



Appendix S Reducing Community Risks and Vulnerabilities

A Guide For Developing County And Local Hazard Mitigation Initiatives

Note: This section is retained from the 2005 and 2008 State Hazard Mitigation Plans. It provides a brief description of the development of an All Hazards Plan. For more detailed information see the FEMA How to Guides Series 386 volumes 1 through 4. These planning guides can be downloaded from the FEMA Informational Resources Library or ordered by phone from FEMA publications at 1 (800) 480-2520.

S.1 Introduction and Overview

As part of an ongoing effort of the State Hazard Mitigation Team, this document was developed to assist county and local officials in beginning a local hazard mitigation initiative. It was also designed to simplify local participation in the statewide hazard mitigation planning process. The State Hazard Mitigation Team has the responsibility to oversee the State's hazard mitigation program including reviewing and making recommendations on all local government mitigation proposals.

Effective planning is a cornerstone of solving the problems associated with a community's identified hazards. Jurisdictions that have strong mitigation program initiatives will be in a much better position in the future to secure Flood Mitigation Assistance Grant and post-disaster Hazard Mitigation Grant support.

This guide takes a methodical approach to mitigation, focusing upon the balance provided by a local team made up of elected officials, agency representatives, business people and interested citizens. The local team will be able to establish and rank mitigation goals and objectives. The Team should develop a local hazard mitigation plan which incorporates the requirements of the National Flood Insurance Program. By developing an all hazards mitigation plan, the jurisdiction can become proactive in risk-reduction, rather than having to plan and implement mitigation measures during the stressful post-disaster recovery period.

S.2 What is Emergency Management?

Emergency Management is the process of planning and preparing for, responding to and mitigating the potential impacts of emergencies. Emergency management agencies plan for a wide range of possible disaster situations. Natural disasters include events such as hurricanes, fires, tornadoes, floods, droughts, earthquakes and winter storms. Man made disaster situations include natural gas explosions, acts of terrorism, transportation accidents and fires.

Disasters are traumatic events which can require decisions with little time for research and fact finding. Emergency management coordinators develop policies and procedures to follow when making and implementing critical decisions. In addition, an emergency management coordinator often has the task of coordinating post disaster recovery operations. Jurisdictions must develop plans, policies and procedures to deal with decision making during each of the four phases of emergency management. The four phases of emergency management are: preparedness, response, recovery, and mitigation.



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PREPAREDNESS	A jurisdiction's emergency operations plan delegates functions and responsibilities to specific response groups and insures that those people understand their respective responsibilities. The activities of the fire, police, emergency medical services, and agencies like the American Red Cross are coordinated so they all work together. Plans typically include such items as the response activities of the emergency services, evacuation and sheltering of citizens, communications and overall coordination of operations.
RESPONSE	The response phase of emergency management is when governmental agencies and their private sector counterparts work to meet the immediate needs of victims. This includes not only the initial response, but also such things as counseling services, meeting basic needs such as food and shelter, and ensuring the safety of everyone involved.
RECOVERY	The purpose of the recovery process is to restore affected communities to normal operations. This process can be time consuming or it can be very short, depending on the severity of the disaster. Helping the public recover from disasters can include initial disaster assessments to obtain aid from the government as grants and loans, or aid from humanitarian organizations which are also integrated into the response phase.
MITIGATION	Hazard mitigation can be defined as any actions, programs, or policies intended to reduce or eliminate the risk or vulnerability to natural or technological hazards. Mitigation initiatives can be structural and non-structural in nature, or can exist as plans, programs, or legislation.

S.3 Why Mitigate?

As a result of disasters, there is a cycle of construction, damage, reconstruction, and damage again. The purpose of mitigation planning is to help reduce or eliminate damage and reconstruction from that cycle.

An effective hazard mitigation strategy uses governmental power and resources to guide and influence the location, type, and amount of development activity within its jurisdiction. There are many benefits that local governments can gain from hazard mitigation including:

- Good projects often pay for themselves many times by eliminating repetitive damages from frequently recurring natural hazards.
- Mitigation helps in the preparedness, response, and recovery phases of a disaster.
- By identifying hazards, the community can prepare for them, and lessen the effects of identified hazards that cannot be eliminated.
- By reducing the potential effects of a disaster, the response becomes more efficient.
- A more efficient response allows for more productive use of resources in other areas that need them.
- With the help of mitigation, we can decrease the recovery time.
- Decreased recovery time will be less of a political, social, and economic disruption.
- A mitigation plan lessens controversies in decision making that arise following disaster.
- Mitigation planning promote: coordination of the efforts of all the agencies and officials involved.



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S.4 Making the Community a Safer Place to Live

S.4.1 Assemble a Mitigation Team

A mitigation team is the group of individuals who research and make recommendations to policy makers on what has to be done and how it is going to get done. This includes how a project is going to be funded, put into action, monitored, and evaluated.

To form a local mitigation team, the local emergency management coordinator or local mitigation coordinator should identify individuals who have specialized knowledge in planning, human services and engineering. Team members are typically found in, but not limited to such areas as police, fire, emergency medical, planning and zoning, public works, engineering, code enforcement, environmental resource management, insurance, public information and community development.

Team members are most effective if they have the authority and influence to commit or secure funding for projects. All team members should have some specialized knowledge, technical skills or decision making abilities that are unique and beneficial to the mitigation team.

The first meeting of the mitigation team is important. It is imperative an agenda is formulated in advance so team members are immediately drawn into productive mitigation activities. The first meeting will not yield a complete mitigation plan or solve any significant problems, but it will begin the mitigation process and set future goals. The following sample agenda is provided for your use:

AGENDA

Initial Local Hazard Mitigation Meeting

- Introduction
- Purpose and objectives of the meeting
- Goals and objectives of the mitigation team.
- Review of existing mitigation plans
- Review of past disasters and existing hazards

Local Mitigation Responsibilities

- Understanding the state and federal requirements for hazard mitigation planning.
- Identifying the present needs of the community
- Deciding if there is a need to act

Beginning a Plan

- Review the impact of past hazards
- Identify which hazards require immediate attention
- Identify potential mitigation actions and determine which are the best to attempt to implement.

S.5 LOCAL APPROACHES TO MITIGATION

Acting on the Hazard: anticipating that something is going to happen and making it happen before it harms anyone, such as causing an avalanche or mudslide before it occurs naturally can be an effective method of mitigation.



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Redirect the Hazard: redirecting a hazard includes strategies such as building a sea wall or a sand dune to prevent flood waters from damaging property.

Avoiding Hazards: hazards can be avoided by moving an existing structure out of the floodplain to higher ground, and converting land into recreation areas which are more easily evacuated during an emergency.

Adapting to the Hazard: by adapting to a hazard, the community acknowledges the presence of a hazard, but makes it less vulnerable by strengthening existing structures or constructing new structures that will be able to withstand the impact better.

S.6 Getting Started

S.6.1 Appoint a Local Hazard Mitigation Officer

It is important to appoint a local official to act as a contact with the State Hazard Mitigation Officer and with other agencies in coordinating funding, evaluating and implementing mitigation plans. You should consider appointing such people as your planning, engineering or environmental specialists.

S.6.2 Identify Known Hazards Facing the Community

The first step in evaluating the known hazards facing the community is conducting a **HAZARD AND VULNERABILITY ASSESSMENT**. This includes identifying the existing hazards and reviewing the history of events that have occurred in the community. The history of past hazards includes the severity, frequency, and probability of recurrence. These are the variables used to identify the present risk that the community faces to immediate financial loss due to damage and the loss of lives. Also used to determine the impact of a disaster on the community are economic, social, response capability, and environmental factors. This process is similar to the Hazard and Vulnerability Assessment conducted when developing your emergency operations plan.

From a governmental perspective, **ECONOMIC FACTORS** are among the most important when conducting a vulnerability assessment. After a disaster strikes, the economy of the community can be disrupted by such things as closings of businesses as a result of damage and the recovery costs placed on the local government and taxpayers. The possible damages suffered because of a disaster are evaluated and a dollar figure is estimated. This is included in the vulnerability analysis that is a part of all hazard mitigation plans.

Social factors include the disruption to society a disaster can cause. This can include a wide range of things such as debris which can block roads or the closings of businesses. Both create social problems within the community.

The **RESPONSE CAPABILITY** is the community's ability to respond to a disaster. Sometimes, a mitigation plan does not include any construction or physical changes to the environment. Developing a response plan to meet the emergency needs of the community is necessary to avoid substantial losses during a disaster and recover more rapidly. If an effective response plan does not exist, this will increase community vulnerability to loss from a disaster.

Environmental loss or damage is important when determining the community's risk to a disaster. An example would be to determine the effect of a flood on the community by estimating the area and population that would be affected, and how farmland and sensitive habitats would be impacted.



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Review the hazard and vulnerability analysis, and adopt hazard mitigation strategies.

Local governments must aggressively enforce all building codes, zoning laws and any federal or state laws or they risk losing eligibility for funding. Some mitigation measures require local governments to pass new ordinances, such as those which restrict development in a flood plain, or building codes which make homes more likely to withstand severe storms. It is important to consider the mitigation value of **PUBLIC EDUCATION PROGRAMS** in developing a comprehensive mitigation strategy.

Increasing the public's awareness of the hazards facing the community is critical to gaining community support. Such workshops could address building codes and standards, warning and evacuation procedures, as well as, their own emergency preparedness.

S.7 Coordinate and monitor the implementation of local hazard mitigation measures.

The local hazard mitigation officer is responsible for implementation of mitigation plans and for monitoring and reporting progress to the State Hazard Mitigation Officer. The local mitigation officer is the primary point of contact to other agencies and is responsible for simplifying local participation. The local mitigation team is responsible for securing funding sources, developing a possible implementation schedule, and for gaining public support.

S.8 Transferring Ideas into a Plan for Action

The writing and creative phase of a mitigation initiative is the next step. This process takes all of the previously discussed topics and puts them into a form that is presentable to the public or to another body of government.

The following is a sample outline of a local mitigation plan:

I. Preliminary Information

- Letter of submittal from team leader
- Executive summary

II. Introduction

- Purpose statement
- Goals, objectives and definitions
- List of team members
 - 1. Names and titles
 - 2. Phone, pager, and fax numbers

III. Hazard Identification and Evaluation

- A. Initial Evaluation
 - Identify hazards
 - Types of hazards
 - Description of hazards
- B. Vulnerability Analysis
 - History of past events and damages
 - Severity, location, and frequency of past events
 - Potential future financial losses and loss of lives
 - Assess current and future exposure to hazards
 - Determine hazards that are of an immediate threat



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C. Determination of Risk

- Potential loss if a disaster were to happen now
- Justification of the need for immediate action by displaying past events and the financial impact if there is recurrence
- Identify the risk in terms of potential liability

D. Capability Assessment

- Roles of government agencies and team members in mitigation planning
- Identify and evaluate existing mitigation policies and systems
- Evaluate current government resource adequacy to implement current mitigation plans
- Identify strengths and weaknesses of current plans and resources.

IV. Mitigation Actions

A. Identify possible mitigation projects and programs

- Pursue public opinion
- Determine if the jurisdiction is capable of implementing the project
- Evaluate cost effectiveness
- Obtain project evaluations from other government agencies
- Identify potential public and private sources of funding
- Rank possible mitigation projects using risk assessment information

B. Implementing a mitigation initiative

- Role of team members
- Formulate an implementation schedule
- Monitoring and reporting progress to appropriate government agencies

C. Post project evaluation of actions

- Effectiveness of actions
- Satisfaction of goals and objectives

D. Periodic update of a mitigation plan

- Identify changes in community vulnerability to hazards
- Record changes in mitigation team members

S.9 Examples of Potential Mitigation Strategies

The following is a sample list of mitigation measures in several types of disasters. Keep in mind that mitigation measures are not limited to this list, as these are only suggestions. Everyone is encouraged to be creative when forming mitigation measures.

Flooding

- Structural measures such as dunes, rip rap, breakwaters and channeling reduce or direct the energy of flooding waters
- Encourage the purchase of flood insurance
- Enforce building and construction codes that limit development in the floodplain
- Install and maintain flood warning systems
- Flood proofing in the form of dams, reservoirs, levees, dikes and drainage systems
- Maintain and exercise an effective emergency operations plan

Hurricanes

- Enforcing building code regulations to withstand hurricane force winds and tidal surges resulting from the impact of a hurricane.
- Encourage residents and visitors to secure mobile homes



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- Inform and educate the public on established evacuation routes and shelter facilities
 - Establish and test warning capability
 - Insure the jurisdictions against infrastructure damage or loss
 - Maintain and exercise an effective emergency operations plan
- Tornadoes**
- Aggressively enforce building codes which make buildings resistant to high winds
 - Develop and test warning systems and shelters
 - Develop response and evacuation plan elements
 - Maintain and exercise an effective emergency operations plan
- Earthquakes**
- Educate and encourage residents and businesses to purchase insurance
 - Understand earthquake resistant construction standards and enforce building codes
 - Maintain and exercise an effective emergency operations plan
 - Understand earthquake probability information
 - Develop and maintain evacuation and warning systems
 - Inform and educate citizens and visitors on earthquake risk in the area
- Droughts**
- Control soil erosion
 - Develop systems for the purification of sea water
 - Understand the use of technology for drought prediction
 - Use of drought prediction for conservation
 - Winter storms
 - Maintain prediction and warning systems
 - Maintain and exercise an effective emergency operations plan that includes provisions to meet the needs of residents who depend on public transportation for basic human needs, i. e. Meals on Wheels and other social services.

S.10 Problems That May Be Encountered

Limited Matching Funds	Federal and state matching funds are usually distributed on a partial reimbursement basis. The difference in funding usually must be made up by local governments or a private sponsor. Funding must meet the requirements of and be approved by the appropriate state or federal emergency management agencies.
Right to Development	Governments at all levels sometimes neglect to address the issue of development. This is especially true in New Jersey where overdevelopment is a significant problem. Local governments should obtain opinion on the public's concerns for overdevelopment. Local ordinances can prevent overdevelopment, although developers have often challenged these laws in court.
Existing Development	Privately owned land and structures in high risk areas are difficult problems to address. Tax incentives or insurance incentives are possible solutions to encourage residents to take action to reduce their vulnerability, or to encourage sale of property to government where it could be used for recreation.
Lack of Public Support	Mitigation plans, especially those that require a substantial financial commitment are more difficult to implement without public support. Educating the public on the need for



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	mitigation and identifying the most cost effective methods is the best approach to this problem.
Cost Effectiveness	Every proposed mitigation project must be evaluated for cost-effectiveness. This is a comparison between the economic, social, and environmental costs to implement the project and the possible human and economic losses that will be avoided. Projects and programs determined the most likely to prevent human and economic loss with the least disruption and expense to society and the land now, are deemed cost effective.

S.11 Some Typical Questions

Q. Is the proposed mitigation measure possible?

A. Some mitigation measures are not practical. Items to consider are: how long it will take to implement the measure; is them funding available that will not place an unreasonable burden on the taxpayers; is the proposed measure legal. In some cases, passing a law or an ordinance to implement the mitigation measure is necessary. For example, if a jurisdiction is trying to restrict development in a floodplain, passing a local ordinance to accomplish this is necessary. Local governments must also consider if it is likely the law will be challenged in court. Developers often successfully challenge laws that restrict development.

Q. What happens if there is opposition?

A. The public will usually oppose anything that increases the tax rate. Before any mitigation measure is implemented, a cost benefit analysis should be done to address this topic. A cost benefit analysis compares the costs of the project to the benefits, and a decision is made on whether or not initiating the project is worthwhile. Part of the philosophy behind mitigation is that if some money is spent now, it will not be necessary to spend large amounts of money later for the damages.

Q. Does the project conflict with community goals?

A. Determining if the mitigation project conflicts with community goals such as conservation policies or development policies is important. Many grants and loans are given only if certain guidelines are met. For example, the Green Acres Program requires that any land bought with Green Acres funds can never be developed. This includes any mitigation projects that may require development on that land.

Q. Are there any costs after the project is completed?

A. Some projects have administrative costs, even after the project is completed. For example, a fire prevention program will be an administrative expense every year. Administrative costs also exist in regulatory and legislative programs. It takes time to enforce these regulations, so the cost is in salaries and sometimes court costs. There are also costs necessary to monitor the project in the form of inspections and report writing.

Q. What if a Mitigation Initiative Already Exists?

A. It is possible that some type of mitigation plan exists in the local government's emergency operations plan or master plan. This can be used to identify the specific needs of the community and any mitigation programs that may be in place. Most mitigation initiatives are evaluated only after a disaster. Mitigation initiatives should be updated and evaluated annually if possible so that any new issues that arise during the year can be addressed.



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Q. What are Goals and Objectives?

- A. Studying the risk assessment and the vulnerability assessment reveals the long term needs the mitigation planning effort is trying to meet. Goals do not state how the initiative is going to be accomplished, but they do state what the initiative is trying to do. Objectives identify specific actions designed to meet the goals and transfer initiatives from paper into actions. Objectives commonly give a schedule for completion and are developed to focus on the activities necessary to achieve each goal.