reviewing the best practices guides available from FEMA.
- Soliciting opinion and input – Surveys or questionnaires are very effective tools for gathering information on potential alternative mitigation actions that would be acceptable or preferred by community residents. By using these methods, you can foster involvement among citizens, including those who don't attend meetings. A survey or questionnaire can be included in a utility bill mailing, conducted door-to-door, or posted on a community Web site. Volunteers can help to reduce the costs of these techniques.
- Summarizing your findings – The planning team will use the results of identifying and prioritizing mitigation actions to evaluate the alternative mitigation actions at the end of Phase 3. Any background information the planning team discovers along the way regarding the implications of various alternatives should be available to the whole planning team for consideration in the next task.

Visual 19: Activity 2: Identifying Mitigation Type

Allotted Time: 5 Minutes

Visual 20: Step 2: Identify and Prioritize Mitigation Actions (3 of 4)

- Identify alternative mitigation actions
- Identify and analyze state and local mitigation capabilities
  - Review the state capability assessment
  - Complete the local capability assessment
- Evaluate, select, and prioritize mitigation actions

Step 2: Identify and Prioritize Mitigation Actions (3 of 4)

The next component of Step 2 involves reviewing and analyzing state and local programs, policies, regulations, funding, and practices currently in place that either facilitate or hinder mitigation in general, including how the construction of buildings and infrastructure in hazard-prone areas is regulated.

You will also learn how your local, tribal, and state governments are structured in terms of professional staff that would be available to directly carry out mitigation actions, or to provide technical assistance. This inventory and analysis is often called a capability assessment. By completing this assessment, you will learn how or whether your community will be able to implement certain mitigation activities by determining:

- Types of mitigation actions that may be prohibited by law
- Limitations that may exist on undertaking actions
- The range of local and/or state administrative, programmatic, regulatory, financial, and technical resources available to assist in implementing your mitigation strategy

This information will feed directly into the analysis of the specific mitigation actions you will undertake in the last component of Step 2.

In the previous unit, Task 4 within Phase 2 involved the planning team reviewing existing capabilities for reducing long-term vulnerability to hazards. Those capabilities should now be assessed to identify gaps to be addressed and strengths to enhance through new mitigation actions.

Visual 21: Step 2: Identify and Prioritize Mitigation Actions (4 of 4)

- Identify alternative mitigation actions
- Identify and analyze state and local mitigation capabilities
- Evaluate, select, and prioritize mitigation actions
  - Evaluate all alternative mitigation actions
  - Summarize and document recommended mitigation actions
  - Prioritize selected mitigation actions

Step 2: Identify and Prioritize Mitigation Actions (4 of 4)

In this component of Step 2, the planning team will select mitigation actions suitable to your community and then decide in what sequence or order these actions should be pursued.

This section of your training will address some suggested methods for evaluating and prioritizing the alternative mitigation actions previously identified.

Visual 22: The STAPLE Criteria

- Social
- Technical
- Administrative
- Political
- Legal
- Economic / Environmental

The STAPLE Criteria

One set of criteria that is used for making such planning decisions is identified by the acronym STAPLE.

(Refer to the STAPLE criteria list in the Student Manual page 90 for additional detail.)

These criteria consider the impacts of a proposed course of action. There is no implied priority or weight to the criteria.

- **Social** – To be successful, the mitigation strategy must be socially acceptable.
- **Technical** – The proposed action must be technically feasible, cost-effective, and useful.
- **Administrative** – The community must have the capability to implement the action and accomplish it in a timely manner.
- **Political** – Public support is needed both to implement and maintain the measure.
- **Legal** – The community must have the authority to implement the proposed measure.
- **Economic** – Economic considerations must include the present economic base, projected growth and opportunity costs, and community plans for economic development.
- **Environmental** – Impact on the environment is an important consideration because of the many statutory considerations, and because of public desire for sustainable and environmentally healthy communities.

After you have evaluated the potential alternative mitigation actions, return to those actions that the planning team has determined to be appropriate for your community.

Clean up the comment notes or expand them to explain any special circumstances that must be kept in mind in the next step. For example, if you found that one action is more effective when undertaken in conjunction with another, then note this fact.

After generating a list of acceptable mitigation actions, the list must be prioritized so the planning team can determine where to begin.

Some common ways to rank mitigation actions are:

- Ease of implementation
- Multi-objective actions

- Time
- Funding availability

Visual 23: Activity 3: Mitigation Solutions for Quakeville

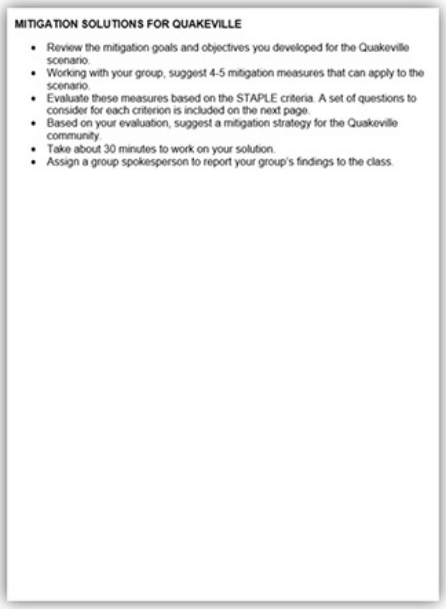
Allotted Time: 30 Minutes

Activity 3: Mitigation Solutions for Quakeville

In this activity, you have the opportunity to walk through the process of selecting the best mitigation solutions to a fictitious community's hazard risk problems.

Visual 24: Activity 3: Mitigation Solutions for Quakeville

Allotted Time: 30 Minutes



MITIGATION SOLUTIONS FOR QUAKEVILLE

- Review the mitigation goals and objectives you developed for the Quakeville scenario.
- 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.

Visual 25: Unit 5: Unit Summary

- Mitigation goals and objectives
- Steps to take in mitigation strategy development
- STAPLE criteria

Unit 6: Identifying and Using Mitigation Resources

Visual 1: Unit Overview

Unit 6: Identifying and Using Mitigation Resources

Unit Overview

This unit continues to explore Phase 3, which is developing a mitigation strategy. This unit will provide information on how to identify and use mitigation resources.

Visual 2: Learning Objectives

- Describe the roles and responsibilities for mitigation among all levels of government and the private sector
- Create a list of federal, state, local, and private sector mitigation funding resources
- Develop a proposal for obtaining financial aid and technical resources needed to carry out a mitigation strategy for a given scenario

Visual 3: Where are we in the process?

Phase 3

Develop a mitigation strategy

Phase 3

As we've discussed in the previous unit, Phase 3 focuses on developing a mitigation strategy. So far, we've learned the details of developing mitigation goals and actions, as well as prioritizing them.

In this unit, we will continue learning about completing mitigation strategy development in Phase 3.

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

- Some actions will be accomplished by the public sector, and some through the private sector.
- Some can be accomplished pre-disaster, and some will not be feasible until after a disaster when post-disaster funding sources are available.
- Some can be done in the short term, and others may require years to accomplish.

Visual 4: Phase 3: Develop the Mitigation Plan

Task 6: Develop a Mitigation Strategy

- Step 3 - Prepare an implementation strategy
- Step 4 - Document the mitigation planning process

Task 6: Develop a mitigation strategy

In the previous unit, we've discussed the first two steps of developing a mitigation strategy:

- Step 1 – Develop hazard mitigation goals
- Step 2 – Identify and prioritize mitigation actions

The remaining steps include:

- Step 3 – Prepare an implementation strategy
  - Identify how the mitigation actions will be implemented
  - Document the implementation strategy
  - Obtain the consensus of the planning team
- Step 4 – Document the mitigation planning process
  - Make decisions about the style of the document
  - Write the plan
  - Review the plan

Visual 5: Step 3: Prepare an Implementation Strategy (1 of 4)

- Identify how the mitigation actions will be implemented
- Document the implementation strategy
- Obtain the consensus of the planning team

Step 3: Prepare an Implementation Strategy (1 of 4)

After developing hazard mitigation goals and identifying and prioritizing mitigation actions, the third step of developing a mitigation strategy is to prepare an implementation strategy. This involves:

- Identifying how the mitigation actions will be implemented
- Documenting the implementation strategy
- Obtaining the consensus of the planning team

Visual 6: Step 3: Prepare an Implementation Strategy (2 of 4)

- Identify how the mitigation actions will be implemented
  - Identify parties, define responsibilities, and confirm partners
  - Identify resources to implement the actions
  - Define the time frame for implementing the actions
- Document the implementation strategy
- Obtain the consensus of the planning team

Step 3: Prepare an Implementation Strategy

The first component of preparing an implementation strategy is identifying how the mitigation actions will be implemented. This involves:

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

Visual 7: Resources for Mitigation Implementation

Funding sources

- Local
- State
- Federal
- Technical assistance

Resources for Mitigation Implementation

Pre-disaster, local budgets rarely include money for mitigation. Local governments may even be willing to acknowledge hazard risks, but have too many other high visibility, high priority goals to accomplish.

How, then, are mitigation strategies accomplished?

Mitigation must be accomplished in conjunction with other community goals, and not addressed in a vacuum.

A well-selected community mitigation planning team can be very helpful in accomplishing this requirement. The team that represents a wide variety of community concerns and interests will be able to identify a range of opportunities for accomplishing mitigation along with other community goals.

Funding Sources

Individuals or organizations responsible for implementing the community's mitigation plan must be familiar with sources of funding and other assistance for mitigation. These sources may include:

- Local government
- Private sector
- Nonprofit organizations
- State government
- Federal government

We'll discuss funding sources more specifically later in this unit.

Technical Assistance

Emergency managers are not expected to be the technical experts for mitigation. However, the job of coordinating a mitigation program may very well belong to the emergency manager.

Technical experts will be needed to plan and implement many of the mitigation measures we have discussed.

You can find the tables of Technical and Financial Mitigation Resources in Appendix D of the Student Manual.

Visual 8: Mitigation Responsibilities (1 of 2)

Local Government

Private sector

State government

Federal government

Mitigation Responsibilities (1 of 2)

When discussing sources of funding and technical assistance for mitigation, the assumption is sometimes made that the Federal government is responsible for mitigation and should pay all of the bills. This is not a valid assumption.

The National Mitigation Framework describes roles and responsibilities for mitigation among all levels of government and the private sector.

Local Government

Local governments should understand the hazards that may exist in their communities, and it is their responsibility to initiate mitigation action.

Local governments must do everything possible to protect their citizens from hazard risks, including:

- Enacting and enforcing building codes, zoning ordinances, and other measures to protect life and property
- Making the public aware of hazards that present risks to people and property, and measures they can take to reduce the risk of loss
- Complying with Federal and other regulations that are designed to reduce losses.

Mitigation is a local responsibility; other levels of government support the local effort.

Private Sector

At a minimum, businesses, private organizations, and individual homeowners have a responsibility to:

- Comply with applicable zoning and land use regulations.
- Take other measures, as necessary and possible, to reduce or eliminate damage from known hazards.

These groups have much to gain by reducing their risks to hazards.

Businesses and other private interests may be willing to contribute time, labor, materials or other support if they are convinced that the mitigation effort will benefit their organization as part of an overall community improvement.

State Government

The State is required to uphold Federal regulations intended to reduce hazard losses. The State also must:

- Provide resources to achieve these goals

- Emphasize to its constituents the importance of substantially reducing the risk of:
  - Loss of life
  - Injuries
  - Economic costs
  - Destruction of natural and cultural resources

State assistance may be available for projects that meet State level goals and can simultaneously reduce long-term hazard risks.

Federal Government

Federal agencies are expected to:

- Take the lead in mitigation by evaluating their own facilities and ensuring that they are designed, constructed, and upgraded to reduce the impact of future hazard events.
- Collaborate with academia, national standards and code-writing groups, and the private sector to speed the development and application of mitigation technologies.
- Support applied research on priority mitigation issues.
- Administer programs that are intended to support and encourage local efforts to mitigate hazard losses.

Visual 9: Mitigation Responsibilities (2 of 2)

Discussion Question

Mitigation Responsibilities (2 of 2)

How do the local government and private sector in your community view their responsibilities in mitigation?

Visual 10: Panel Discussion: Federal, State, local, tribal, and territorial resources

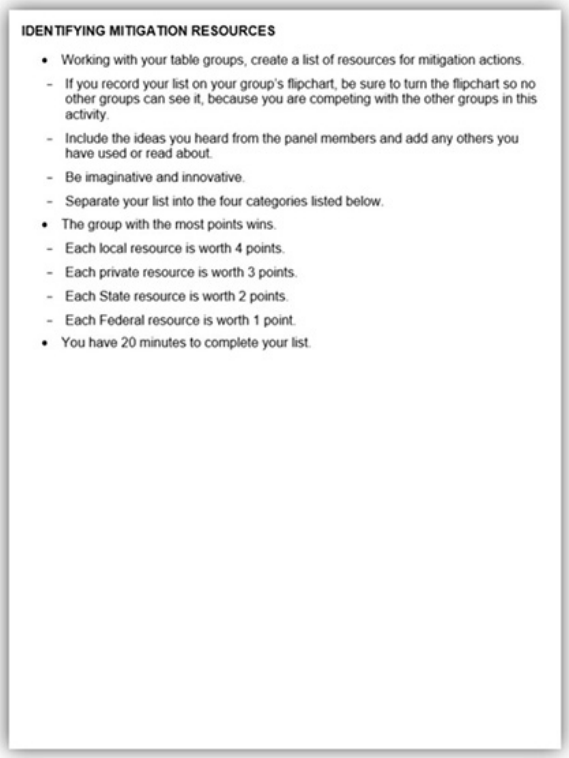
Discussion Question

Panel Discussion: Federal, State, local, tribal, and territorial resources

Visual 11: Activity 1: Identifying Mitigation Resources (1 of 2)

 Activity	***Activity 1: Identifying Mitigation Resources*** Local = 4 points Private = 3 points State = 2 points Federal = 1 point Allotted Time: 20 Minutes

Visual 12: Activity 1: Identifying Mitigation Resources



Visual 13: Categories of Mitigation Resources

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

Mitigation Resources Pre- and Post- Disaster

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

- Pre-disaster programs
  - These programs exist without a disaster declaration and support pre-disaster mitigation activity.
- Post-disaster programs
  - These programs generally require a Presidential disaster declaration to become applicable.
- Disaster-applicable programs
  - These programs exist pre-disaster for non-emergency purposes, but may be redirected after a disaster declaration.

Appendix D: You can find the tables of Technical and Financial Mitigation Resources in Appendix D of the Student Manual.

Visual 14: Step 3: Prepare an Implementation Strategy (3 of 4)

- Identify how the mitigation actions will be implemented actions will be implemented
- Document the implementation strategy
  - Action
  - Goals
  - Budge
  - Lead Agency
  - Support agency or agencies
  - Funding Source(s)
  - Start and end date
- Obtain the consensus of the planning team

Step 3: Prepare an Implementation Strategy (3 of 4)

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.

One example format that the planning team can use is listed on the slide.

- **Action:** This comes from your list of actions.
- **Goal(s) addressed:** Sometimes the action will address more than one goal and objective.
- **Lead agency:** Provide the name and a brief description of the agency.
- **Support agency or agencies:** Provide the name and a brief description of each support agency.
- **Budget:** Provide the dollar amount or an estimate, if known. Put TBD (to be determined) if not known. Indicate staff time if staff will be used.
- **Funding source(s):** List the funding sources (e.g., operating budget, capital improvement budget, XYZ grant, XYZ foundation, etc.).
- **Start and end date:** Indicate start and end dates; short-term, long-term, or ongoing; and milestones for longer term projects.

Visual 15: Step 3: Prepare an Implementation Strategy (4 of 4)

- Identify how the mitigation actions will be implemented actions will be implemented
- Document the implementation strategy
- 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 head in the right direction

Step 3: Prepare an Implementation Strategy (4 of 4)

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.

When the team confirms that the timeline and use of resources are realistic, and the appropriate agencies or individuals are designated the appropriate responsibilities, it confirms that the strategy is headed in the right direction.

Visual 16: Activity 2: Selecting Mitigation Resources for Quakeville (1 of 2)

Activity

Activity 2: Selecting Mitigation Resources for Quakeville

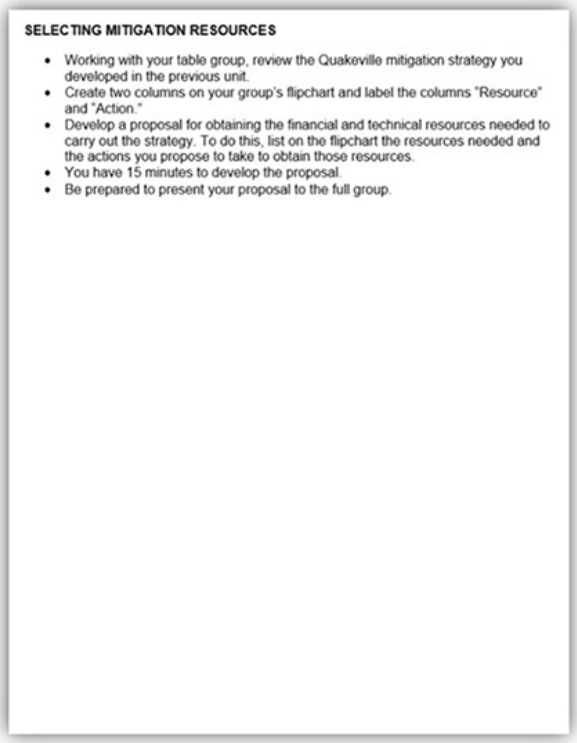
Allotted Time: 15 Minutes

Activity 2: Selecting Mitigation Resources for Quakeville

You can use the following criteria to determine which resources are most useful for the mitigation strategies chosen for a community:

- Which choice is most consistent with the multi-objective goals of the community?
- When will the resources be most useful (e.g., pre-disaster or post-disaster)?
- Can the community meet any conditions such as matching funds?
- Can the community handle the administrative requirements?

Visual 17: Activity 2: Selecting Mitigation Resources for Quakeville



Activity 2: Selecting Mitigation Resources for Quakeville

You can use the following criteria to determine which resources are most useful for the mitigation strategies chosen for a community:

- Which choice is most consistent with the multi-objective goals of the community?
- When will the resources be most useful (e.g., pre-disaster or post-disaster)?
- Can the community meet any conditions such as matching funds?
- Can the community handle the administrative requirements?

Visual 18: Step 4: Document the Mitigation Planning Process

- Make decisions about the style of the document
- Write the plan
- Review the plan

Step 4: Document the Mitigation Planning Process

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 (such as the post-disaster setting and when undertaking major land development decisions), the plan will serve as the representation of the community's principles for hazard loss reduction.

Visual 19: Step 4: Document the Mitigation Planning Process (2 of 4)

- Make decisions about the style of the document
  - Length
  - Format and sections
  - Language level
  - Level of detail
  - Schedule for writing the plan
  - Who should write the plan
- Write the plan
- Review the plan

Step 4: Document the Mitigation Planning Process (2 of 4)

Make decisions about the style of the document.

- Decide how to make the document readable, in terms of:
  - Length
  - Format/sections
  - Language level
- Determine how detailed the planning document should be.
- Establish the schedule for writing the plan.
- Determine who should write the plan.

Visual 20: Step 4: Document the Mitigation Planning Process (3 of 4)

- Make decisions about the style of the document
- Write the plan
  - Assemble information from previous phases
  - Conform to FEMA program requirements
- Review the plan

Step 4: Document the Mitigation Planning Process (3 of 4)

Write the plan.

- Assemble information and write-ups from previous phases of the process, to include:
  - Meeting notes that document the planning process
  - Risk assessment and capability assessment findings and results
  - Your mitigation strategy
  - Other existing plans, models, and state and program requirements to provide an organizational framework
- Write the plan in conformance with FEMA program requirements.

By following the four-phase process with 9 tasks described in this course, you are undertaking a planning process that conforms to several FEMA mitigation plans.

Student Manual

Step 4: Document the Mitigation Planning Process (3 of 4) (Student Note)

However, you should always refer to program guidelines for the specific program to which you are applying. Refer to the table called "Hazard Mitigation Planning Process - Crosswalk," located in Appendix E in your Student Manual for suggestions on how to organize your plan.

Visual 21: Step 4: Document the Mitigation Planning Process (4 of 4)

- Make decisions about the style of the document
- Write the plan
- Review the plan
  - Planning team review
  - Agency review
  - Public review
  - Final draft

Step 4: Document the Mitigation Planning Process (4 of 4)

Review the plan.

- **Planning team review:** The planning team should have an opportunity to review the plan and provide comments.
- **Agency review:** Agencies involved in plan implementation should receive a draft copy for review.
- **Public review:** Whether a public forum to review the plan is held following the receipt of agency comments, or concurrently as agencies review the draft, the public should have an opportunity to review the draft plan before it is presented for formal adoption.

Provide a draft copy to your State Hazard Mitigation Officer (SHMO) for review prior to formal local adoption to see if the plan meets state and federal requirements.

FEMA mitigation staff should review the document prior to formal local adoption to ensure that the governing body is acting on a document that meets federal requirements.

- **Final draft:** After comments have been received, revise the plan and prepare a final draft. Once comments from all relevant parties have been incorporated, you are ready for the next step: Presenting the plan to your local government body for adoption.

Visual 22: Unit Summary

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

Student Manual

Unit Summary

- Briefly review the topics discussed in this unit:
  - Responsibilities for mitigation
  - Mitigation resources
  - Proposal for obtaining resources

Unit 7: Implementing and Maintaining a Mitigation Plan

Visual 1: Unit Overview

Unit 7: Implementing and Maintaining a Mitigation Plan

Unit Overview

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.

Visual 2: Learning Objectives

- Analyze your community's planning efforts
- Identify deficiencies in your community's mitigation planning efforts

Learning Objectives

- Review the learning objectives for this unit:
  - Analyze your community's planning efforts.
  - Identify deficiencies in your community's mitigation planning efforts.

Visual 3: Activity 1: Analyzing Your Community's Planning Efforts (1 of 2)

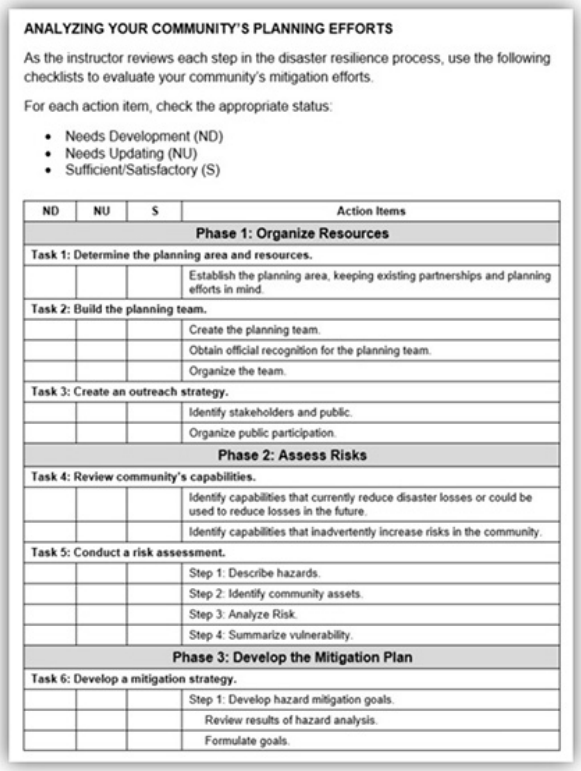
Activity

Activity 1: Analyzing Your Community's Planning Efforts

Allotted Time: 15 Minutes

Visual 4: Activity 1: Analyzing Your Community's Planning Efforts

Allotted Time: 15 Minutes



ANALYZING YOUR COMMUNITY'S PLANNING EFFORTS

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

For each action item, check the appropriate status:

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

ND	NU	S	Action Items
Phase 1: Organize Resources			
Task 1: Determine the planning area and resources.			
			Establish the planning area, keeping existing partnerships and planning efforts in mind.
Task 2: Build the planning team.			
			Create the planning team.
			Obtain official recognition for the planning team.
			Organize the team.
Task 3: Create an outreach strategy.			
			Identify stakeholders and public.
			Organize public participation.
Phase 2: Assess Risks			
Task 4: Review community's capabilities.			
			Identify capabilities that currently reduce disaster losses or could be used to reduce losses in the future.
			Identify capabilities that inadvertently increase risks in the community.
Task 5: Conduct a risk assessment.			
			Step 1: Describe hazards.
			Step 2: Identify community assets.
			Step 3: Analyze Risk.
			Step 4: Summarize vulnerability.
Phase 3: Develop the Mitigation Plan			
Task 6: Develop a mitigation strategy.			
			Step 1: Develop hazard mitigation goals.
			Review results of hazard analysis.
			Formulate goals.

Visual 5: What are the tasks involved in Phase 1?

Visual 6: What are the tasks involved in Phase 1?

Phase 1: Organize Resources

Determine the planning area and resources

Build the planning team

Create an outreach strategy

Visual 7: What are the tasks involved in Phase 2?

Visual 8: What are the tasks involved in Phase 2?

Phase 2: Assess Risks

Review community capabilities

Conduct a risk assessment

Visual 9: What are the tasks in Phase 3?

Visual 10: What are the tasks involved in Phase 3?

Phase 3:

Develop a mitigation strategy

Visual 11: Where are we in the process?

Phase 4: Implement the Mitigation Strategy and Monitor Progress

Keep the plan current

Review and adopt the plan

Visual 12: Task 7: Keep the Plan Current

Task 7: Keep the Plan Current

- Plan maintenance procedures for:
  - Monitoring implementation
  - Evaluating effectiveness
  - Updating the plan
- Continue public involvement

Task 7: Keep the Plan Current

The mitigation plan should be kept current as conditions change, new information becomes available, or actions progress over the life of the plan.

Plan maintenance process allows planning team members to track progress of the plan. This involves:

- Monitoring implementation
- Evaluating effectiveness
- Updating the plan

As you keep the mitigation plan current, you must also continue to provide the public opportunities to be involved. Refer to Task 3 in Unit 3 for public outreach strategies.

Visual 13: Phase 4: Implement and Monitor (2 of 2)

- Task 8: Review and Adopt the Plan
  - Step 1 -- Review the Plan
  - Step 2 -- Adopt the Plan
  - Step 3 -- Evaluate and revise the plan

Task 8: Review and Adopt the Plan

Reviewing and adopting the plan involves three steps:

- **Step 1:** Review the plan
- **Step 2:** Adopt the plan
- **Step 3:** Evaluate and revise the plan

Visual 14: Reviewing and Adopting the Plan (1 of 3)

- Step 1 -- Review the Plan
  - Publicize the plan and solicit feedback from stakeholders and the public
  - Submit the plan for State and FEMA review
- Step 2 -- Adopt the plan
- Step 3 -- Evaluate and revise the plan

Reviewing and Adopting the Plan

Step 1 of Task 8: Reviewing and adopting the plan involves:

- Publicizing the plan and soliciting feedback from stakeholders and the public
- Submitting the plan for State and FEMA review

Visual 15: Task 8: Review and Adopt the Plan (2 of 3)

- Step 1 -- Review the plan
- Step 2 -- Adopt the plan
  - Confirm and clarify responsibilities
  - Begin to integrate mitigation actions
  - Monitor and document implementation
  - Establish indicators of effectiveness
  - Celebrate success
- Step 3 -- Evaluate and revise the plan

Task 8: Review and Adopt the Plan (2 of 3)

Step 2 of Task 8: Reviewing and adopting the plan involves:

- Confirming and clarifying responsibilities
- Beginning to integrate mitigation actions
- Monitoring and documenting implementation
- Establishing indicators of effectiveness
- Celebrating success

Visual 16: Task 8: Review and Adopt the Plan (3 of 3)

- Step 1 -- Review the plan
- Step 2 -- Adopt the plan
- Step 3 -- Evaluate and revise the plan
  - Evaluate the effectiveness of the planning process and strategies
  - Evaluate the effectiveness of actions
  - Determine why the actions worked or did not work
  - Analyze your findings and determine whether to revise the process or strategy
  - Incorporate your findings into the plan

Task 8: Review and Adopt the Plan (3 of 3)

Step 2 of Task 8: Reviewing and adopting the plan involves:

- Confirming and clarifying responsibilities
- Beginning to integrate mitigation actions
- Monitoring and documenting implementation
- Establishing indicators of effectiveness
- Celebrating success

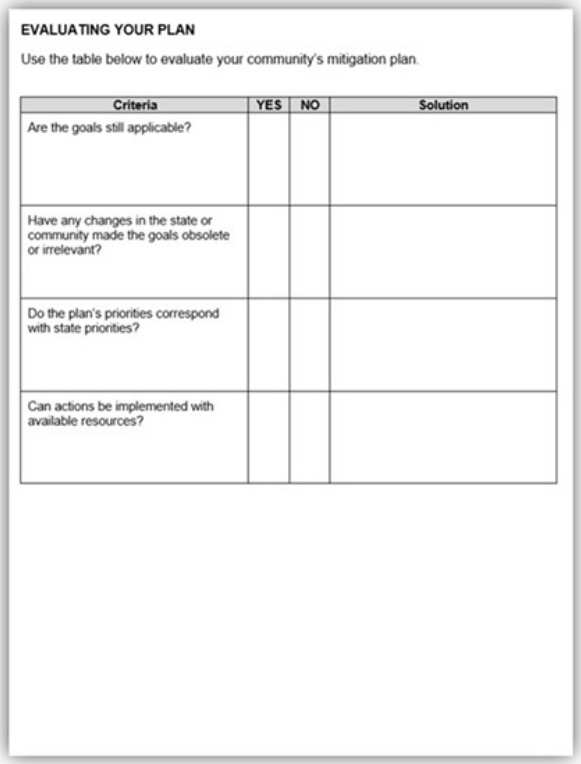
Visual 17: Activity 2: Evaluating Your Plan

Activity

Activity 2: Evaluating Your Plan

Allotted Time: 15 Minutes

Visual 18: Evaluating Your Plan



EVALUATING YOUR PLAN

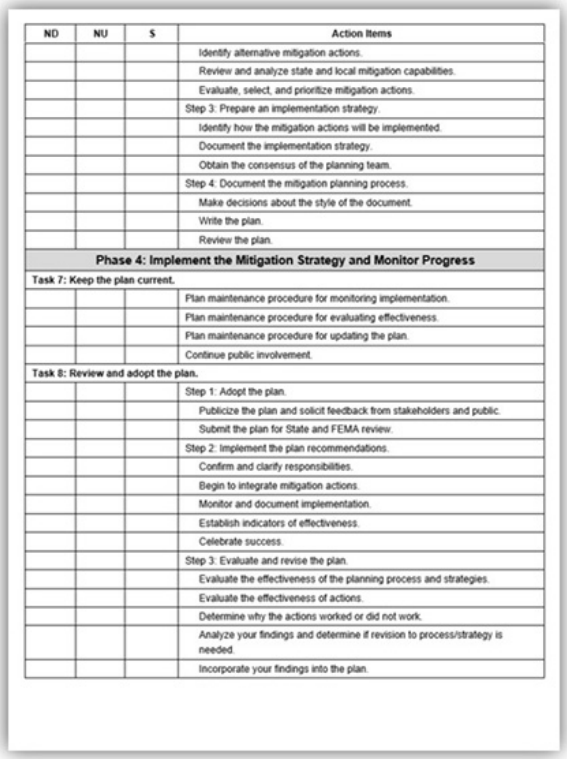
Use the table below to evaluate your community's mitigation plan.

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?			

Visual 19: Activity 3: Analyzing Your Community's Planning Efforts

 Activity	***Individual Activity: Analyzing Your Community's Planning Efforts (Phase 4)*** Allotted Time: 15 Minutes

Visual 20: Activity 3: Analyzing Your Community's Planning Efforts



ND	NU	S	Action Items
			Identify alternative mitigation actions.
			Review and analyze state and local mitigation capabilities.
			Evaluate, select, and prioritize mitigation actions.
			Step 3: Prepare an implementation strategy.
			Identify how the mitigation actions will be implemented.
			Document the implementation strategy.
			Obtain the consensus of the planning team.
			Step 4: Document the mitigation planning process.
			Make decisions about the style of the document.
			Write the plan.
			Review the plan.
Phase 4: Implement the Mitigation Strategy and Monitor Progress			
Task 7: Keep the plan current.			
			Plan maintenance procedure for monitoring implementation.
			Plan maintenance procedure for evaluating effectiveness.
			Plan maintenance procedure for updating the plan.
			Continue public involvement.
Task 8: Review and adopt the plan.			
			Step 1: Adopt the plan.
			Publicize the plan and solicit feedback from stakeholders and public.
			Submit the plan for State and FEMA review.
			Step 2: Implement the plan recommendations.
			Confirm and clarify responsibilities.
			Begin to integrate mitigation actions.
			Monitor and document implementation.
			Establish indicators of effectiveness.
			Celebrate success.
			Step 3: Evaluate and revise the plan.
			Evaluate the effectiveness of the planning process and strategies.
			Evaluate the effectiveness of actions.
			Determine why the actions worked or did not work.
			Analyze your findings and determine if revision to process/strategy is needed.
			Incorporate your findings into the plan.

Visual 21: Activity 4: Action Item List

Activity

Activity 4: Action Item List

Allotted Time: 10 Minutes

Visual 22: Activity 4: Action Item List

Allotted Time: 10 Minutes

APPENDIX B: ACTION ITEM LIST

How to use the action item list:

Throughout the course, as ideas come to you about improving your community's mitigation efforts, write them on this Action Item List.

At the end of the workshop, circle three items on your action item list that you will commit to doing in the following week. After three weeks of continuing to implement these new ideas, choose three more items on the list to put into practice, and so on, until all the items are completed and new habits are formed.

Following these suggestions is a good way to ensure that the ideas from the course will get implemented. If you try to do everything at once, you will quickly become overwhelmed.

Visual 23: Unit 7: Unit Summary

- Mitigation plan implementation and maintenance
- Analysis of community planning efforts
- Action plan to address deficiencies

Unit Summary

- Briefly review the topics discussed in this unit:
  - Mitigation plan implementation and maintenance
  - Analysis of community planning efforts
  - Action plan to address deficiencies

Unit 8: Post-disaster Mitigation Activity

Visual 1: Unit Overview

Unit 8: Post-disaster Mitigation Activity

Unit Overview

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

The exercise in this unit will provide an opportunity for you to examine the mitigation opportunities and requirements that exist after a disaster occurs.

Visual 2: Learning Objectives

Develop mitigation strategies in a given post-disaster scenario

Learning Objectives

- Review the learning objective for this unit:
  - Develop mitigation strategies in a given post-disaster scenario.

Visual 3: Activity Overview

- Part 1: Background
  - Planning team and processes
- Part 2: Damages and Impacts
  - Policies and problems
- Part 3: Mitigation Strategy
  - Mitigation measures and resources
- Part 4: Reporting Session
  - Presentation

Activity Overview

This exercise will allow you to work with your table group to analyze a scenario and solve for a flooding problem. This exercise will be conducted in the following sections:

- Background
- Damages and Impacts
- Mitigation Strategy
- Reporting Session

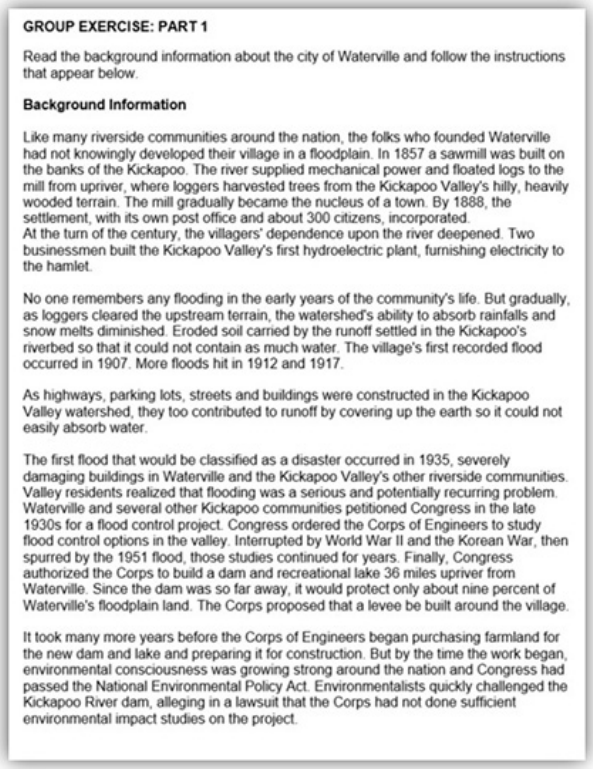
Visual 4: Part 1: Background

Activity

Part 1: Background

Allotted Time: 20 Minutes

Visual 5: Part 1: Background



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.

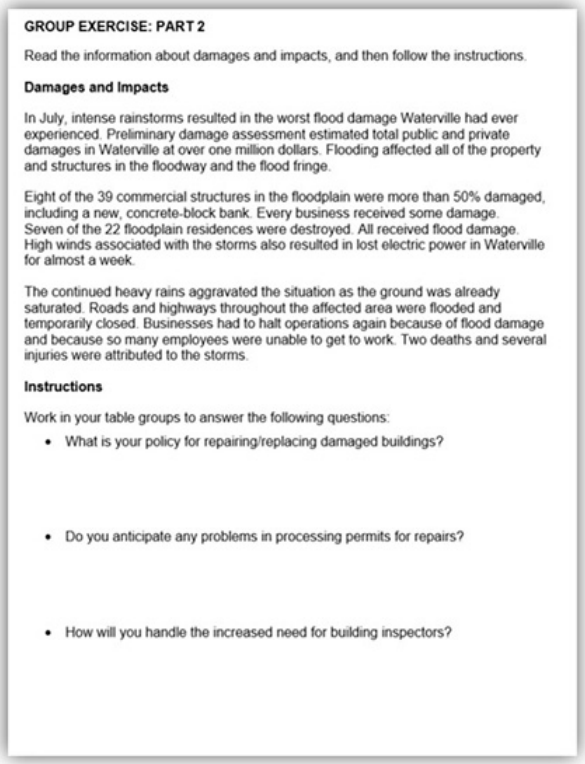
Visual 6: Part Two: Damages and Impacts

Activity

Part Two: Damages and Impacts

Allotted Time: 15 minutes

Visual 7: Part 2: Damages and Impacts



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?

Visual 8: Part Three: Mitigation Strategy

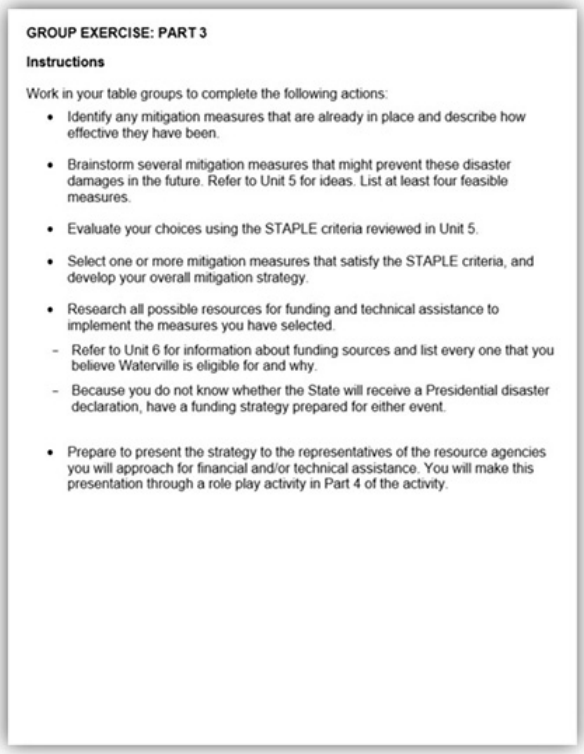
Activity

Part Three: Mitigation Strategy

Allotted Time: 15 Minutes

While the recent flood has been a terrible disaster, it presents mitigation opportunities that were not available prior to the declaration. This is a chance for Waterville to develop and implement a plan for long-term alleviation of its repetitive flooding problems.

Visual 9: Part Three: Mitigation Strategy



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 5 for ideas. List at least four feasible measures.
- Evaluate your choices using the STAPLE criteria reviewed in Unit 5.
- 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 6 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 activity.

Part Three Mitigation Strategy

Refer participants to Appendix E: Types of Mitigation Actions for mitigation strategy ideas.

Visual 10: Part Four: Reporting Session

Activity

Part Four: Reporting Session

Allotted Time: 15 Minutes

Part 4: Reporting Session

The goal of this reporting session is to demonstrate how you would present your mitigation plan to community leaders.

This reporting session will consist of a role-play in which the group spokesperson plays the part of the Waterville emergency 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.

Visual 11: Real-Life Proposed Solution

Levee construction: $3.5 million

Levee maintenance: $10,000/year

Real-Life Proposed Solution

The scenario for this activity was adapted from William S. Becker's case study on Soldiers Grove, Wisconsin, called "Come Rain, Come Shine." (This link can also be accessed at the following URL: http://dnr.wi.gov/topic/floodplains/documents/comeraincomeshine.pdf.)

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

- 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.

For more mitigation case studies, refer to FEMA's Best Practices Portfolio. (This link can also be accessed at the following URL: https://www.fema.gov/mitigation-best-practices-portfolio.)

Visual 12: Problems with Proposed Solution

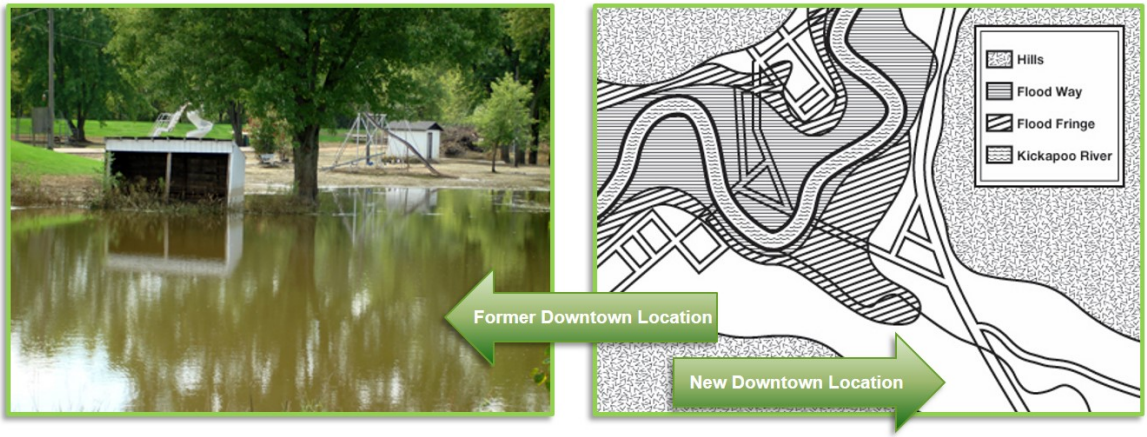
- Property value: >$1 million
- Declining population
- Poor economic conditions

Problems with Proposed Solution

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

Visual 13: Alternative Solution

- Relocate downtown out of floodplain
- Relocate or floodproof homes



Alternative Solution

- 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 through no-interest, deferred-payment loans from the village to homeowners.
- Funding was obtained through a variety of local, state, and federal sources.

The Kickapoo River still floods, as shown in the photo on the slide. However, now there is a park where the downtown

business once stood, so the damages are much less costly.

Visual 14: Solar Village

- Incorporation of solar heating
- Qualification for additional funding
- Tourist attraction

Solar Village

- Due to the growing energy crisis, the village incorporated solar heating in all the new buildings.
- Today, Soldiers Grove uses solar energy to supply at least half of the village's heating needs.
- Solar Village was established and has emerged as a model solar-city that attracts growing attention from communities and curiosity-seekers around the country.

Visual 15: 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

Unit Summary

- Briefly review the topics discussed in this unit:
  - Organizing a planning team
  - Anticipating post-disaster problems
  - Proposing mitigation measures
  - Evaluating actions with STAPLE criteria
  - Identifying funding and technical resources

Unit 9: Moving Forward with Mitigation

Visual 1: Unit Overview

Unit 9: Moving Forward with Mitigation

Unit Overview

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.

Visual 2: Learning Objective

Identify solutions to overcome common challenges to achieving mitigation goals.

Learning Objectives

- Review the learning objective for this unit:
  - Identify solutions to overcome common challenges to achieving mitigation goals.

Visual 3: Creating a Safe and Resilient Community (1 of 3)

What may be some challenges to achieving mitigation goals?

Visual 4: Creating a Safe and Resilient Community (2 of 3)

Approaches to consider:

- Use the post-disaster window of opportunity
- Focus on quality over quantity
- Develop strong messaging
- Encourage local champions
- Identify a mentor

Creating a Safe and Resilient Community (2 of 3)

Some approaches to consider to continue mitigation efforts to create a safe and resilient community include:

- Use the post-disaster window of opportunity
- Focus on quality over quantity
- Develop strong messaging
- Encourage local champions
- Identify a mentor

Visual 5: Creating a Safe and Resilient Community (3 of 3)

- Funding and assistance
  - Local funding and private property owners
  - State funding and assistance
  - FEMA mitigation grant programs and technical assistance
  - Assistance from other Federal agencies

Creating a Safe and Resilient Community (3 of 3)

When faced with financial challenges, consider the following:

- Local funding and private property owners
- State funding and assistance
- FEMA mitigation grant programs & technical assistance
- Assistance from other Federal agencies

Visual 6: Unit Summary

Ways to overcome common challenges

Visual 7: Activity 1: Review of Course Objectives

Activity

Activity 1: Review of Course Objectives

Allotted Time: 20 Minutes

Activity 1: Review of Course Objectives

(20 minutes)

Let's review the objectives of this course.

Visual 8: Review of Course Objectives -- Unit 2

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

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

Review of Course Objectives -- Unit 2

- Analyze reasons for differences between optimal and actual mitigation roles of the emergency manager.
    - 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?

Visual 9: Review of Course Objectives -- Unit 2 (Con't)

Discussion Question

Review of Course Objectives -- Unit 2 (Con't)

Why is the actual mitigation role of the emergency program manager different from the optimal role?

Visual 10: Unit 3 Objective Review

Determine strategies to build support for mitigation in your community

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

Visual 11: Review of Course Objectives -- Unit 3 (Con't)

Discussion Question

Review of Course Objectives -- Unit 3 (Con't)

Who are some of your community's potential stakeholders in mitigation?

Visual 12: Review of Course Objectives -- Unit 4

Analyze hazard risks for a given scenario

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

Visual 13: Review of Course Objectives -- Unit 4 (Con't)

Discussion Question

Review of Course Objectives -- Unit 4 (Con't)

What are the steps in the risk assessment process?

Visual 14: Review of Course Objectives -- Unit 5

Develop a mitigation plan implementation strategy for a given scenario

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

Review of Course Objectives -- Unit 5

- Develop a mitigation plan implementation strategy for a given scenario.
  - 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?

Visual 15: Review of Course Objectives -- Unit 5 (Con't)

Discussion Question

Review of Course Objectives -- Unit 5 (Con't)

What are the STAPLE criteria for screening mitigation planning decisions?

Visual 16: Review of Course Objectives -- Unit 6

Develop a proposal for obtaining financial aid and technical resources needed to carry out a mitigation strategy for a given scenario

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

Review of Course Objectives -- Unit 6

- Develop a proposal for obtaining financial aid and technical resources needed to carry out a mitigation strategy for a given scenario.
  - 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?

Visual 17: Review of Course Objectives -- Unit 6 (Con't)

What are the responsibilities of each level of government in accomplishing mitigation?

Visual 18: Review of Course Objectives -- Unit 7

Evaluate the effectiveness of a community's mitigation planning efforts

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

Review of Course Objectives -- Unit 7

- Evaluate the effectiveness of a community's mitigation planning efforts.
  - 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?

Visual 19: Review of Course Objectives -- Unit 7 (Con't)

Discussion Question

Review of Course Objectives -- Unit 7 (Con't)

How would you address deficiencies in your community's mitigation plan?

Visual 20: Review of Course Objectives -- Unit 8 and 9

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?

Visual 21: Review of Course Objectives -- Unit 8 and 9 (Con't)

Discussion Question

Review of Course Objectives -- Unit 8 and 9 (Con't)

What solutions do you now have for overcoming the obstacles to successful mitigation in your community?

Visual 22: Course Wrap-Up

- Final exam
- Couse evaluation forms
- Distribution of certificates

Student Manual

Course Wrap-Up

Instructor will distribute final exam, course evaluation forms, and certificates.

Handouts: Reference Materials -

Action Item List

How to use the action item list:

Throughout the course, as ideas come to you about improving your community's mitigation efforts, write them on this Action Item List.

At the end of the workshop, circle three items on your action item list that you will commit to doing in the following week. After three weeks of continuing to implement these new ideas, choose three more items on the list to put into practice, and so on, until all the items are completed and new habits are formed.

Following these suggestions is a good way to ensure that the ideas from the course will get implemented. If you try to do everything at once, you will quickly become overwhelmed.

Appendix C: Capabilities Assessment Worksheet

Jurisdiction: _____

Local mitigation capabilities are existing authorities, policies, programs, and resources that reduce hazard impacts or that could be used to implement hazard mitigation activities. Please complete the tables and questions in the worksheet as completely as possible. Complete one worksheet for each jurisdiction.

Planning and Regulatory

Planning and regulatory capabilities are the plans, policies, codes, and ordinances that prevent and reduce the impacts of hazards. Please indicate which of the following your jurisdiction has in place.

Plans	Yes/No Year	Does the plan address hazards? Does the plan identify projects to include in the mitigation strategy? Can the plan be used to implement mitigation actions?
Comprehensive/Master Plan		
Capital Improvements Plan		
Economic Development Plan		
Local Emergency Operations Plan		
Continuity of Operations Plan		
Transportation Plan		
Stormwater Management Plan		
Community Wildfire		

Plans	Yes/No Year	Does the plan address hazards? Does the plan identify projects to include in the mitigation strategy? Can the plan be used to implement mitigation actions?
Protection Plan		
Other special plans (e.g., brownfields redevelopment, disaster recovery, coastal zone management, climate change adaption)		
Building Code, Permitting and Inspections	**Yes/No**	**Are codes adequately enforced?**
Building Code		Version/Year:
Building Code Effectiveness Grading Schedule (BCEGS) Score		Score:
Fire department ISO rating		Rating:
Site plan review requirements		
Land Use Planning and Ordinances	**Yes/No**	**Is the ordinance an effective measure for reducing hazard impacts?** **Is the ordinance adequately administered and enforced?**
Zoning ordinance		
Subdivision ordinance		

Plans	Yes/No Year	Does the plan address hazards? Does the plan identify projects to include in the mitigation strategy? Can the plan be used to implement mitigation actions?
Floodplain ordinance		
Natural hazard specific ordinance (stormwater, steep slope, wildfire)		
Flood insurance rate maps		
Acquisition of land for open space and public recreation uses		
Other		

How can these capabilities be expanded and improved to reduce risk?

Appendix D: Technical and Financial Mitigation Resources

Local Resources
➢ Donation (land and/or money) ➢ Public/private land swap ➢ Volunteer organizations • American Red Cross • Salvation Army • Habitat for Humanity • Mennonite Disaster Service • Lions, Elks, and VFW ➢ Community Colleges ➢ Renewable resources such as a surcharge on a utility bill ➢ Tax credits ➢ Planning group ➢ Environmental groups ➢ Local grants department ➢ Building code officials ➢ Zoning officials/community development agency ➢ Water & sewer authority ➢ Technical (GIS, etc.) ➢ Other community interests groups ➢ Road/bridge ➢ Public works/utilities ➢ Local airports

Local Resources
Other

Private Sector Resources
➢ Private land swap ➢ Private-public partnerships ➢ Private engineering firms ➢ Corporate funding ➢ Architects and engineers ➢ Developers ➢ Colleges & Universities ➢ Private or foundation funding ➢ Insurance programs ➢ Professional associations • Association of State Floodplain Managers • American Institute of Architects • American Planning Association • American Society of Civil Engineers • Association of Contingency Planners • Association of State Dam Safety Officials • Building Seismic Safety Council
Other

State Resources
➢ Universities and research institutes ➢ Coastal zone management office ➢ Emergency management agency and/or State Hazard Mitigation Officer ➢ State historic preservation office ➢ Flood hazard management office ➢ Dam safety office ➢ Natural resources office ➢ Environmental protection office ➢ Housing and community development office ➢ Public safety office ➢ Building regulations and standards office ➢ Transportation and construction office ➢ Highway department ➢ State fire marshal ➢ Geological survey offices
Other

Federal Resources	
National Flood Insurance Program	Provides the availability of flood insurance in exchange for the adoption and enforcement of a minimum local floodplain management ordinance that regulates new and substantially damaged or improved development in identified flood areas. Contact your State NFIP coordinator or FEMA Regional Office for more information.
Community Rating System (CRS)	The Community Rating System (CRS) provides incentive for communities to do more than just regulate construction of new buildings to minimum NFIP standards. Under the CRS, flood insurance premiums are reduced when enrolled communities: ➢ Reduce flood damages to existing buildings. ➢ Manage development in areas not mapped by the NFIP. ➢ Protect new buildings beyond the minimum NFIP protection level. ➢ Help people obtain flood insurance. Contact your State NFIP coordinator or FEMA Regional Office for more information.
Community Assistance Program – State Support Services Element (CAP-SSE)	The Community Assistance Program provides funding to states to provide technical assistance to communities in the National Flood Insurance Program (NFIP) and to evaluate community performance in implementing NFIP floodplain management activities. Contact the CAP-SSE program Manager at the State emergency management agency or the FEMA Regional office for more information.
Hazard Mitigation Assistance (HMA)	FEMA's Hazard Mitigation Assistance (HMA) grant programs (shown below) provide funding for eligible mitigation activities that reduce disaster losses and protect life and property from future disaster damages.

Federal Resources	
Hazard Mitigation Grant Program (HMGP)	Authorized under Section 404 of the Stafford Act, the Hazard Mitigation Grant Program (HMGP) provides grants to States and local governments to implement long-term hazard mitigation measures after a major disaster declaration. The purpose of the HMGP is to reduce the loss of life and property due to natural disasters and to enable mitigation measures to be implemented during the immediate recovery from a disaster.
Pre-Disaster Mitigation (PDM)	The Pre-Disaster Mitigation (PDM) program provides funds to states, territories, Indian tribal governments, communities, and universities for hazard mitigation planning and the implementation of mitigation projects prior to a disaster event.
Flood Mitigation Assistance (FMA)	The Flood Mitigation Assistance (FMA) program was created as part of the National Flood Insurance Reform Act (NFIRA) of 1994 (42 U.S.C. 4101) with the goal of reducing or eliminating claims under the National Flood Insurance Program (NFIP).
Repetitive Flood Claims (RFC)	The Repetitive Flood Claims (RFC) grant program was authorized by the Bunning-Bereuter-Blumenauer Flood Insurance Reform Act of 2004 (P.L. 108–264), which amended the National Flood Insurance Act (NFIA) of 1968 (42 U.S.C. 4001, et al). Up to $10 million is available annually for FEMA to provide RFC funds to assist States and communities reduce flood damages to insured properties that have had one or more claims to the NFIP.
Severe Repetitive Loss (SRL)	The Severe Repetitive Loss (SRL) grant program was authorized by the Bunning-Bereuter-Blumenauer Flood Insurance Reform Act of 2004, which amended the National Flood Insurance Act of 1968 to provide funding to reduce or eliminate the long-term risk of flood damage to severe repetitive loss (SRL) structures insured under the NFIP.

Federal Resources	
National Earthquake Hazards Reduction Program (NEHRP)	The National Earthquake Hazards Reduction Program (NEHRP) is intended to mitigate earthquake losses through: ➢ Development and implementation of seismic design and construction standards and techniques ➢ Technical assistance materials ➢ Education and risk reduction programs ➢ Centers addressing specific aspects of the earthquake problem ➢ Dissemination of earthquake information Contact the Earthquake Program Manager at the State Emergency Management Agency or your FEMA Regional Office for more information.
Dam Safety Program	More than 95 percent of nation's dams are non-Federal and the responsibility of the State or private owners. The objectives of this program include: ➢ Establishing effective dam safety programs in every state ➢ Developing public awareness programs ➢ Producing needed technical assistance materials Contact the Dam Safety Program Manager at the State Emergency Management Agency or your FEMA Regional Office for more information.
Emergency Management Performance Grant (EMPG) Program	The Emergency Management Performance Grant (EMPG) Program provides resources to assist State and local governments to sustain and enhance all-hazards emergency management capabilities. States have the opportunity to use EMPG funds to further strengthen their ability to support emergency management activities while simultaneously addressing issues of national concern as identified in the National Priorities of the National Preparedness Guidelines. EMPG has a 50 percent Federal and 50 percent State cost-share cash or in-kind match requirement.

Federal Resources	
Public Assistance (PA) Program	Authorized under Section 406 of the Stafford Act, the Public Assistance (PA) Program funds hazard mitigation projects after a presidential disaster declaration. Application of these 406 funds is limited to public facilities damaged within a federally declared disaster area. Repairs may be upgraded to incorporate hazard mitigation measures, if these are cost-effective or required by building codes. Such improvements can be identified by FEMA, the state, or the local applicant. The PA Program can be used for structural measures only and does not apply to buyouts.
U.S. Army Corps of Engineers (USACE) Flood Plain Management Services (FPMS) Program	Authorized under Section 206 of the Flood Control Act of 1960 (as amended), the Flood Plain Management Services (FPMS) Program encourages prudent use of the nation's flood plains for the benefit of the national economy and general welfare by supporting comprehensive flood plain management planning at all appropriate governmental levels. USACE provides flood plain information and technical assistance to state, regional, and local governments, Native American tribes, and other non-federal public agencies without charge. Contract your District Engineer for more information.
National Weather Service (NWS)	Prepares and issues flood, severe weather, and coastal storm warnings. Can provide technical assistance in preparing weather and flood warning plans. Contact your regional NWS office or center for more information.
Economic Development Administration (EDA)	EDA is an agency within the U.S. Department of Commerce that partners with distressed communities throughout the United States to foster job creation, collaboration and innovation. EDA provides communities with technical assistance for economic development planning. Contact your regional Department of Commerce office for more information.

Federal Resources	
Community Development Block Grants (CDBG)	Sponsored by the Department of Housing and Urban Development (HUD), the objective of the Community Development Block Grant (CDBG) is to develop viable urban communities by providing decent housing and a suitable living environment and by expanding economic opportunities, principally for low to moderate-income people. Disaster-related assistance is eligible under this program; mitigation activities have been funded. Contact your HUD field office for more information.
HOME Investment Partnerships Program	Sponsored by HUD, HOME provides formula grants to States and localities that communities use – often in partnership with local nonprofit groups – to fund a wide range of activities that build, buy, and/or rehabilitate affordable housing for rent or homeownership or provide direct rental assistance to low-income people. Contact your HUD field office for more information.
Small Business Administration (SBA)	The Small Business Administration (SBA) provides low interest disaster loans to homeowners, renters, businesses of all sizes and private, non-profit organizations to repair or replace real estate, personal property, machinery & equipment, inventory and business assets that have been damaged or destroyed in a declared disaster. Contact your regional SBA office for more information.

Appendix E: Types of Mitigation Actions

For more information on the National Weather Service's StormReady, see http://www.stormready.noaa.gov/

For more information on the Firewise Communities program, see http://www.firewise.org/

Mitigation Types	Description	Examples
Local Plans and Regulations	These actions include government authorities, policies, or codes that influence the way land and buildings are developed and built	• Comprehensive plans • Land use ordinances • Subdivision regulations • Development review • Building code and enforcement • NFIP Community Rating System • Capital improvement programs • Open space preservation • Stormwater management regulations and master plans
Structure and Infrastructure Projects	These actions involve modifying existing structures and infrastructure to protect them from a hazard or remove them from a hazard area. This could apply to public or private structures as well as critical facilities and infrastructure. This type of actions also involves projects to construct manmade structures to reduce the impact of hazards.	• Acquisitions and elevations of structures in flood prone areas • Utility undergrounding • Structural retrofits • Floodwalls and retaining walls • Detention and retention structures • Culverts • Safe rooms

Mitigation Types	Description	Examples
	Many of these types of actions are projects eligible for funding through the FEMA Hazard Mitigation Assistance program. Task 9 - Create a Safe and Resilient Community provides more information on these programs.	
Natural Systems Protection	These are actions that minimize damage and losses and also preserve or restore the functions of natural systems	• Sediment and erosion control • Stream corridor restoration • Forest management • Conservation easements • Wetland restoration and preservation
Education and Awareness Programs	These are actions to inform and educate citizens, elected officials, and property owners and hazards and potential ways to mitigate them. These actions may also include participation in national programs, such as storm Ready or Firewise Communities. Although this type of mitigation reduces risk less directly than structural projects or regulation, it is an important foundation. A greater understanding and awareness of hazards and risk among local officials, stakeholders, and the public is more likely to lead	• Radio or television spots • Websites with maps and information • Real estate disclosure\ • Presentations to school groups or neighborhood organizations • Mailings to residents in hazard-prone areas • StormReady • Firewise Community

Mitigation Types	Description	Examples
	to direct actions.	

Appendix F: Handouts

This sections includes any handouts that will be distributed to participants.

- Exercise Summary

Handout: Exercise Summary

Soldiers Grove, Wisconsin

Shortly after the village of Soldiers Grove, Wisconsin, passed its floodplain zoning ordinance, the Army Corps of Engineers came to town to present the details of its long-awaited levee plan. The Corps reported the levee would cost $3.5 million (in 1975 dollars). The village would have to pay $220,000 toward construction. Further, the community would be responsible for maintaining the structure over its 100-year life, at a cost of about $10,000 annually (not accounting for inflation).

There were several problems with the plan. First, growing opposition to the dam made it possible that the dam and therefore the levee too, would never be built. Second, Soldiers Grove's entire tax levy amounted to only $14,000 a year. It would have to be nearly doubled to pay for levee maintenance. Third, the last assessment of the village's floodplain property had placed its value at less than $1 million. It made little sense to spend $3.5 million to protect less than $1 million worth of property.

Finally, it occurred to the villagers that the large investment in a levee might end flooding, but it would not solve the community's other serious problems. The Soldiers Grove population had peaked in 1940 at 778. Since then, the population and the economy had been on the decline. The nationwide drain of money and people from rural to urban areas was part of the problem. Flooding was another.

By 1975, these factors helped create a local economy in which 36 percent of the village's families earned less than $3,000 a year. Waterville had become a community largely of elderly and low-income people. A levee, for all its cost, would do little to change that. As one business owner put it, "A levee would turn us from a dying town subject to flooding into a dying town protected from flooding."

The federal government had handed the community two choices: do nothing, and let floodplain zoning and the Kickapoo River take their toll; or build an expensive levee not worth its cost. Unsatisfied with either, the villagers applied common sense and their own perspective to the problem. They invented a third choice. Why not ask the Corps of Engineers to consider a more sensible approach: a coordinated relocation of the downtown to higher ground?

Post-disaster Events

After the devastating July flood, the village decided to relocate all of its businesses to the farm field straddling U.S. Highway 61, bought by the municipality originally to house an industrial park. The site originally identified for the retail businesses, near the Kickapoo River, required substantial earthmoving, and thus delay. The "industrial" site,

meanwhile, would require relatively little preparation, being already owned by the village and having sewer and water extensions under contract.

The final plan called for retail businesses to be placed on the side of U.S. 61 closest to the residential neighborhoods, and the village's industrial businesses to be located across the highway.

The owners of the 12 homes on the floodplain fringe along Pine Street decided they would rather floodproof than relocate their homes. Estimates showed the cost would be comparable. The remaining 10 floodplain residences in the old business district presented little problem. Some were mobile homes that could be easily moved. In other cases, owners could purchase existing vacant homes in the village's non-floodplain neighborhoods. Additional housing would be provided in rental units above some of the businesses, and in the new elderly housing project.

Funding Sources

State/Local:

- Regional Planning Commission – feasibility study.
- State Planning Office – social/environmental study.
- Dept. of Local Affairs and Development – implementation study.
- Local business owners – implementation study.
- General obligation borrowing by village – site purchase.
- Dept. of Natural Resources – public water works.
- Governor's discretionary fund – sewer/water.
- Village borrowing – water works, sewer works, community facilities.

Federal:

- Housing and Urban Development (CDBG) – acquisition and relocation
- Community Services Administration - administration
- Economic Development Administration – acquisition and relocation.
- Department of Interior - Parkland Acquisition

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

The information in this handout 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)

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.

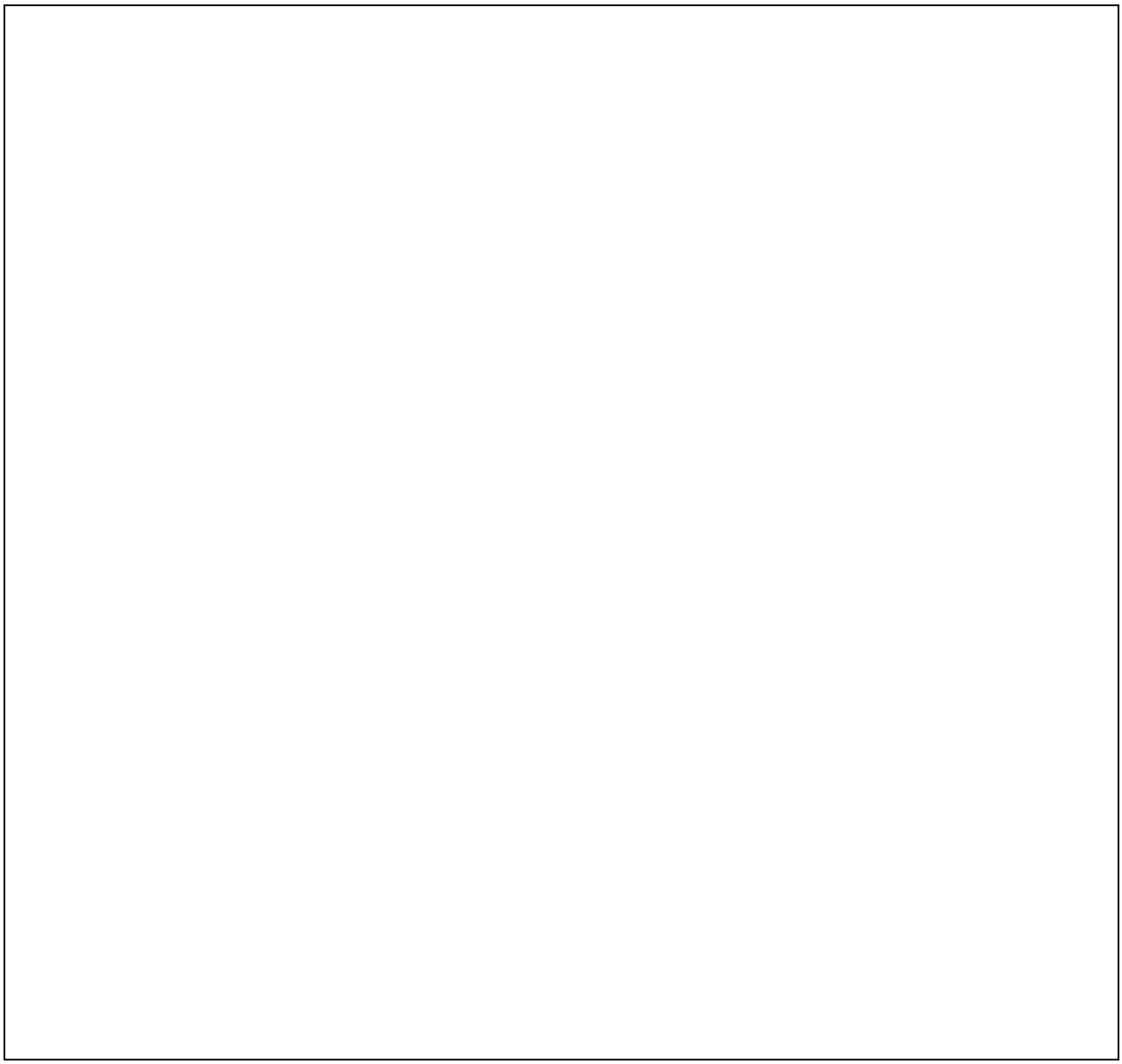
1	**2**	**3**
Ways *you* encourage and participate in mitigation activities within your jurisdiction	Ways *others* encourage and participate in mitigation activities within their jurisdictions	Mitigation activities you would like to accomplish in your community

1 Ways *you* encourage and participate in mitigation activities within your jurisdiction	**2** Ways *others* encourage and participate in mitigation activities within their jurisdictions	**3** Mitigation activities you would like to accomplish in your community

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

Components Necessary for a Disaster-resistant Community



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 *may* 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: _____		

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%
- ❑ **Critica**l: 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:

Risk Index Worksheet

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.

Risk Index Worksheet

Hazard	Frequency	Magnitude	Warning Time	Severity	Special Characteristics and Planning Considerations	Risk Priority
	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	Catastrophic Critical Limited	Minimal 6-12 Hours	Catastrophic Critical Limited		

	Possible Unlikely	Negligible	12-24 Hours 24+ Hours	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		

Severity Ratings Table

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

Severity Level	Characteristics
Catastrophic	Multiple deaths Complete shutdown of facilities for 30 days or more More than 50 percent of property is severely damaged
Critical	Injuries and/or illnesses result in permanent disability Complete shutdown of critical facilities for at least 2 weeks More than 25 percent of property is severely damaged
Limited	Injuries and/or illnesses do not result in permanent disability Complete shutdown of critical facilities for more than 1 week More than 10 percent of property is severely damaged
Negligible	Injuries and/or illnesses are treatable with first aid Minimal quality-of-life impact Shutdown of critical facilities and services for 24 hours or less Less than 10 percent of property is severely damaged

Identifying Your Community Assets

As directed, by your instructor, work individually or with a partner or group to identify your community's assets.

People	Areas of greater population density
People	Types of visiting populations (students, second home owners, migrant farm workers, and visitors for special events) and their likely locations:
People	Locations/concentrations of access and functional needs populations (children, the elderly, the physically or mentally disabled, non-English speakers, or medically/chemically dependent, etc.:
Economy	Major employers, primary economic sectors, and commercial centers:
Built Environment	Types of existing buildings (commercial, industrial, single/multi-family residential, etc.):
Built Environment	Infrastructures (transportation, power, communication, water and waster water systems), their locations, construction standards, age, and life expectancy:
Built Environment	Critical facilities (hospitals, police and fire stations, schools, airports, etc.), their locations, construction standards, age, and life expectancy:
Built Environment	Cultural resources (museums, unique geological sites, concert halls, parks, stadiums, etc.):
Built Environment	Location, numbers, and types of structures of planned new developments or redevelopments:

People	Areas of greater population density
Natural Environment	Most valuable natural habitat

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)

from FEMA's Mitigation Planning How-To Guide # 2 (FEMA 386-2), Understanding Your Risks: Identifying Hazards and Estimating Losses, Estimate Losses - Chapter / Section Number: Step 4. (This link can also be accessed at the following URL: https://www.fema.gov/media-library-data/20130726-1521-20490-0063/4howto2step4.pdf.)

Building Damage Ratio (%) -- Wood Frame Construction

PGA (g)	High	Moderate	Low	Precode
0.55	11.6	16.1	30.6	36.8
0.50	10.2	14.0	26.0	31.7
0.45	8.7	11.6	21.1	27.1
0.40	6.1	7.6	13.1	16.7
0.35	4.4	6.3	10.1	12.8
0.30	2.9	3.9	7.2	9.4
0.25	2.3	3.2	4.6	6.1
0.20	1.3	1.7	2.8	3.3
0.15	0.7	1.0	1.3	1.8
0.10	0.3	0.4	0.6	0.7
0.07	0.1	0.2	0.3	0.4

PGA (g)	High	Moderate	Low	Precode
0.05	0.0	0.0	0.1	0.1
0.03	0.0	0.0	0.0	0.0

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

Building Damage Ration (%) -- Reinforced Masonry

PGA (g)	High	Moderate	Low	Precode
0.55	11.5	27.7	43.9	53.1
0.50	9.6	22.8	36.6	46.1
0.45	8.3	19.7	31.7	40.8
0.40	6.1	12.1	18.6	25.1
0.35	4.9	8.8	15.2	20.8
0.30	3.5	6.1	11.4	16.3
0.25	2.4	3.9	8.7	12.4
0.20	1.3	2.5	6.1	9.0
0.15	0.4	1.5	2.4	4.1
0.10	0.3	0.5	0.8	1.1
0.07	0.1	0.2	0.4	0.5
0.05	0.0	0.1	0.1	0.2
0.03	0.0	0.0	0.0	0.1

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

Building Damage Ration (%) -- Unreinforced Masonry

PGA (g)	Low	Precode
0.55	45.0	55.6
0.50	38.5	46.8
0.45	34.0	41.2
0.40	22.8	28.1
0.35	18.9	23.8
0.30	15.4	19.7
0.25	10.2	14.9
0.20	6.5	9.4
0.15	3.0	4.3
0.10	1.3	2.0
0.07	0.6	1.0
0.05	0.2	0.5
0.03	0.1	0.2

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

Loss of Function (# of Days) -- Wood Frame Construction

PGA (g)	High	Moderate	Low	Precode

PGA (g)	High	Moderate	Low	Precode
0.55	40	79	195	283
0.50	31	69	159	241
0.45	23	51	119	201
0.40	14	27	68	111
0.35	9	23	47	80
0.30	4	10	30	55
0.25	3	8	17	34
0.20	2	3	9	15
0.15	1	2	3	8
0.10	0	1	1	3
0.07	0	0	1	1
0.05	0	0	0	1
0.03	0	0	0	0

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

Loss of Function (# of Days) -- Reinforced Masonry

PGA (g)	High	Moderate	Low	Precode
0.55	61	246	430	542
0.50	51	198	365	484

PGA (g)	High	Moderate	Low	Precode
0.45	44	169	318	439
0.40	24	95	184	276
0.35	18	67	153	236
0.30	14	46	117	189
0.25	9	26	91	150
0.20	4	16	58	106
0.15	1	8	24	51
0.10	1	2	7	14
0.07	0	1	2	7
0.05	0	0	1	1
0.03	0	0	0	1

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

Loss of Function (# of Days) -- Unreinforced Masonry

PGA (g)	Low	Precode
0.55	459	549
0.50	399	500
0.45	356	457
0.40	238	326

PGA (g)	Low	Precode
0.35	201	281
0.30	161	239
0.25	104	185
0.20	64	114
0.15	26	49
0.10	10	27
0.07	6	12
0.05	1	7
0.03	1	1

Summarize Vulnerability

Develop a list of problem statements based on these findings and record the problem statements on your group's flipchart.

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.

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

Developing 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.

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.

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.

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?

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.

Unit 5: The Staple Criteria -

THE STAPLE CRITERIA
SOCIAL
➢ Will the action be socially acceptable to the community? ➢ Will it cause any one segment of the population to be treated unfairly? ➢ Will the action disrupt established neighborhoods, break up voting districts or cause the relocation of low and reduced income people? ➢ Is the action compatible with present and future community values?
TECHNICAL
➢ What consequences are created by this approach? ➢ Most importantly, will it solve the problem? ➢ In light of other community goals, is it the most useful?
ADMINISTRATIVE
➢ Does the community have the capability to implement the action? ➢ Can the community provide any maintenance necessary? ➢ Are staff, technical experts, and funding sufficient? ➢ Can it be accomplished in a timely manner?
POLITICAL
➢ Have all of the stakeholders been offered an opportunity to participate in the planning process? ➢ How can the mitigation goals be accomplished at the lowest cost to the stakeholders? ➢ Is there public support both to implement and maintain this measure? ➢ Is the political leadership willing to propose and support the favored measure?
LEGAL
➢ Does the community have the authority to implement the proposed measure? ➢ Is there a clear legal basis for the mitigation action? ➢ Is enabling legislation necessary? ➢ What are the legal ramifications? ➢ Will the community be liable for the actions or support of actions, or lack of action? ➢ Is it likely to be challenged?

ECONOMIC
➢ What are the costs and benefits of this measure? ➢ How will the implementation of this measure affect the fiscal capability of the community? ➢ What burden will be placed on the tax base or local economy? ➢ Does the action contribute to other community economic goals such as capital improvements or economic development?
ENVIRONMENTAL
➢ How will this action affect the environment? ➢ Will this measure comply with local, State, and Federal environmental regulations? ➢ Is the action consistent with community environmental goals?

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.

Group Activity: Selecting Mitigation Resources for Quakeville

- 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.

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**
			Task 1: Determine the planning area and resources
			Establish the planning area, keeping existing partnerships and planning efforts in mind.
			Task 2: Build the planning team.
			Create the planning team.
			Obtain official recognition for the planning team.
			Organize the team.
			Task 3: Create an outreach strategy.
			Identify stakeholders and public.
			Organize public participation.

Phase 2: Assess Risks

ND	NU	S	**Action Items**
			Task 4: Review community capabilities
			Identify capabilities that currently reduce disaster losses or could be used to reduce losses in the future.
			Identify capabilities that inadvertently increase risks in the community.
			Task 5: Conduct a risk assessment
			Step 1: Describe hazards.

			Step 2: Identify community assets.
			Step 3: Analyze Risk.
			Step 4: Summarize vulnerability

Phase 3: Develop the Mitigation Plan

ND	NU	S	**Action Items**
			Task 6: Develop a mitigation strategy
			Step 1: Develop hazard mitigation goals.
			Review results of hazard analysis.
			Formulate goals.
			Get public input.
			Step 2: Identify and prioritize mitigation actions.
			Identify alternative mitigation actions.
			Review and analyze state and local mitigation capabilities.
			Evaluate, select, and prioritize mitigation actions.
			Step 3: Prepare an implementation strategy.
			Identify how the mitigation actions will be implemented.
			Document the implementation strategy.
			Obtain the consensus of the planning team.
			Step 4: Document the mitigation planning process.
			Make decisions about the style of the document.
			Write the plan.
			Review the 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

Phase 4: Implement the Plan and Monitor Progress

ND	NU	S	Action Items
			Task 7: Keep the plan current
			Plan maintenance procedure for monitoring implementation.
			Plan maintenance procedure for evaluating effectiveness.
			Plan maintenance procedure for updating the plan.
			Continue public involvement.
			Task 8: Review and adopt the plan
			Step 1: Adopt the plan.
			Publicize the plan and solicit feedback from stakeholders and public.
			Submit the plan for State and FEMA review.
			Step 2: Implement the plan recommendations.
			Confirm and clarify responsibilities.
			Begin to integrate mitigation actions.
			Monitor and document implementation.
			Establish indicators of effectiveness.
			Celebrate success.
			Step 3: Evaluate and revise the plan.
			Evaluate the effectiveness of the planning process and strategies.
			Evaluate the effectiveness of actions.
			Determine why the actions worked or did not work.
			Analyze your findings and determine if revision to process/strategy is needed.

			Incorporate your findings into the plan.

Group Activity Part 1: Background (page 1 of 2)

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.”

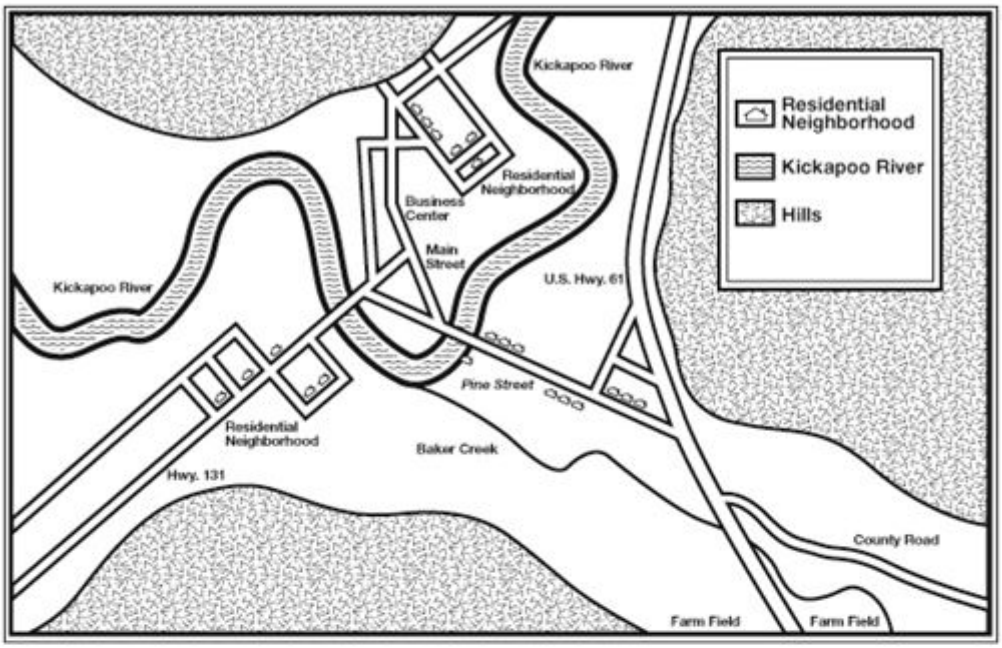
Group Activity Part 1: Background (page 2 of 2)

Map of Waterville and Waterville Floodplain Map

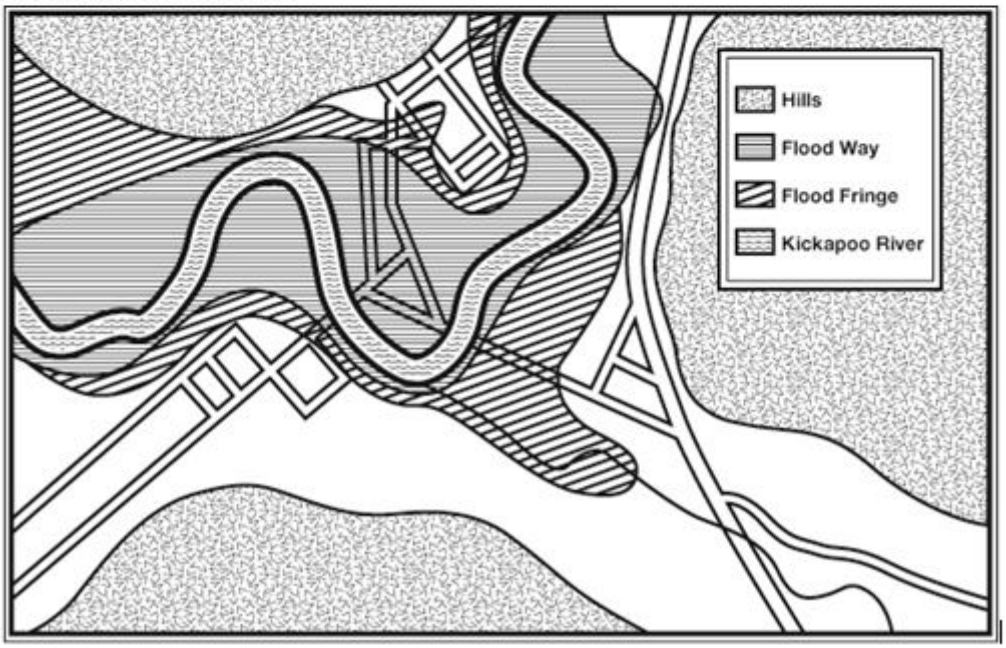
Map of Waterville: Graphic of map showing commercial and residential areas along the Kickapoo River

Waterville Floodplain: Graphic of a map showing the flood way and flood fringe along the Kickapoo River. When compared with the map showing residential and commercial areas, it is clear that the primary business district and several residential neighborhoods are in danger of repetitive flooding.

Map of Waterville



Waterville Floodplain Map



Group Activity Part 1: Part Two: Damages and Impacts

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 Activity: Part 3: Mitigation Strategy

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 activity.