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**POST-DISASTER  
HAZARD MITIGATION PLANNING GUIDANCE  
FOR STATE AND LOCAL GOVERNMENTS**



FEDERAL EMERGENCY MANAGEMENT AGENCY

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**DAP-12 / September 1990**



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## EXECUTIVE SUMMARY

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Hazard mitigation reduces or eliminates losses of life and property from natural disasters and serves as an essential component in emergency management. After disasters, repairs and reconstruction are often completed in such a way as to simply restore damaged property to pre-disaster conditions. Such efforts expedite a return to normalcy. However, replication of pre-disaster conditions results in a cycle of damage, reconstruction, and repeated damage. Hazard mitigation is needed to ensure that such cycles are broken, that post-disaster repairs and reconstruction take place after damages are analyzed, and that sounder, less vulnerable conditions are produced.

Section 409 of the Robert T. Stafford Disaster Relief and Emergency Assistance Act (P.L. 93-288, as amended) is the impetus for involvement of state and local governments to evaluate and mitigate natural hazards as a condition of receiving Federal disaster assistance. The Federal Emergency Management Agency (FEMA) has promulgated rules for implementing the Section 409 requirement. These rules can be found at 44 CFR Part 206 Subpart M.

A major requirement of Subpart M is the development of a post-disaster hazard mitigation plan by state and local governments. This handbook discusses the planning process and provides direction for implementing the Subpart M regulations.

The requirement to develop a post-disaster hazard mitigation plan provides an opportunity for communities to develop strategies for reduction of potential losses from future natural disasters. Conscientious, insightful planning results in the development of an effective mitigation plan. Furthermore, mitigation planning measures and considerations, incorporated in economic or community development goals, support the accomplishment of a more comprehensive and effective government.

Whether applied in post-disaster reconstruction or during pre-disaster planning efforts, hazard mitigation provides planners with guidelines for reducing losses from future disasters. Considering that there may not always be a Federal disaster

declaration, and that even when Federal assistance is provided state and local costs occur, measures to prevent future damages are essential. Hazard mitigation is fundamental to reducing vulnerability to disaster-related damages.

Effective use of this manual will assist you in developing a program that will reduce future losses. As a user of the manual you should be aware of available disaster assistance, hazard mitigation programs, and Federal, state, and local responsibilities regarding planning and funding.

The handbook should be used as a reference document by officials involved in the development of hazard mitigation plans. The primary focus of the Hazard Mitigation Planning manual is on Section 409 of the Stafford Act and related Federal disaster assistance programs. The intent of Section 409, the Presidential disaster declaration process, and mitigation and disaster assistance programs are summarized in the beginning of the manual. The reader is provided with details of four components of hazard mitigation planning in the subsequent chapters:

- responsibilities of Federal, state, and local officials in mitigation planning;
- initiation of the process of developing a hazard mitigation plan;
- development of a hazard mitigation plan; and
- implementation and monitoring of hazard mitigation plans.

The above topics are categorized for the convenience of the manual's users. Some material is repeated in different chapters so that each part of the manual may stand alone as a complete source of information for the reader. In addition to thorough discussions of responsibilities of public officials and mitigation planning processes, the handbook includes detailed appendices for additional user reference.

It is the goal of the developers of this handbook to provide an easily accessible and comprehensive guide for the development of hazard mitigation plans. Readers are encouraged to become familiar with disaster assistance programs and with the methods by which assistance may be obtained. Furthermore, readers are urged to recognize the importance of effective hazard

mitigation planning and the incentive provided by the Hazard Mitigation Grant Program to fund projects identified in hazard mitigation plans.

By developing mitigation programs that affect the impact of future disasters, planners break the cycle of damage, reconstruction, and repeated damage. Post-disaster planning is actually pre-disaster planning, and effective plans are essential to disaster preparedness, response, and recovery.

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**Chapter 1**

**INTRODUCTION**

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**Chapter 1:****INTRODUCTION**

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**SCOPE**

Natural hazards threaten communities throughout the United States. Many communities are vulnerable to multiple natural hazards such as earthquakes, floods, and hurricanes. As the need for Federal disaster assistance continues to grow due to losses from these natural hazards, FEMA has placed renewed emphasis on reducing the potential for future disaster losses through the implementation of hazard mitigation programs and activities. Mitigation has also grown increasingly important to state and local governments, who must bear the agony of loss of life and property when disaster strikes. Indeed, if Federal assistance is not made available after a disaster, state and local governments and individuals must bear the full financial responsibility of recovery.

This handbook explains the basic concepts of hazard mitigation, and shows state and local governments how they can develop and achieve mitigation goals within the context of FEMA's post-disaster hazard mitigation planning requirements. The handbook focuses on recent innovative approaches to mitigation, with an emphasis on multi-objective planning.

**PURPOSE**

This handbook is designed to provide guidance to state and local governments for fulfilling the hazard mitigation planning requirements of Section 409 of the Robert T. Stafford Disaster Relief and Emergency Assistance Act (the Stafford Act). It is intended primarily for State Hazard Mitigation Officers who are responsible for post-disaster hazard mitigation planning and implementation, but may also be useful for state agency representatives and local officials involved in the hazard mitigation planning process. The procedures and requirements for implementing Section 409 are found at 44 CFR Part 206 Subpart M. Fulfilling the requirements of Subpart M is the primary focus of this handbook.

The objectives of Subpart M are to encourage states and local governments to:

1. Develop and maintain a systematic program to identify hazards;
2. Monitor changes in hazard vulnerability; and
3. Develop and implement measures for reducing hazard vulnerability.

## **HAZARD MITIGATION**

Hazard mitigation is defined as:

any action taken to eliminate or reduce the long-term risk to human life and property from natural and technological hazards.

Hazard mitigation actions can be accomplished by:

1. Acting on the hazard.
  - Seeding hurricanes or triggering avalanches may eliminate a hazard before a disaster occurs.
2. Redirecting the hazard.
  - A seawall or dune restoration program helps keep water away from people by redirecting the impacts away from a vulnerable location.
3. Interacting with the hazard.
  - Seismic safety provisions incorporated into building codes result in structures that are more able to withstand impacts of earthquakes.
4. Avoiding the hazard.
  - River corridor projects create multiple beneficial uses of the floodplain while relocating structures to less vulnerable locations.

## Emergency Management

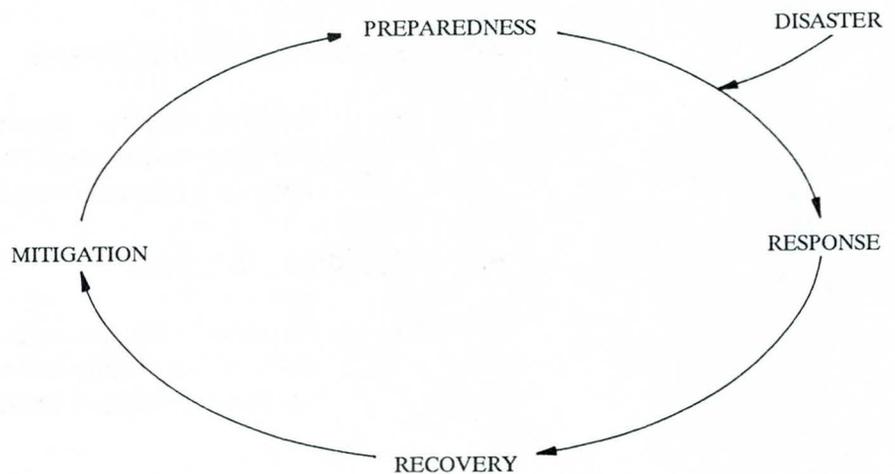
Hazard mitigation is one element of emergency management. The other three elements are preparedness, response, and recovery.

Preparedness activities are emergency management actions which are taken to improve the ability to respond to an incident. Preparedness activities include the development of response procedures, design and installation of warning systems, exercises to test emergency operational procedures, and training of emergency personnel.

Response activities occur during the disaster and include such items as rescue operations, evacuation, emergency medical care, and shelter programs.

Recovery activities are emergency management actions which begin after the disaster. These actions include repairs to roads, bridges, and other public facilities, and activities that help restore normal services to a community.

Mitigation activities help to reduce or eliminate the damages from future disaster events. These activities can occur before, during, and after a disaster, and overlap all phases of emergency management. In addition to reducing hazard impacts through mitigation actions, improving preparedness, response, and recovery capabilities can also reduce losses of life and property.



## **Opportunities for Mitigation**

A disaster can provide special opportunities for hazard mitigation. A State Hazard Mitigation Officer or other official responsible for hazard mitigation should capitalize on these opportunities to initiate hazard mitigation activities. Because disasters result in a greater awareness of the risks posed by hazards, government officials are more responsive to pursuing hazard mitigation after such incidents. In addition, when disasters warrant Federal assistance, technical and financial resources that directly support mitigation objectives and requirements are available.

The most important goals of this handbook are to:

1. Convince the hazard mitigation official of the important opportunities for hazard mitigation that exist before and immediately following a disaster;
2. Demonstrate to hazard mitigation officials how these opportunities can be utilized to implement successful mitigation.

## **Post-Disaster/Pre-Disaster Plans**

The plan required under Section 409 of the Stafford Act will generally be developed in a post-disaster situation; however, the hazard mitigation plan developed after a disaster is essentially a pre-disaster plan for the next disaster. Hazard mitigation is the only phase of emergency management that can break the cycle of damage, reconstruction, and repeated damage. The mitigation measures recommended in the plan are intended to reduce the potential damages of a future event.

The hazard mitigation plan developed in compliance with Section 409 can be used to initiate development of a long-range, multi-hazard mitigation program. States are encouraged to develop a mitigation plan prior to the occurrence of a disaster so that at the time of a disaster the plan can simply be expanded or updated to address specific issues arising from the disaster. Even more importantly, pre-disaster planning will help ensure that mitigation opportunities are not lost in the hasty effort to rebuild and recover from the disaster.

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**Chapter 2**

**DISASTER ASSISTANCE AND HAZARD  
MITIGATION OVERVIEW**

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**Chapter 2:****DISASTER ASSISTANCE AND HAZARD  
MITIGATION OVERVIEW**

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**DISASTER ASSISTANCE PROGRAMS  
AUTHORITIES****The Stafford Act**

On November 23, 1988, the Disaster Relief and Emergency Assistance Amendments of 1988 were signed into law (Public Law 100-707). This law amended The Disaster Relief Act of 1974 (Public Law 93-288) and retitled it the Robert T. Stafford Disaster Relief and Emergency Assistance Act.

The Stafford Act created several changes in FEMA's hazard mitigation program. These include:

- Establishing a Hazard Mitigation Grant Program;
- Reorganizing sections under the Stafford Act whereby former Section 406 under PL 93-288 is now Section 409;
- Liberalizing the eligibility of hazard mitigation under the Public Assistance Program;
- Increasing the Disaster Preparedness Improvement Grant Program funds up to \$50,000 annually for each state; and
- Creating one-time planning assistance grants for the eight Great Lake states.

The Stafford Act also produced changes in the Individual and Public Assistance Programs. Current regulations for these programs can be found at 44 CFR Part 206 which can be obtained from your FEMA regional office.

**Federal Disaster Assistance.** According to the Stafford Act, in order for a major disaster to be declared by the President:

"... the determination must be made that damages are of sufficient severity and magnitude to warrant Federal assistance to supplement the efforts and available resources of states, local governments, and disaster relief organizations in alleviating the damage, loss, hardship, or suffering caused by the disaster event."

Federal disaster assistance is supplemental in nature. Federal funds are only used when it is beyond state and local capability to respond.

### **Disaster Assistance Regulations**

The procedures and regulations for implementing the requirements under the Stafford Act are prescribed in 44 CFR Part 206. Hazard mitigation program managers should be familiar with the regulations under Subpart M, Hazard Mitigation Planning, and Subpart N, the Hazard Mitigation Grant Program.

**State Authorities and Emergency Operations Plans.** In addition to FEMA regulations, most states have their own authorities with which they must comply during the time of a disaster. State emergency operations plans detail responsibilities and procedures for preparing for and responding to disasters, and for facilitating the delivery of Federal assistance. The State Hazard Mitigation Officer should be familiar with these state disaster programs and authorities.

## **DISASTER DECLARATION PROCESS**

Following a disaster, activities occur in preparation for a possible Presidential declaration of a major disaster area and for the events that will take place if a disaster is declared. A Disaster/Emergency Event Flow Chart is included as Figure 1.

### **Pre-Declaration Activities**

Pre-declaration activities take place after a disaster event but prior to a disaster declaration. If a state is considering making

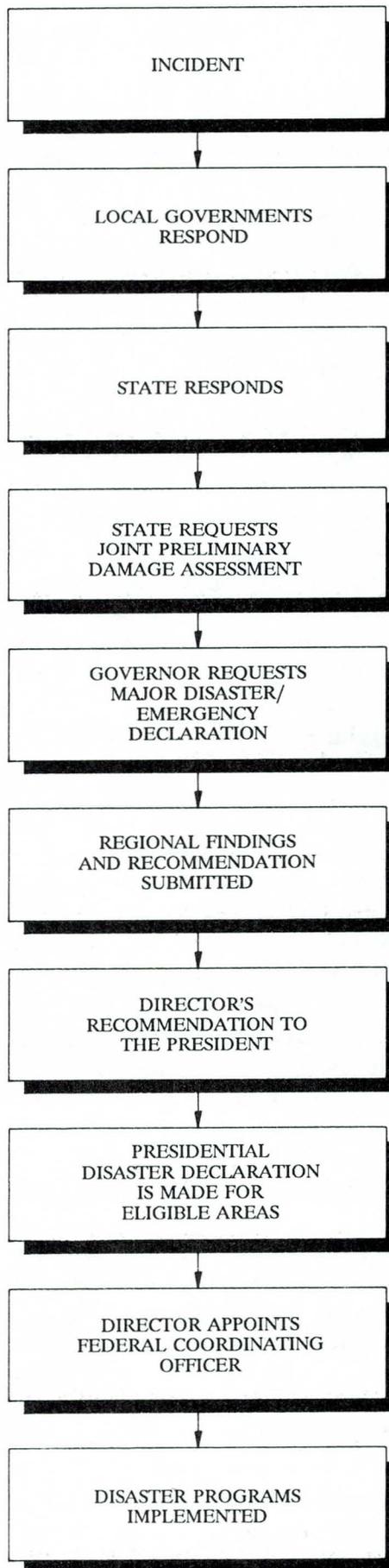


Figure 1: DISASTER/EMERGENCY EVENT FLOW CHART

a request for a disaster declaration, several activities will take place at this time. The state, usually through the emergency management agency, will conduct a joint damage assessment with FEMA and other appropriate state and local officials to determine the extent of public and private damage. If Federal disaster assistance is required, the state should prepare an estimate of the type and amount needed. The state should discuss their eligibility for disaster assistance with the FEMA Regional Director. Throughout this process, the state should keep the Regional Director apprised of the situation and their intention to submit a declaration request.

During this phase the State Hazard Mitigation Officer and the Federal Hazard Mitigation Officer from the FEMA regional office should begin to identify mitigation issues. Early field visits are important to facilitate the preparation of post-disaster mitigation reports and to identify possible measures that might be funded under the Hazard Mitigation Grant Program.

**Declaration Request Process.** The information gathered during the damage assessment process is forwarded to the Governor's Office through the state's emergency management agency. A determination will be made whether to request Federal assistance from the President. Before a request can be made, the state must implement their state emergency plan and must document that the state and local governments have committed resources, and that the remaining unmet disaster related needs are beyond their capability to respond.

The Governor's Request must be submitted within 30 days of the event. It includes confirmation that the state emergency plan has been implemented; an estimate of public and private sector damages; identification of resources to be used by state and local governments; and preliminary estimates of the type and amount of Federal assistance needed.

The Governor's Request is forwarded to the FEMA regional office where the Regional Director evaluates the request and makes a recommendation. The Regional Director then prepares a Regional Analysis and Recommendation which is sent to the Director of FEMA. The Director reviews the package of information and presents a recommendation to the President. If a request for a declaration or for specific types of disaster assistance is denied, the Governor has the right to appeal.

**Mitigation Evaluation by FEMA.** At the time a disaster declaration is requested by a state, FEMA will evaluate information concerning the status of hazard mitigation efforts in the impacted state and localities. This evaluation will become part of the Regional Analysis and Recommendation and may also serve as the basis for determining the hazard mitigation language in the FEMA-State Agreement.

The mitigation evaluation of state and local governments in the impacted area shall include the following:

1. The status of a statewide comprehensive hazard mitigation plan, program, or strategy;
2. The status of hazard mitigation plans or plan updates required as a condition of any previous declaration;
3. The status of any actions which the state or localities agreed to undertake as a condition of previously provided disaster assistance;
4. The status of any mitigation measures funded under Section 404 of the Stafford Act for any previous declaration;
5. The status of any other mitigation projects funded under other FEMA or other Federal agency programs;
6. An evaluation of the impact of the hazard(s) and any corresponding mitigation issues pertinent to the area for which Federal assistance is being requested; and
7. Any other hazard information available and considered relevant.

Subpart M  
Requirement  
44 CFR 206.403 (b)

If it has been determined that damages have occurred because a state has failed to implement actions required under Section 409, the amount and kind of benefits to be made available under the current request for a disaster declaration could be affected.

This evaluation, and the conditions of the disaster, will help determine the language used in the hazard mitigation paragraph of the FEMA-State Agreement.

**Mitigation Evaluation by the State.** The State Hazard Mitigation Officer should also review existing plans and the status of previous mitigation measures at this time. This is especially important for a state that has not received a recent disaster declaration. This review can help formulate a hazard mitigation planning approach. It may also be useful to examine previous plan recommendations to identify possible measures to be funded under the Hazard Mitigation Grant Program, particularly measures that if implemented would have an affect on the current disaster. If local hazard mitigation plans have been developed, the state should examine the status of any actions local governments agreed to undertake.

### **FEMA-State Agreement**

Once a major disaster or emergency has been declared, a FEMA-State Agreement is executed, creating legally binding obligations on FEMA and the state. The purpose of the FEMA-State Agreement is to set forth the conditions, such as cost-share requirements, under which Federal disaster assistance is provided. The FEMA-State Agreement is signed by the Governor and the FEMA Regional Director, acting for the Federal government.

The FEMA-State Agreement is a very brief document that references, but does not duplicate, requirements set forth in 44 CFR Part 206. Under the FEMA-State Agreement, the state is obligated to comply with the requirements of Subpart M as a condition of receiving Federal disaster assistance.

If there are unique hazard mitigation circumstances within a state that are not covered by regulation, it may be necessary on occasion to attach special conditions to the FEMA-State Agreement to address these mitigation concerns. For example, if a state has failed to fulfill a critical mitigation commitment from a previous disaster declaration, such as failure to submit the hazard mitigation plan required under Subpart M, the means of satisfying that deficiency may be attached as a special condition. The FEMA regional office and the state should identify any need for special mitigation conditions very early in the declaration process. The FEMA regional office must transmit this information to FEMA headquarters as soon as possible to ensure that these special conditions are incorporated into the preparation of the FEMA-State Agreement.

## FEMA-State-Local Relationship

During the declaration process, it is important that there is a coordinated effort among local, state, and Federal officials. FEMA maintains close communication with the state prior to, during, and immediately following a disaster event. The state, in turn, is in close contact with local officials. It is a state responsibility to obtain local participation and to conduct follow-up.

Subpart M  
Requirement  
44 CFR 206.402 (c) (4)

The state is responsible for:

Arranging for appropriate local participation on the Hazard Mitigation Survey Team or Interagency Hazard Mitigation Team and in the Section 409 planning process; and

44 CFR 206.402 (c) (5)

Following up with state agencies and local governments to assure that appropriate hazard mitigation actions are taken.

This relationship is important for the early identification of hazard mitigation opportunities and for an accurate evaluation of the hazard and its impacts. There needs to be a local recognition and willingness to accomplish mitigation that can be enhanced through this relationship. Many mitigation efforts must be implemented at the local level because local governments:

1. Regulate and control development in hazardous areas;
2. Plan and build infrastructure that directs development; and
3. Cost share in U.S. Army Corps of Engineers flood control projects.

## DISASTER ASSISTANCE PROGRAMS

The Disaster Assistance Programs Division at the regional level of FEMA is responsible for administering the Stafford Act. The division also administers non-disaster programs as another means of mitigating disaster impacts. A description of the key

hazard mitigation programs and activities follows. A diagram of Hazard Mitigation Programs and Activities is included as Figure 2.

### Post-Disaster Programs

**Post-Disaster Mitigation Planning.** Section 409 of the Stafford Act requires state and local governments to evaluate the natural hazards in the designated area, and to take appropriate actions to mitigate such hazards.

Section 409 of  
the Stafford Act

#### SECTION 409

As a condition of any disaster loan or grant made under the provisions of this Act, the recipient shall agree that any repair or reconstruction to be financed therewith shall be in accordance with applicable standards of safety, decency, and sanitation and in conformity with applicable codes, specifications, and standards, and shall furnish such evidence of compliance with this section as may be required by regulation. As a further condition of any loan or grant made under the provisions of this Act, the state or local government shall agree that the natural hazards in the areas in which the proceeds of the grants and loans are to be used shall be evaluated and appropriate action shall be taken to mitigate such hazards, including safe land use and construction practices, in accordance with standards prescribed or approved by the President after adequate consultation with appropriate elected officials of general purpose local governments, and the state shall furnish such evidence of compliance with this section as may be required by regulation.

44 CFR Part 206 Subpart M provides the regulations to implement Section 409. In order to evaluate the hazards, Subpart M requires state and local governments to prepare and implement hazard mitigation plans. In these plans, state and local governments evaluate the natural hazards in the disaster area and identify appropriate actions to mitigate the risk from these hazards.

Section 409 also requires that repairs utilizing Federal funding comply with applicable codes and standards. The Stafford Act supports a long-term, comprehensive approach to mitigation as indicated by the specific references to land use and construction standards as types of appropriate mitigation actions. Under Section 409, the FEMA Regional Director is also authorized to prescribe or approve hazard mitigation standards that are reasonable, practicable, and cost-effective.

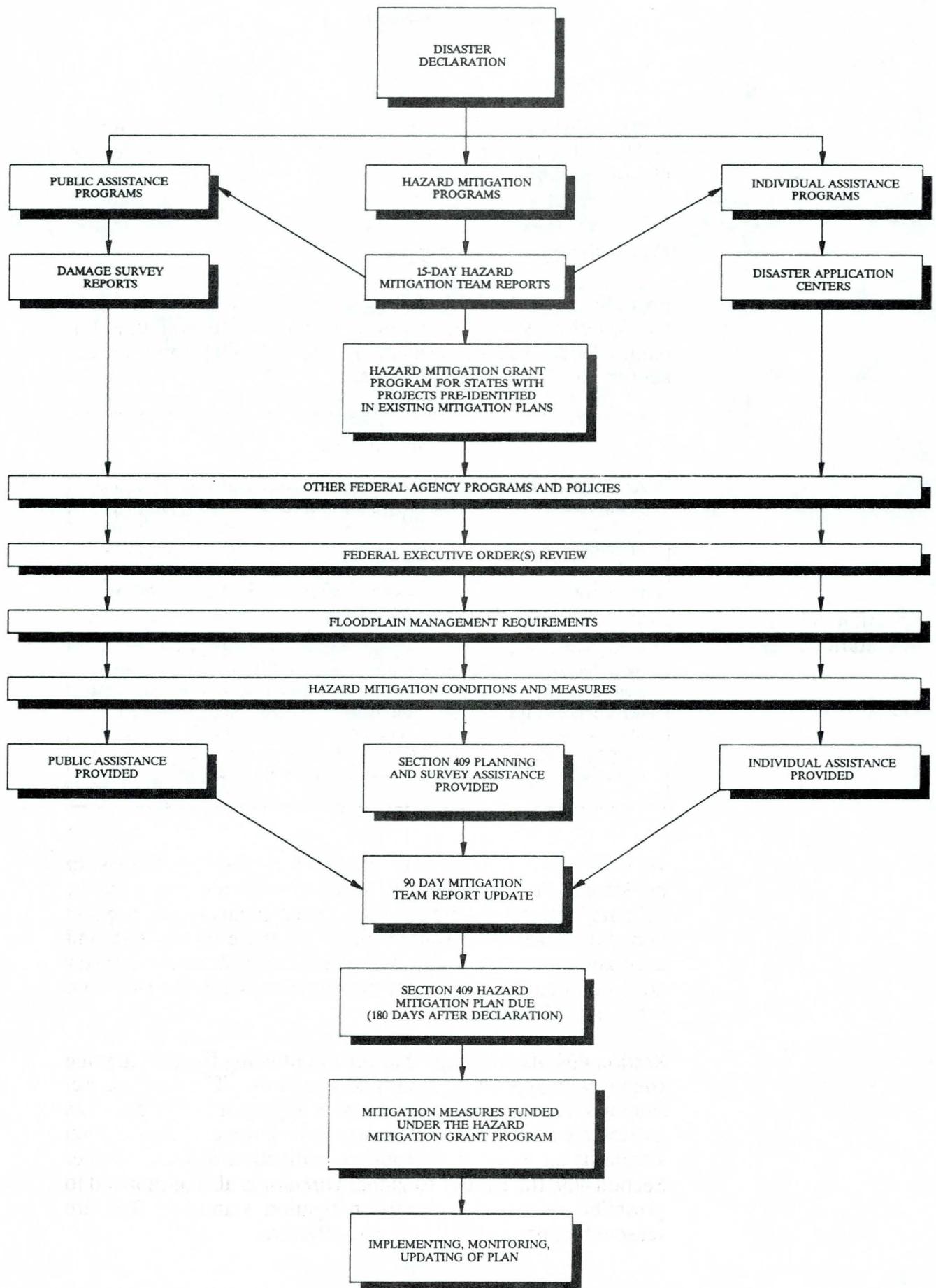


Figure 2: HAZARD MITIGATION PROGRAMS AND ACTIVITIES

**Public Assistance.** The Public Assistance Program under Section 406 of the Stafford Act authorizes funding for the repair, restoration, or replacement of damaged facilities belonging to public and private non-profit entities, and for other associated expenses, including emergency protective measures and debris removal.

Subpart M  
44 CFR 206.407 (b)

The cost of bringing a facility up to minimum standards is an eligible cost when such standards apply to the types of work being performed. These standards can either be in place at the time of the disaster or can be adopted prior to approval of the project.

One of several methods that can be used to identify areas in which standards need to be improved is the hazard mitigation planning process.

The Public Assistance Program also authorizes funding for appropriate cost-effective hazard mitigation measures related to damaged public facilities. The Regional Director may authorize hazard mitigation measures that are not required by applicable codes, specifications, and standards if the measures are in the public interest. It must be demonstrated that:

1. The mitigation measures will substantially alleviate or eliminate recurrence of the damage done to the facility by the disaster.
2. The measures are feasible from the standpoint of sound engineering and construction practices.
3. The measures are cost-effective in terms of the life of the structure, anticipated future damages, and other mitigation alternatives.
4. Floodplain management and applicable environmental requirements are met.

Funding Mitigation  
Measures  
Under Section 406

Following a flood disaster in Kentucky, FEMA authorized mitigation funding under the Public Assistance Program to elevate the pump motors on damaged sewage lift stations. The cost to elevate these pumps exceeded the cost of repairing or replacing the damaged equipment. However, the failure of these pumps during the flood caused sewage to back up into hundreds of homes, resulting in a significant increase in local, state, and Federal disaster assistance. Elevating the lift station motors will eliminate similar disaster assistance expenditures (for the homes and the pumps) in future floods for a fraction of the cost.

The hazard mitigation planning process, through the Hazard Mitigation Survey Team or Interagency Hazard Mitigation Team, is one method to identify potential measures. The Damage Survey Report process that inspectors use to make site specific recommendations for necessary repairs is another method. Inspectors can make recommendations for mitigation measures to be incorporated into the repair of a structure. FEMA Public Assistance officials may require certain mitigation measures be incorporated into the repair or replacement of similarly damaged structures when Damage Survey Reports indicate a broad-based problem.

Subpart G, which sets forth regulations for Public Assistance project administration, authorizes alternate projects if a state or local government determines that the public welfare would not be best served by repairing, restoring, reconstructing, or replacing a public facility. The state or local government may elect to receive funding not to exceed 90 percent of the Federal share of the estimated project cost. These funds may be used to repair, restore, or expand other selected public facilities, to construct new facilities, or to fund hazard mitigation measures.

Under the Public Assistance Program, Federal assistance is not available for facilities located in a designated flood hazard area that could have been covered by flood insurance. Federal disaster assistance will be reduced by whichever is less -- the value of the facility or the maximum amount of insurance proceeds that would have been available had a flood insurance policy been in effect. State and local governments should take action to ensure that their facilities are insured.

**Hazard Mitigation Grant Program.** Section 404 of the Stafford Act establishes a Hazard Mitigation Grant Program to fund state and local post-disaster mitigation measures. Hazard mitigation measures to be funded under the Hazard Mitigation

Grant Program are identified primarily by the hazard mitigation plan required under Subpart M, however, other mitigation plans or programs and recommendations of the Interagency Hazard Mitigation Team and Hazard Mitigation Survey Team can also be used to identify projects for possible funding.

Section 404 of  
the Stafford Act

**SECTION 404**

The President may contribute up to 50 percent of the cost of hazard mitigation measures which the President has determined are cost-effective and which substantially reduce the risk of future damage, hardship, loss, or suffering in any area affected by a major disaster. Such measures shall be identified following the evaluation of natural hazards under Section 409 and shall be subject to approval by the President. The total of contributions under this section for a major disaster shall not exceed 10 percent of the estimated aggregate amounts of grants to be made under Section 406 with respect to such major disaster.

Federal funds will be available on a 50 percent cost-share basis up to 10 percent of the initial estimate of the Federal share of public assistance permanent restorative work and administrative costs authorized under Section 406. The state and/or local share may be met with cash or with in-kind services.

Hazard Mitigation  
Grant Program  
Funding Estimate

SECTION 404 FUNDING ESTIMATE FEMA-824-DR-MN	
Estimated Public Assistance Permanent Work Costs	\$2,426,188
Federal Share of Permanent Work (75%)	\$1,819,641
Estimated Maximum Federal Share of Section 404 Funding (10%)	\$ 181,964
Estimated Maximum State and/or Local Match (50%)	<u>\$ 181,964</u>
Estimated Maximum of Mitigation Funding Under the Hazard Mitigation Grant Program	\$ 363, 928

Before this money is made available, a State Hazard Mitigation Grant Program Administrative Plan that demonstrates how this program will be managed must be approved by FEMA. Requirements for development of state administrative plans are detailed under 44 CFR Part 206 Subpart N.

The state is responsible for identifying and selecting hazard mitigation projects. The State and Federal Hazard Mitigation Officers should work together during disaster operations to identify potential mitigation measures. Measures shall be cost-effective and substantially reduce the risk of future damage.

The state is encouraged to begin identifying potential Hazard Mitigation Grant Program measures as soon as possible after the disaster so that immediate opportunities for post-disaster mitigation are not lost. These measures must be consistent with the requirements of Subpart N, the state's hazard mitigation administrative plan, and with the hazard mitigation plan developed in response to the disaster.

Selection criteria include:

1. Measures that best fit within an overall hazard mitigation strategy;
2. Measures that have the greatest potential impact to reduce future losses; and
3. Measures designed to accomplish multiple objectives.

**Individual and Family Grant Program.** The Individual and Family Grant Program, authorized under Section 411, can be used by individuals to fund limited hazard mitigation activities. The Individual and Family Grant Program provides grants to states for the purpose of making subgrants to individuals or families for serious and unmet disaster-related needs. The Individual and Family Grant awards may be used to take minimum protective measures required to protect homes against the immediate threat of damage from events such as additional rain, flooding, erosion, or wind. Examples of minimum protective measures include sandbagging, elevating and floodproofing furnaces, or installing sump pumps.

**Executive Orders 11988 and 11990.** Executive Orders 11988, Floodplain Management, and 11990, Protection of Wetlands, pertain to any Federal action taken within floodplains and wetlands, including mitigation actions identified under Section

409. The Executive Order requirements under 44 CFR Part 9 must be applied prior to approval of any Federal disaster assistance for construction or development. Executive Order 11988 attempts to reduce flood losses and environmental damage due to unwise planning and development. This Executive Order requires Federal agencies to avoid public investment in the floodplain if practicable alternatives exist. Executive Order 11990 attempts to prevent losses and environmental damage due to the destruction or modification of wetlands.

These Executive Orders can be very effective, particularly in the post-disaster environment. The Federal assistance provided after a disaster is often used for actions within a floodplain. These Executive Orders have considerable mitigation potential by affecting how and where Federal disaster recovery funds are allocated.

Post-Disaster  
Use of  
Executive Order 11988

In Baytown, Texas, following Hurricane Alicia, Executive Order 11988 was used as the basis for denying the provision of disaster assistance in a repetitively flooded area. Instead, technical and financial resources of existing programs were used to help residents with relocation expenses and to prevent reoccupation of a residential subdivision. These programs included the Small Business Administration Involuntary Relocation Program, the National Flood Insurance Program, and the Individual and Family Grant Program. The effect was to mitigate future flood damages by encouraging residents to relocate.

In non-disaster situations the impact of the Executive Orders is also significant. They can direct Federal expenditures so that the risk of public investment in flood hazard areas is minimized, as described below.

Use of  
Executive Order 11988 in  
Non-Disaster  
Situation

In Utah, Federal and State Hazard Mitigation Officers used Executive Order 11988 to limit Federal and state investments in the identified floodplain of the Great Salt Lake. This action restricted the availability of FHA and VHA low-interest loans to home buyers, the availability of Small Business Administration loans for future development, and Department of Housing and Urban Development Community Development Block Grant funds. The effect was to reduce the financial incentive that encouraged development in an identified flood hazard area.

Both Executive Orders require that when federally assisted projects are undertaken, the following eight-step decision-making process be utilized to evaluate the potential impact on the floodplain or wetland:

Required Federal  
Decision-making  
Process

Executive Orders  
11988 and 11990

8-STEP DECISION-MAKING PROCESS  
EXECUTIVE ORDERS 11988 AND 11990

1. Determine whether the proposed action is in the 100-year or 500-year floodplain;
2. Notify and involve the public;
3. Identify and evaluate alternatives;
4. Identify the impacts resulting from the proposed action;
5. Minimize potential adverse impacts to and restore the natural and beneficial value of floodplains and wetlands;
6. Reevaluate to determine the practicability of the proposed action in light of other alternatives;
7. Provide the public with the finding; and
8. Review the implementation to ensure that the requirements of the Executive Order are met.

**Executive Order 12699.** Executive Order 12699, Seismic Safety of Federal and Federally Assisted or Regulated New Building Construction, was signed into law on January 5, 1990. After a Presidential disaster declaration, the Executive Order requires that appropriate seismic design and construction standards and practices be adopted for any new construction or replacement of a Federal building or federally regulated building receiving Federal assistance. In non-disaster situations, new construction of Federal buildings must also comply with appropriate seismic design and construction standards.

The purpose of the Executive Order is to reduce risks associated with failure of federally-owned buildings. It is also designed to improve the functioning capability of essential

Federal buildings during or after an earthquake, and to reduce earthquake losses of public buildings.

**Hazard Mitigation Survey Teams.**

Subpart M  
Requirement  
44 CFR 206.404 (b)

Hazard Mitigation Survey Teams shall be activated by the Regional Director immediately following a declaration to conduct hazard mitigation surveys. In the case of flood declarations, the Interagency Hazard Mitigation Team will serve the purpose of the Hazard Mitigation Survey Team.

Hazard Mitigation Survey Teams identify hazard mitigation opportunities, particularly those to be addressed in the state hazard mitigation plan and possible measures to be funded under the Hazard Mitigation Grant Program. The Hazard Mitigation Survey Team shall consist of FEMA, state, and appropriate local government representatives, and representatives of other Federal agencies, as necessary. The survey team is responsible for developing and distributing a report 15 days after the disaster declaration.

For flood disasters, the Interagency Hazard Mitigation Team shall serve the same function as the Hazard Mitigation Survey Team. Interagency Hazard Mitigation Teams are formed under an Office of Management and Budget directive issued to twelve Federal agencies. The directive requires them to develop common post-flood recovery policies and to alleviate any future exposure of Federal investments to a similar hazard. This directive was issued on July 10, 1980 and is entitled Nonstructural Flood Protection Measures and Flood Disaster Recovery (Hazard Mitigation Survey Teams and Interagency Hazard Mitigation Teams are discussed in detail in Chapter 4).

**Non-Disaster Programs**

There are two non-disaster programs within FEMA that provide funding assistance for mitigation activities and support mitigation objectives.

**Disaster Preparedness Improvement Grant Program.** Section 201 authorizes the Disaster Preparedness Improvement Grant Program. Matching funds on a 50/50 cost-share basis, not to exceed \$50,000, are provided to the states annually to improve or update their disaster assistance plans and capabilities. The

states are required to complete three program outputs, based on their current program needs, and one or more optional program outputs, to meet their specific disaster-related needs. States can use these funds to develop pre-disaster hazard mitigation plans, expand an existing hazard mitigation plan, develop hazard specific annexes, implement measures in a hazard mitigation plan, or develop administrative plans for the implementation of the Hazard Mitigation Grant Program.

Funding  
Hazard Mitigation  
Projects Under the  
Disaster Preparedness  
Improvement Grant  
Program

The state of Michigan utilized Disaster Preparedness Improvement Grant funds to initiate the development of a state hazard mitigation program, including the development of a mitigation plan. Many states will use these funds to pre-identify hazard mitigation projects that would be eligible for financial assistance under the Hazard Mitigation Grant Program after a future disaster.

**Hazard Mitigation Assistance Program.** The Hazard Mitigation Assistance Program provides funding assistance to states and local governments to reduce vulnerability from recurring or potentially severe hazards by supporting hazard mitigation planning activities. The focus of the program is on hazard mitigation plans, including activities such as updating plans, implementing measures identified in hazard mitigation plans, developing local hazard mitigation plans, developing state legislation, or adopting local ordinances.

Funding  
Hazard Mitigation  
Projects Under the  
Hazard Mitigation  
Assistance Grant  
Program

In Marblehead, Massachusetts, Hazard Mitigation Assistance funds were awarded to conduct a study to determine the implications of sea level rise on coastal development. The study will identify strategies that address this hazard and promote the incorporation of these strategies into local plans and regulations. This will contribute to the reduction of future damages.

States within each FEMA region compete for these funds. Program guidelines, eligibility requirements, proposal ranking criteria, and application deadlines can be obtained from the Federal Hazard Mitigation Officer for your FEMA region.

**OTHER KEY FEMA MITIGATION PROGRAMS**

There are several other FEMA programs that support hazard mitigation objectives in a non-disaster environment. These

include the National Flood Insurance Program, National Earthquake Hazards Reduction Program, Dam Safety Program, and Hurricane Preparedness Program. These programs are summarized in the following paragraphs. For additional details on these and other FEMA programs, contact the Federal Hazard Mitigation Officer for your FEMA region.

### **National Flood Insurance Program**

The National Flood Insurance Program is administered by FEMA's Federal Insurance Administration. This program makes flood insurance available to local communities. In exchange, the local community agrees to adopt and enforce a floodplain management ordinance and to regulate flood-prone areas to help reduce future flood losses. In addition to the availability of flood insurance, the National Flood Insurance Program supports mitigation through floodplain management measures and the flooded property acquisition program (Section 1362 of the National Flood Insurance Act of 1968). The Federal Insurance Administration has published a series of technical guidance documents that can be used in mitigating future damages. Information on obtaining these documents is available from the Federal Hazard Mitigation Officer.

### **National Earthquake Hazards Reduction Program**

The purpose of the National Earthquake Hazards Reduction Program is to reduce risks to life and property through the development and implementation of earthquake hazards reduction measures. Coordinated by FEMA with participation by the U.S. Geological Survey, the National Science Foundation, and the National Institute of Standards and Technology, program activities include:

- development of seismic-resistant design and construction standards;
- creation of educational materials for community use;
- support of earthquake information centers; and

- studies that explore issues ranging from identifying financial incentives for building owners to seismically retrofit their structures to determining the feasibility and structure of a national earthquake insurance program.

### **Dam Safety Program**

The goal of the Dam Safety Program is to improve the safety of the nation's dams. More than 95 percent of these dams are non-Federal and the responsibility of the state, but many states have inadequate dam safety programs. The objectives of this program include establishing effective dam safety programs in every state, developing public awareness programs, and producing needed technical assistance materials.

### **Hurricane Preparedness Program**

The Hurricane Preparedness Program assists state and local governments in developing or improving hurricane specific elements of their emergency operations plans. The program provides one-time financial assistance to states in highly vulnerable coastal areas to conduct a Quantitative Hurricane Preparedness Study. This study consists of two elements -- population preparedness and property protection. Technical assistance for the development of these hurricane preparedness planning projects can be provided by FEMA.

### **OTHER KEY FEDERAL MITIGATION PROGRAMS**

Many other Federal agencies administer programs, conduct projects, or provide technical services that support mitigation activities. Several of the key Federal agency programs are listed below. Additional information on Federal programs may be found in the Digest of Federal Disaster Assistance Programs (FEMA, DAP 21, June 1985) and the Catalog of Federal Domestic Assistance (published annually by the Office of Management and Budget).

Other Key  
Federal Agency  
Programs

OTHER KEY FEDERAL AGENCY PROGRAMS

Department of Defense

U.S. Army Corps of Engineers

- Beach erosion control projects
- Flood control works
- Floodplain management services
- Planning assistance
- Emergency floodfighting and rescue

Department of Agriculture

U.S. Soil Conservation Service

- Watershed protection and flood prevention
- Floodplain management studies
- Resource conservation and development
- Emergency watershed protection
- Soil and snow surveys

Small Business Administration

- Disaster loans

Department of Housing and Urban Development

- Community Development Block Grants

Department of Commerce

National Weather Service

- River forecasts
- Forecasts and warnings
- Meteorological, hydrometeorological, and hydrological data and analyses
- Disaster preparedness and hazard analysis program
- Coastal zone management programs

Tennessee Valley Authority

- Floodplain management services
- Planning assistance
- Water resources management

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**Chapter 3**

**FEDERAL, STATE, AND LOCAL  
RESPONSIBILITIES**

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**Chapter 3:****FEDERAL, STATE, AND LOCAL  
RESPONSIBILITIES**

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**INTENT AND SUMMARY OF SECTION 409 AND  
SUBPART M****Intent**

The intent of Section 409 is the reduction of future hazard losses and their associated costs. Repair or replacement to applicable codes and standards and adoption of minimum standards ensures that structures are better able to withstand similar impacts from future events.

The evaluation of hazards and subsequent mitigation planning also ensures that future disaster losses will be reduced.

**Summary**

Section 409 of the Stafford Act states:

**SECTION 409**

As a condition of any disaster loan or grant made under the provisions of this Act, the recipient shall agree that any repair or reconstruction to be financed therewith shall be in accordance with applicable standards of safety, decency, and sanitation and in conformity with applicable codes, specifications, and standards, and shall furnish such evidence of compliance with this section as may be required by regulation. As a further condition of any loan or grant made under the provisions of this Act, the state or local government shall agree that the natural hazards in the areas in which the proceeds of the grants and loans are to be used shall be evaluated and appropriate action shall be taken to mitigate such hazards, including safe land use and construction practices, in accordance with standards prescribed or approved by the President after adequate consultation with appropriate elected officials of general purpose local governments, and the state shall furnish such evidence of compliance with this section as may be required by regulation.

Section 409 of  
the Stafford Act

Section 409 contains requirements related to two FEMA post-disaster programs -- the Public Assistance Program and the Hazard Mitigation Program planning requirement under Subpart M.

**Public Assistance Program Minimum Standards.** The first part of Section 409 refers to minimum standards for repairs and reconstruction conducted under FEMA's Public Assistance Program which is discussed in Chapter 2. Under the Public Assistance Program, standards refer to codes, specifications, and standards which were in general use and locally enforced at the time of the major disaster. They also include those additional standards authorized as deviations or prescribed by the Associate Director in accordance with these regulations.

Under the Stafford Act, the cost of bringing a facility up to current codes, specifications, and standards is an eligible cost under FEMA's Public Assistance Program. These minimum standards, including standards for hazard mitigation, can either be in place at the time of the disaster or can be adopted prior to approval of a project. Thus, improved minimum standards that are adopted by a state or local government prior to FEMA's approval of the repair or replacement of a damaged facility become eligible for Federal funding under the Public Assistance Program. Hazard mitigation funding for damaged public facilities and minimum standards are covered under the public assistance regulations at 44 CFR 206.226(a) Subpart H.

There are several methods that can be used to identify new standards:

1. Through the Interagency Hazard Mitigation Team or Hazard Mitigation Survey Team;
2. Through the hazard mitigation planning process;
3. By state or local governments;
4. Through the public assistance program; and
5. Through identification of mitigation measures under the Hazard Mitigation Grant Program.

Subpart M  
44 CFR 206.407 (b)

The ways in which a state can use these vehicles are discussed in Chapter 5.

**Planning Requirement.** Section 409 also requires the state to evaluate the hazards in the disaster area and take appropriate mitigation action.

The regulations for implementation of this portion of the law are contained at 44 CFR Part 206 Subpart M. Subpart M requires that state and local governments prepare and implement hazard mitigation plans as the method for evaluating the natural hazards in the disaster area, and to identify appropriate actions to reduce the risk from these hazards.

Under Section 409, hazard evaluation refers to an evaluation of state or local vulnerability to natural hazards. However, it is FEMA's intent that if a declaration is made for a technological hazard, state and local governments will be expected to evaluate the hazard(s) which caused the disaster. This supports FEMA's goal of comprehensive multi-hazard mitigation planning.

Following the evaluation, Section 409 requires that appropriate action be taken to mitigate such hazards and specifically mentions land use and construction practices as appropriate measures, indicating a long-term, comprehensive approach to mitigation. Under Section 409, the President is also authorized to prescribe or approve hazard mitigation standards that are reasonable, practicable, and cost-effective.

Though the requirements of Subpart M are implemented after a state receives a disaster declaration, state and local governments are encouraged to develop plans before a disaster occurs. At the time of a disaster, an existing mitigation plan may only need to be updated to address the current disaster situation and to satisfy FEMA requirements.

## **FEDERAL RESPONSIBILITIES**

Federal responsibilities under Subpart M are assumed by FEMA. Their key responsibilities are as follows:

Subpart M  
Requirement  
44 CFR 206.402 (b) (1)

Oversee all pre- and post-disaster hazard evaluation and mitigation programs and activities.

FEMA is responsible for administering the Hazard Mitigation Program within the Disaster Assistance Programs Division. These responsibilities are usually handled by the Federal Hazard Mitigation Officer. Hazard mitigation programs and activities include:

- The Disaster Preparedness Improvement Grant Program;
- The Hazard Mitigation Assistance Program;
- The Hazard Mitigation Grant Program;
- Leadership of Hazard Mitigation Survey Teams and Interagency Hazard Mitigation Teams; and
- Planning activities conducted under Section 409.

In anticipation of a disaster declaration, the Federal Hazard Mitigation Officer is also involved in pre-disaster activities. Such involvement includes participating on the Preliminary Damage Assessment to address mitigation issues, developing a mitigation strategy for the disaster, evaluating state mitigation programs and activities for the Regional Analysis and Recommendation, and assisting in forming the hazard mitigation language contained in the FEMA-State Agreement.

After a disaster, the designated Federal Hazard Mitigation Officer is responsible for leading the Hazard Mitigation Survey Team or, in the case of a flooding disaster, the Interagency Hazard Mitigation Team. FEMA is responsible for seeing that the Hazard Mitigation Survey Team or Interagency Hazard Mitigation Team report is completed within 15 days of the disaster declaration, as described in Chapter 2.

Once the Interagency Hazard Mitigation Team or Hazard Mitigation Survey Team report has been completed, the Federal Hazard Mitigation Officer is responsible for assisting the state with the development and implementation of the state hazard mitigation plan. This may include providing guidance and technical assistance during the plan development process, providing technical assistance from FEMA or other Federal agencies if requested, and reviewing drafts of the plan.

Subpart M  
Requirement  
44 CFR 206.402 (b) (2)

Appoint a Federal Hazard Mitigation Officer for each disaster to manage hazard mitigation programs and activities.

The position of the Federal Hazard Mitigation Officer is usually assumed by the FEMA regional Hazard Mitigation Officer, whose duties during a disaster include:

1. Serving as the point of contact for the State Hazard Mitigation Officer. If necessary, the Federal Hazard Mitigation Officer can provide basic information and training for the State Hazard Mitigation Officer on disaster activities and the hazard mitigation planning requirement.
2. Working with the State Hazard Mitigation Officer to include appropriate hazard mitigation provisions in the FEMA-State Agreement (discussed on page 14).
3. Serving as Hazard Mitigation Survey Team or Interagency Hazard Mitigation Team Leader. The FEMA Team Leader will activate representatives from appropriate Federal agencies, request participation from state counterpart agencies through the State Hazard Mitigation Officer, and involve local participation and private sector involvement as appropriate. The Federal Hazard Mitigation Officer is responsible for activating the team, determining the impacted areas to visit, surveying the damaged areas, overseeing the formulation of recommendations for the team report, and developing and distributing the Hazard Mitigation Survey Team or Interagency Team report. FEMA is also responsible for preparing a 90-day progress report that updates the status of the recommendations in the 15-day report.
4. Coordinating with the Public Assistance Officer to ensure that appropriate conditions and standards approved or prescribed by the Regional Director are incorporated into FEMA-funded projects. The Public Assistance Officer can also help identify severely impacted areas, types of damage received, and hazard mitigation recommendations of the engineers completing the Damage Survey Reports.
5. Coordinating with the Individual Assistance Officer to confirm severely impacted areas that may offer hazard

mitigation opportunities and provide guidance on funding hazard mitigation measures under the Individual and Family Grant Program.

6. Coordinating with the Public Information Officer to prepare press releases regarding hazard mitigation activities such as activation of the Hazard Mitigation Survey Team or Interagency Hazard Mitigation Team or notification that the 15-day report is complete. The Public Information Officer may also have newspaper articles or video coverage of the disaster that can assist with the team briefing.
7. Ensuring that all FEMA disaster assistance actions are in compliance with this subpart and 44 CFR Parts 9, Floodplain Management, and 10, Environmental Considerations.

Subpart M  
Requirement  
44 CFR 206.402 (b) (3)

Provide technical assistance to state and local governments in fulfilling mitigation responsibilities.

FEMA is responsible for providing technical assistance and guidance to the state during the planning process. Technical assistance may include, but is not limited to:

Subpart M  
44 CFR 206.406 (b) (1)

1. Identification of issues to be addressed in the hazard mitigation plan. These issues may be addressed through the Survey or Interagency Team report, Damage Survey Reports, the National Flood Insurance Program, and past disaster history;
2. Initial meeting with the state to identify key staff, schedule, and scope of work for development of the hazard mitigation plan or update;
3. Review of timelines, outlines, drafts, and other appropriate material during development of the hazard mitigation plan or update; and
4. Provision of Federal technical assistance information and identification of technical experts, if needed.

FEMA may also provide hazard mitigation training for the State Hazard Mitigation Officer, state agency representatives, and local officials. In addition, FEMA may task other Federal agencies to provide specialized kinds of technical assistance to support hazard mitigation.

Specialized  
Technical  
Assistance

After the 1983 Utah disaster, FEMA tasked the U.S. Geological Survey to conduct preliminary studies on the continued threat of debris flows and landslides along the Wasatch Front. The objective was to provide detailed technical information needed by local and state officials to make appropriate mitigation decisions, including whether or not to permit redevelopment of a severely impacted neighborhood.

Subpart M  
Requirement  
44 CFR 206.402 (b) (4)

Conduct periodic reviews of state hazard mitigation activities and programs to ensure that states are adequately prepared to meet their responsibilities under the Stafford Act.

During the plan development process, FEMA may require the state to submit progress reports or draft sections of the plan to assist with monitoring state activities.

Once the plan is completed, FEMA requires the state to submit annual progress reports indicating the status of each mitigation measure contained in the state hazard mitigation plan.

Federal and state hazard mitigation activities can be tracked through FEMA's Disaster Assistance Programs computer network. The hazard mitigation portion of the network can monitor the status of recommendations from the Hazard Mitigation Survey Team or Interagency Hazard Mitigation Team reports and the state hazard mitigation plan, as well as information on other state activities, such as the Disaster Preparedness Improvement Grant and the Hazard Mitigation Assistance programs.

Subpart M  
Requirement  
44 CFR 206.402 (b) (5)

Assist the state in the identification of the appropriate mitigation actions that a state or locality must take in order to have a measurable impact on reducing or avoiding the adverse effects of a specific hazard or hazardous situation.

The report by the Hazard Mitigation Survey Team or Interagency Hazard Mitigation Team is a second method for identifying possible mitigation measures. The report will identify potential hazard mitigation measures that should be considered as part of the recovery process. Recommendations for long-term considerations to be addressed in the state hazard mitigation plan may also be made in the mitigation team report.

Using the Interagency  
Hazard Mitigation Team  
Report to Recommend  
Mitigation Measures  
to be Addressed  
in the State  
Hazard Mitigation Plan

Following a 1986 disaster declaration for the state of Michigan, the Interagency Hazard Mitigation Team made the following recommendations to be addressed in the state hazard mitigation plan:

1. Create a State Hazard Mitigation Team with representation from all state agencies.
2. The Michigan Department of State Police, Emergency Management Division should reprioritize their FY 87 training and education needs to include the training of state agency personnel identified to serve on the State Hazard Mitigation Team proposed in Work Element 1.
3. The Michigan legislature should adopt the drafted legislation entitled, "Flood Damage Reduction Act."
4. The state of Michigan should review existing legislation and regulations addressing storage of hazardous materials in flood-prone areas for adequacy and/or enforcement.

The Federal and State Hazard Mitigation Officers should also examine previous state hazard mitigation plans for recommendations that have not been implemented but that may have an effect on reducing future damages.

Subpart M  
Requirement  
44 CFR 206.402 (b) (6)

Subsequent to a declaration, follow-up with state and local governments to ensure that mitigation commitments are fulfilled, and when necessary, take action, including recovery of funds or denial of future funds, if mitigation commitments are not fulfilled.

During the plan development process, FEMA may require progress reports from the state to ensure that the plan is being developed in a timely manner and that the state is going to meet its 180-day deadline.

FEMA may also make determinations as to whether documents, plans, or reports submitted by state and local applicants constitute adequate evidence of compliance with Section 409. Upon receipt of the hazard mitigation plan, FEMA will prepare written comments to the state indicating either approval of the plan or detailing existing shortcomings with a proposed method and schedule for improvement.

After the hazard mitigation plan has been approved, FEMA requires the state to submit annual progress reports. The annual progress report indicates the status of the recommended mitigation measures in the plan, problems that have developed, and recommended action, if necessary. For critical actions, FEMA may require more frequent status reports.

FEMA has the authority to ensure compliance with hazard mitigation commitments. If a state agreed to implement certain measures to prevent damage from a subsequent disaster and if the state fails to implement these measures, FEMA may recover funds or limit future funds.

### **STATE RESPONSIBILITIES**

The key responsibilities of the state are to coordinate and ensure implementation of all state and local activities regarding hazard evaluation and mitigation. Many of the state responsibilities parallel activities undertaken by FEMA and are conducted in coordination with the FEMA Hazard Mitigation Officer. State responsibilities are usually filled by the designated State Hazard Mitigation Officer.

Under Subpart M, the state is responsible for the following:

Subpart M  
Requirement  
44 CFR 206.402 (c) (1)

Appoint a State Hazard Mitigation Officer, who reports to the Governor or to an authorized representative, and who serves as the point of contact for all matters relating to Section 409 hazard mitigation planning and implementation.

The State Hazard Mitigation Officer is responsible for coordinating the development and implementation of state hazard mitigation plans. The State Hazard Mitigation Officer provides leadership for the involvement of other state agencies and local governments in the plan development process and the subsequent implementation, monitoring, and updating of the plan.

The State Hazard Mitigation Officer is also responsible for administering the Hazard Mitigation Grant Program, used for funding mitigation measures identified in the state plan, and for managing the Disaster Preparedness Improvement Grant and/or Hazard Mitigation Assistance programs.

Subpart M  
Requirement  
44 CFR 206.402 (c) (2)

Prepare and submit, in accordance with the FEMA-State Agreement and the requirements of this subpart, a hazard mitigation plan(s) or update to existing plan(s), as required under 206.405. Such plan or update is to include an evaluation of the natural hazards in the declared area and an identification of appropriate actions to mitigate those hazards.

In order to fulfill this requirement, the State Hazard Mitigation Officer must conduct a hazard analyses to identify frequency, magnitude, and location of hazard occurrences. Existing programs must be examined to determine the capabilities of existing mitigation systems. This occurs through the coordination of resources of other state agencies. It is recommended that a State Hazard Mitigation Team, composed of state agency representatives, be formed to assist with this effort. The team will be involved in plan development and recommendation formation, and will also have a role in implementing the recommendations of the plan. The hazard mitigation plan or plan update is due to FEMA within 180 days of the declaration date.

The state may request technical assistance from FEMA and from other Federal agencies, through FEMA, to assist with state mitigation responsibilities.

Subpart M  
Requirement  
44 CFR 206.402 (c) (3)

Participate on the Hazard Mitigation Survey Team or Interagency Hazard Mitigation Team activated after the declaration.

The State Hazard Mitigation Officer will assist the Federal Hazard Mitigation Officer with team activities, including identifying impacted areas for the team to visit, gathering state and local hazard mitigation history, identifying existing state mitigation programs, measures, projects, etc., and assisting with the state and local briefings and the team briefing.

Subpart M  
Requirement  
44 CFR 206.402 (c) (4)

Arrange for appropriate state and local participation on the Hazard Mitigation Survey Team or Interagency Hazard Mitigation Team and in the Section 409 planning process.

The State Hazard Mitigation Officer will participate on the Hazard Mitigation Survey Team or Interagency Hazard Mitigation Team and coordinate the participation of appropriate state agencies and local governments, as necessary.

Local officials in impacted areas should be involved in the planning process. This is essential because regulation and control of development within hazardous areas normally occurs at the local level. Local governments control various programs, such as building permits, construction standards, stormwater management, and flood control, that can be used to help accomplish hazard reduction goals and objectives. The State Hazard Mitigation Officer is responsible for identifying appropriate local officials to participate on the Hazard Mitigation Survey Team or Interagency Hazard Mitigation Team and in the state planning process to follow.

Involvement of  
Local Officials  
in Planning Process

In Cheyenne, Wyoming, the State Hazard Mitigation Officer coordinated the participation of the mayor, city engineer, and the county emergency coordinator on the Interagency Hazard Mitigation Team. Their involvement enabled the Interagency Hazard Mitigation Team to coordinate their recommendations with existing and planned mitigation measures. This coordination prevented the team from making recommendations for mitigation measures already underway or in place, or those that might be inappropriate locally.

Local governments often have existing programs and authorities that offer an opportunity for mitigation. Use of these existing capabilities can help achieve mitigation goals at the local level. For this reason, many times local governments are assigned the lead responsibility for implementing recommendations in the Hazard Mitigation Survey Team or Interagency Hazard Mitigation Team report or in the state hazard mitigation plan.

Subpart M  
Requirement  
44 CFR 206.402 (c) (5)

Follow-up with state agencies and local governments to ensure that appropriate hazard mitigation actions are taken. This involves coordination of plans and actions of local governments to ensure that they are not in conflict with each other or with state plans.

During the planning process the state will ensure that efforts to develop a hazard mitigation plan are coordinated with other hazard evaluation and mitigation planning programs within the state or local governments. These programs include the Disaster Preparedness Improvement Grant Program, the Hurricane Preparedness Program, the National Earthquake Hazards Reduction Program, the Dam Safety Program, the National Flood Insurance Program, and other similar programs of FEMA and other Federal agencies. Other state and/or local programs, such as capital improvement, community rehabilitation, and economic development, should also be examined for their support of mitigation objectives.

The State Hazard Mitigation Officer should also coordinate planning activities of state agencies and local governments. Individuals should be designated from each state agency and local government to report periodically on the status of recommendations in the hazard mitigation plan for which they have the lead responsibility, or on ongoing activities related to

the state's hazard mitigation program. This information should be shared with those involved in the planning process.

This information should also be included in the annual progress report the state is required to submit to FEMA. The progress report will indicate and document the status of mitigation actions recommended in the plan.

Subpart M  
Requirement  
44 CFR 206.402 (c) (6)

Ensure that the activities, programs, and policies of all state agencies related to hazard evaluation, vulnerability, and mitigation are coordinated and contribute to the overall lessening or avoiding of vulnerability to natural hazards.

The State Hazard Mitigation Officer should strive to develop a comprehensive state hazard mitigation program that will lessen a state's vulnerability to hazards. This requires awareness of other state and local programs and the ability to incorporate those programs and activities into a comprehensive state mitigation program.

Establishing leadership and maintaining contacts through meetings, visits, phone calls, or correspondence helps keep mitigation visible and contributes to the goals of the state program.

### **LOCAL GOVERNMENT RESPONSIBILITIES**

Under Subpart M, local governments are responsible for the following:

Subpart M  
Requirement  
44 CFR 206.402 (d) (1)

Participate in the process of evaluating hazards and adoption of appropriate hazard mitigation measures, including land use and construction standards.

Local governments may be required to participate in the evaluation of hazards conducted by the state. Local officials may be more aware of existing problems and hazardous situations than state or Federal officials.

For example, if a culvert is destroyed during a disaster, a local official may be able to take advantage of the disaster situation

to correct a recurring backflooding problem that was caused by the undersized culvert.

Subpart M  
Requirement  
44 CFR 206.402 (c) (2)

Appoint a Local Hazard Mitigation Officer, if appropriate.

In severely impacted localities and/or those jurisdictions that offer mitigation opportunities, a Local Hazard Mitigation Officer should be appointed to serve as a contact for the State Hazard Mitigation Officer. Not every locality in the disaster area may have a Local Hazard Mitigation Officer. If appointed, however, the Local Hazard Mitigation Officer should participate on the Hazard Mitigation Survey Team or Interagency Hazard Mitigation Team, coordinate the participation of other local officials on the Hazard Mitigation Survey Team or Interagency Hazard Mitigation Team, if appropriate, and participate in the plan development process.

Subpart M  
Requirement  
44 CFR 206.402 (d) (3)

Participate on Hazard Mitigation Survey Teams and Interagency Hazard Mitigation Teams, as appropriate.

Local participation can be solicited through the regional council of government, regional planning agency, local floodplain management agency, and local emergency management office. Representatives from these agencies are often ideal team members. These local officials can often provide historical and site-specific data and information on existing mitigation programs that are not readily available to state and Federal representatives. This information is valuable during the team briefing and when formulating potential mitigation measures.

Subpart M  
Requirement  
44 CFR 206.402 (d) (4)

Participate in the development and implementation of Section 409 plans or plan updates, as appropriate.

Local involvement in the development of the state hazard mitigation plan is integral to the success of a state's hazard mitigation program. Local jurisdictions have existing programs and authorities that offer an opportunity for mitigation. Depending on the conditions of the disaster and the impacted areas, local governments may be assigned lead responsibility for implementing recommendations in the plan.

Local Participation  
in Plan  
Development and  
Implementation

In Utah, following the 1984 disaster declaration for flooding, landslides, and mudslides, more than 15 local, volunteer, and private organizations participated in the development of the state hazard mitigation plan (1985). Local agencies have a lead responsibility for over 25% of the plan's recommendations, including such items as warning systems, preventative maintenance, planning, public education, land use regulation, and adoption of design standards.

In some instances the hazard mitigation plan requirement can be met solely by addressing the problems in the disaster area through a local hazard mitigation plan. In this case, the local government would have a major role in identifying mitigation opportunities and implementing the recommendations. The local hazard mitigation plan would then serve as an annex to the state plan.

Subpart M  
Requirement  
44 CFR 206.402 (d) (5)

Coordinate and monitor the implementation of local hazard mitigation measures.

Local governments may be tasked with the responsibility of implementing specific mitigation measures in either the Hazard Mitigation Survey Team or Interagency Hazard Mitigation Team report, or in the state hazard mitigation plan.

The designated Local Hazard Mitigation Officer should coordinate implementation activities with the State Hazard Mitigation Officer. If needed, the Local Hazard Mitigation Officer can request technical assistance from state or Federal agencies through the State Hazard Mitigation Officer.

The Local Hazard Mitigation Officer is also responsible for providing periodic updates on the status of mitigation measures to the State Hazard Mitigation Officer. This should be done

at least on an annual basis to assist the State Hazard Mitigation Officer in providing the required annual progress report to FEMA.

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**Chapter 4**

**INITIATING THE HAZARD  
MITIGATION PROCESS**

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**Chapter 4:****INITIATING THE HAZARD  
MITIGATION PROCESS**

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There are several activities that need to be accomplished before development of the hazard mitigation plan begins. This chapter discusses these activities and their relation to the planning process.

**HAZARD MITIGATION SURVEY TEAMS**

Hazard mitigation survey teams are activated immediately following a Presidential disaster declaration. Their primary purpose is to identify the following:

1. Hazard evaluation and mitigation measures that must be incorporated into the recovery process;
2. Possible measures for funding under the Hazard Mitigation Grant Program or under other disaster assistance programs; and
3. Issues for inclusion in the Section 409 plan.

Subpart M  
Requirement  
44 CFR 206.404 (a)

Activation of the Hazard Mitigation Survey Team occurs for all disasters. In the case of flood disasters, the Interagency Hazard Mitigation Team will serve as the Hazard Mitigation Survey Team, as described on page 24.

**Composition**

While the purpose of the Hazard Mitigation Survey Team is to provide technical assistance and coordinate agency program activities, the composition of each Hazard Mitigation Survey Team will vary. These characteristics are similar to those of State Hazard Mitigation Teams. Each team utilizes and maximizes skills and specialized areas of knowledge based on

the nature of the disaster. Detailed guidance on which agencies might be appropriate, and the role of agency representatives, is discussed on pages 65-67.

### **Interagency Hazard Mitigation Teams**

More than 80% of all Presidential disaster declarations are due to floods. Therefore, because of increasing annual flood losses and the need to coordinate Federal post-flood identification of immediate mitigation opportunities, the Office of Management and Budget issued a directive to twelve Federal agencies requiring them to enter into an interagency agreement to develop common post-flood recovery policies.

The interagency agreement requires that:

1. Within 15 days following any Presidentially declared flood disaster, an interagency, intergovernmental, and interdisciplinary team representing each of the signatory agencies, with FEMA acting as team leader, develops a report which identifies post-flood mitigation opportunities and common post-flood recovery policies.
2. Post-flood recovery policies are to stress mitigation of future damages and, in particular, nonstructural approaches to flood reduction.
3. Within 90 days of the disaster declaration, the team prepares and submits a progress report that indicates the status of agency efforts in carrying out recommendations of the 15-day report.

If it is determined that there are insufficient hazard mitigation opportunities to justify full Interagency Hazard Mitigation Team involvement, the Interagency Hazard Mitigation Team can be deactivated. When the Interagency Hazard Mitigation Team is deactivated without producing a 15-day report, the Hazard Mitigation Survey Team will be activated to identify mitigation issues and to prepare an appropriate report.

In a flood disaster, hazard mitigation activities of the Interagency Hazard Mitigation Team and the hazard mitigation planning requirement are integrated. The Interagency Hazard Mitigation Team report will provide an overall framework for the hazard mitigation and disaster recovery activities of the

participating Federal agencies, as well as guide planning activities and activities conducted under the Hazard Mitigation Grant Program.

### Survey Team Reports

Within 15 days of the declaration the Hazard Mitigation Survey Team or Interagency Hazard Mitigation Team report shall be prepared and distributed. If necessary, such as in the case of a large-scale disaster, the 15-day time frame may be extended.

The Hazard Mitigation Survey Team report should, at a minimum, contain the following:

1. A general description of the nature and extent of damages and anticipated short and long term impacts.
2. A description of the hazard which caused the damages, including any available information on frequencies, intensity, geographic extent, and historical occurrence.
3. An overview of Federal, state, and local land use or comprehensive development plans, policies, programs, and laws which are applicable for the impacted disaster area.
4. Identification of potential hazard mitigation measures and options, including land use and construction practices.
5. Identification of recommendations, including redevelopment moratoria, conditions on grants or loans for restoring public facilities and infrastructure, and other measures necessary to ensure that hazard mitigation opportunities are preserved and given adequate consideration. Recommendations should also include long term considerations to be addressed by state and local applicants in the hazard mitigation plan prepared pursuant to Section 409, including those measures which are recommended for funding under the Hazard Mitigation Grant Program.

The recommendations are the most important section of the Hazard Mitigation Survey Team or Interagency Hazard Mitigation Team report. Implementation of these actions will

help reduce the impact of future disaster events. At a minimum, each mitigation measure should identify a lead agency, funding source, and time frame for completion.

Sample  
 Interagency Hazard  
 Mitigation Team Report  
 Recommendation

RECOMMENDATION	
Work Element:	Analyze the short- and long-term feasibility of converting riverfront commercial space to open space use for riverfront parks.
Background:	In the commercial centers of Augusta, Hallowell, and Gardiner, along the Kennebec riverfront, flooding and the resulting costly interruption of business is a recurring event. The recently completed riverfront park in Augusta is an excellent example of an attractive, compatible floodplain use that can be subjected to even severe flooding with minimal repair costs. Parks like these can be put in place at relatively low cost and restored quickly at minor additional cost after floodwaters recede.
Lead Agency:	Department of the Interior, Maine Bureau of Parks and Recreation, and Maine State Planning Office.
Financing:	Department of the Interior, Department of Housing and Urban Development, Maine Bureau of Parks and Recreation, and local communities.
Schedule:	Immediate and long-term.

Federal, state, and local representatives should work together to develop the team report and its recommendations. All team members should be provided an opportunity to review and comment on the final draft of the report before it is finalized and distributed.

The Federal and State Hazard Mitigation Officers should coordinate with their respective Public Affairs Officers to ensure that the team report is released to the media. Involvement of print media, TV, and radio can help increase the public's awareness and garner support for implementation of mitigation measures (additional information on the role of the media is included on page 124).

The Hazard Mitigation Survey Team and Interagency Hazard Mitigation Team reports identify both issues to be addressed by the Section 409 planning process and potential measures to be

funded under the Hazard Mitigation Grant Program. The combination of the reports and the hazard mitigation planning requirement creates a comprehensive, intergovernmental approach to post-disaster hazard mitigation.

### HAZARD MITIGATION PLAN COORDINATION

Subpart M  
Requirement  
44 CFR 206.406 (c, h)

It is the responsibility of the state agency assigned lead responsibility for hazard mitigation to ensure that all other appropriate state agencies and local governments have the opportunity to participate in the development and implementation of hazard mitigation plans, and that the planning effort is coordinated with other hazard evaluation and mitigation planning programs within the state or local unit of government.

After the team report has been completed and distributed, the Federal Hazard Mitigation Officer will meet with the Governor's Authorized Representative and the State Hazard Mitigation Officer to discuss the hazard mitigation planning requirement. This meeting should occur within 30 days of a disaster declaration. Topics to be discussed should include:

1. The purpose and requirements of post-disaster planning under Section 409 and Subpart M;
2. The purpose and requirements of the Hazard Mitigation Grant Program and Subpart N;
3. Key hazard vulnerability or hazard mitigation issues that should be addressed by the hazard mitigation plan or plan update. These may be drawn from Hazard Mitigation Survey Team or Interagency Hazard Mitigation Team reports, floodplain management and hazard mitigation reviews, information from the jurisdictions' Computerized Hazard Identification Program (described on page 95), and any other background information obtained from damage assessments of field reconnaissance;
4. The nature and extent of local applicant involvement in development of the plan or plan update;

5. Coordination with other mitigation-related plans and programs; and
6. Proposed time table and methodology for development of the plan and interim outputs.

After the State Hazard Mitigation Officer has been briefed, the Federal Hazard Mitigation Officer may suggest that a meeting or training session be held for those state agency representatives and appropriate local officials that will be involved in the planning process. A suggested agenda is provided below. This may be modified by a state to address their own needs.

Suggested Agenda  
for Initial  
State Hazard  
Mitigation Meeting

AGENDA

Initial State Hazard Mitigation Meeting

Introduction

- Purpose and Objectives of Meeting
- Background on Disaster Recovery Activities
- Explanation of Hazard Mitigation and Section 409 Planning Requirement

Federal/State/Local Hazard Mitigation Responsibilities

Purpose of the Task Force

- Role of State Agencies

State Hazard Mitigation Plan Format

- Plan Organization
- Procedures for Developing the Plan
- Time Table for Plan Development
- Implementation of the Plan

Identification of Critical Mitigation Issues

- Hazard Mitigation Survey Team or Interagency Hazard Mitigation Team Report
- Questionnaire
- Alternative Issues

Conclusion

## STATE HAZARD MITIGATION OFFICER

Subpart M  
Requirement  
44 CFR 206.402 (c)

The state is responsible for appointing a State Hazard Mitigation Officer, who reports to the Governor or to an authorized representative, and who serves as a point of contact and coordinator for all matters relating to Section 409 hazard mitigation planning and implementation.

One primary responsibility of the State Hazard Mitigation Officer is to oversee the development and implementation of the state hazard mitigation plan. The State Hazard Mitigation Officer is also involved in hazard mitigation activities that occur in the pre-declaration phase, disaster declaration phase, on-site assistance phase, and post-disaster follow-up phase (see Chapter 3, State Responsibilities).

Hazard mitigation is an ongoing long-term function. The state should appoint a full or part-time hazard mitigation officer who can assume mitigation responsibilities when necessary. During a disaster, fulfilling these responsibilities generally requires a full-time position. Many of these duties will continue after disaster operations are completed and will require long-term monitoring and coordination.

### Factors for Selection of a State Hazard Mitigation Officer

Providing continuity to a state's hazard mitigation program is a critical consideration when selecting a State Hazard Mitigation Officer. Hazard mitigation is an ongoing process and requires continual attention in terms of coordination, monitoring, and follow-up. For this reason a state should appoint a State Hazard Mitigation Officer who will serve in this position for every disaster and fulfill both pre- and post-disaster responsibilities.

A second key factor in the selection of the State Hazard Mitigation Officer relates to the State Hazard Mitigation Officer's role as coordinator. One of the primary functions of the State Hazard Mitigation Officer is to involve representatives from other state agencies, local governments, and the private sector in the planning process. This involves coordinating personnel and resources at all levels of

government. It also requires that the State Hazard Mitigation Officer be able to work within the political arena to accomplish the state's mitigation goals.

### **Skills**

A State Hazard Mitigation Officer is not required to have hazard-specific knowledge or specialized experience. Rather, the position requires a general background that will enable the State Hazard Mitigation Officer to work with other state agencies and individuals that have technical expertise. The State Hazard Mitigation Officer has many responsibilities that cannot be adequately fulfilled by one person. The State Hazard Mitigation Officer must rely on assistance from other state agencies to accomplish the required duties.

The following are valuable State Hazard Mitigation Officer skills:

- Skills for coordinating and managing resources;
- Intergovernmental team leadership;
- Consensus building;
- Management skills;
- Organizational skills;
- Communication skills;
- Knowledge of the political process and situation; and
- Marketing skills.

### **Options for Agency Location of a State Hazard Mitigation Officer**

The State Hazard Mitigation Officer does not have to be located in any one specific agency. The position has been established in several different agencies in various states across the country. For example, it may be located within a state agency that maintains expertise for a particular hazard, such as the state forestry department for a state where wildfires are a

constant and destructive hazard, or a water resources agency in states which have severe flood problems. In some states the State Hazard Mitigation Officer is located in the Governor's Office. Such placement can be advantageous in terms of obtaining support for hazard mitigation activities.

Frequently, the State Hazard Mitigation Officer is located in the state emergency management agency. This agency acts for the Governor following Presidential disaster declarations and is usually responsible for meeting the post-disaster hazard mitigation planning requirement. As a coordinating agency, they have established contacts within other state agencies. They also have access to training and financial support for hazard mitigation activities.

### **Responsibilities**

In addition to the responsibilities discussed in Chapter 3, the State Hazard Mitigation Officer has specific duties related to the development and implementation of the state hazard mitigation plan. These include:

- Conducting hazard analyses.

The State Hazard Mitigation Officer must conduct hazard analyses to identify frequency, magnitude, and location of hazard occurrences. This can be accomplished by using existing information obtained from other state or Federal agencies.

- Coordinating with other state agencies.

Working with other state agencies is essential to the success of the mitigation planning process, not only for the expertise agency representatives bring to the project but also for their assistance in helping to develop and implement the recommendations in the plan (see page 67 for additional information on the role of other state agencies).

- Evaluating existing programs.

The State Hazard Mitigation Officer must know what systems are in place either to detect hazards or to help reduce their impact when a disaster occurs. Are there warning systems available? What types of data

collection are they based upon? Who collects the data and what criteria is utilized to interpret its significance? What structural measures are in place and who owns and maintains them? What effect do they have upon the hazard or the potential hazard losses? Are there hazard zone development ordinances? Are they adequately enforced? This information forms the basis for identifying potential recommendations for the hazard mitigation plan, and can be obtained by the State Hazard Mitigation Officer from other state agencies.

- Providing technical assistance to local governments.

The State Hazard Mitigation Officer should assist local governments in developing hazard mitigation plans and programs. The State Hazard Mitigation Officer may also be requested by local governments to assist them with implementation of recommendations for which they have the lead responsibility.

- Implementing, monitoring, and maintaining the plan.

The State Hazard Mitigation Officer is responsible for overseeing the implementation of the recommendations, monitoring the progress of plan implementation, providing annual progress reports to FEMA, and for ensuring the plan remains current.

- Monitoring changes in vulnerability.

The State Hazard Mitigation Officer is responsible for monitoring the changes in vulnerability that result from implementing plan recommendations. This helps indicate the effectiveness of a particular activity.

Fulfilling these responsibilities may require the State Hazard Mitigation Officer to utilize the knowledge and skills of other state agencies. For example, the State Hazard Mitigation Officer may use information from the state geological survey to identify and evaluate landslide hazards. The most successful State Hazard Mitigation Officers are coordinators of existing resources of other state agencies.

## DEVELOPING A STATE HAZARD MITIGATION TEAM

Subpart M  
Requirement  
44 CFR 206.406 (a)

A critical element of successful mitigation planning is the involvement of key state agencies, local units of government, and other public or private sector bodies or agencies that influence hazard management or development policies within a state or local unit of government.

A team is a designated group that has a common purpose and whose members meet, train, and work together on a regular basis. A State Hazard Mitigation Team is a group of professionals whose purpose is to evaluate hazards, identify strategies, coordinate resources, and implement measures that will reduce the vulnerability of people and property to damage from hazards.

These are several advantages to having an organized team. It provides:

1. A multi-disciplinary approach to complex problems;
2. A variety of financial resources for implementing recommendations;
3. Division of labor among agencies for both developing the plan and implementing the recommendations; and
4. Specialized expertise for a variety of subjects.

### Mitigation Network

A mitigation network consists of a much broader group of professionals that constantly changes and expands. This group is formed through an informal relationship with the State Hazard Mitigation Officer through fulfillment of state mitigation responsibilities. The State Hazard Mitigation Officer's mitigation network provides support to the State Hazard Mitigation Team by providing technical information on specific hazards and by supporting mitigation activities.

## Use of Mitigation Network

During the 1980s the Great Salt Lake rose to record levels. In order to develop recommendations that addressed the rise of the lake, the State Hazard Mitigation Officer needed to determine how high the lake had been in the past and how high it was expected to reach in the future. Experts in sunspot, tree ring, and lake bed sediment research were involved in this determination. These individuals would not normally be included on a state team but their expertise and the technical information they provided were valuable in assisting the state team develop recommendations to address the lake's rise. These individuals had completed research in their respective fields and had determined the elevation of the lake during historic times, including the length of time the lake remained at specific levels and frequency of high and low lake elevations. From their research, they were able to infer that the lake had risen to 4217 feet as many as three times in the past 500 years and could conceivably reach this elevation again.

### Establishing a State Hazard Mitigation Team

There are several techniques that have been used to formalize state hazard mitigation teams.

**Executive Order.** Use of an Executive Order is one way a state can formalize a state team. It can also be used to develop and adopt long-term hazard mitigation goals. It ensures that there will be a continuity to mitigation that will outlast a current need, recognition, or administration. It establishes mitigation as a priority of the state with support by the Governor.

In Colorado, the Division of Disaster Emergency Services developed an Executive Order establishing a mitigation council. Agency representatives met with the Governor to discuss the hazard threat and potential impacts. Information provided to the Governor included identification of 40 major slide areas in the state, potential impacts and related costs, local vulnerability, and available resources. The Governor was aware of the hazard threat and understood the value of establishing a council. He also realized that the council required no funding from the state. The council is an interagency effort and is guided by the Colorado Landslide Hazard Mitigation Plan and other state hazard mitigation plans.

Executive Order  
Creating a  
State Hazard  
Mitigation Team

EXECUTIVE ORDER

ESTABLISHING A COUNCIL FOR THE  
IMPLEMENTATION OF STRATEGIES  
TO MANAGE MITIGATION OF  
NATURAL HAZARDS IN COLORADO

WHEREAS, various natural hazards have caused physical and financial impacts in Colorado and will continue to do so; and

WHEREAS, these impacts have resulted in unexpected costs to state and local governments as well as degradation of the state's health, safety, environment, infrastructure and economy; and

WHEREAS, the opportunities to significantly manage floods, landslides, wildfires, and other natural hazards are identifiable and should be executed as funding is available; and

WHEREAS, mitigation recommendations can be effectively prioritized and managed by a state council, supported by interagency working groups; and

WHEREAS, a need exists to provide formal recognition, authority and responsibilities to this organizational structure;

NOW THEREFORE, I, Roy Romer, Governor of the State of Colorado, by virtue of the authority vested in me under the constitution and laws of the State of Colorado, including the Colorado Disaster Emergency Act of 1973, 24-33.5-701, et seq., hereby Order:

1. The Colorado Natural Hazards Mitigation Council is hereby created. The council will be chaired by the Colorado Department of Natural Resources and consist of as many as 25 representatives. The following organizations or groups shall be appointed by the Governor:

- The Governor's Office
- State departments of Natural Resources, Highways, Local Affairs, Public Safety, Health and Agriculture
- The Colorado Municipal League and Colorado Counties, Inc.
- The Natural Hazards Center, University of Colorado
- Business community
- The Federal Emergency Management Agency (Region VIII) and the National Weather Service (National Oceanic and Atmospheric Administration)
- U.S. Army Corps of Engineers
- Legislative representation
- Elected local officials from areas of the state with high risk natural hazards
- The general public

Executive Order  
Creating a  
State Hazard  
Mitigation Team  
(cont.)

The Speaker of the House of Representatives, the President of the Senate, the Minority Leader of the Senate and the Minority Leader of the House of Representatives may each appoint one legislative representative. All members will serve for a term of two years with reappointments permitted at the pleasure of the Governor. The Governor will appoint the chairperson.

2. The chairperson will appoint a steering committee and an executive secretary to carry on the administrative activities of the council.

3. The responsibilities assigned to the council are to:

- a. Identify vulnerability to various natural hazards and evaluate the options available to mitigate such risks.
- b. Review current mitigation plans for such hazards as wildfires, droughts, and avalanches.
- c. Develop a unified management strategy with recommendations concerning state, federal, or local mitigation responsibilities.
- d. Prioritize hazards statewide.
- e. Assist local government in seeking funding to implement hazard mitigation recommendations.
- f. Meet at the call of the chairperson, but no less frequently than once a year.
- g. Prepare an annual work program and status report covering progress achieved and provide periodic updates to the Governor and the state legislature.
- h. Inform local government and the general public of the activities and recommendations of the council.

The council is directed to place high priority on use of the Colorado Flood Hazard Mitigation Plan and Landslide Hazard Mitigation Plan, and should coordinate and prioritize the projects contained in these plans and any other plans dealing with natural hazards.

**Memorandum of Understanding.** A second method of establishing a State Hazard Mitigation Team is with a memorandum of understanding. Such a memorandum is usually established between the State Hazard Mitigation Officer's agency and other state agencies. A Memorandum of Understanding helps to establish a formal commitment by other state agencies to participate in the mitigation planning process, support mitigation activities, and provide resources to complete specific mitigation tasks. Memorandums of Understanding define the authority and responsibility of agency members. The team members designated by agency directors assist with hazard mitigation activities related to the Hazard Mitigation

Grant Program and the hazard mitigation planning requirement, and ongoing activities of the state hazard mitigation program.

In Utah, the State Hazard Mitigation Officer identified fourteen state agencies to participate on the State Hazard Mitigation Team. The State Hazard Mitigation Officer developed a letter that was sent by his department head to the other state agency directors requesting their participation on the State Hazard Mitigation Team.

November 18, 1987

E.H. Findlay, Executive Director  
Utah Department of Transportation  
4501 South 2700 West  
Salt Lake City, Utah 84119

Dear Mr. Findlay:

The state Division of Comprehensive Emergency Management (CEM) is required by both federal and state law and/or agreements to use various "interagency teams" to coordinate emergency management within the state, including hazard mitigation. This letter requests that you select two team members from your agency for the State Hazard Mitigation Team, a multi-agency team organized to provide managers with perspectives on Utah hazard mitigation and to develop and help implement the State Hazard Mitigation Plan. This team is separate from the State Agency Response Team also used by CEM during emergencies. The team does not create policy. The State Hazard Mitigation Plan contains an ongoing and changeable array of recommendations designed to reduce the threat from Utah's hazards. Team members must be technically qualified and have authority to represent their agency in developing the plan.

Responsibilities and rationale for this team are explained on the next few pages. The Hazard Mitigation Team consists of agencies that do planning, engineering, engineering design, or work on hazards to mitigate them. Advisory agencies for the team provide input to the team for either hazards identification or potential impact.

The time commitment for team members will be a few hours per month, plus additional time should a disaster strike. Have your selected team members contact Fred May, State Hazard Mitigation Officer, at 533-5271, as he will need to meet with them.

Sincerely,

John T. Nielson, Commissioner

Sample  
Memorandum of  
Understanding

**State Administrative Plan.** A third approach for establishing a State Hazard Mitigation Team is through the state's administrative plan. The plan is required under the Hazard Mitigation Grant Program and identifies the financial and management procedures that the state will use to administer the Hazard Mitigation Grant Program. One of the criteria of the plan is to identify the staff to assist with implementation of the program. It is here that the state can identify state agencies to be involved with the Hazard Mitigation Grant Program and related hazard mitigation activities.

Using  
State  
Administrative  
Plan to  
Establish  
State Team

Kentucky's State Administrative Plan states that the state hazard mitigation team members will be designated by the appropriate directors/commissioners/cabinet secretaries of state agencies having hazard mitigation expertise and responsibilities. An executive order by the governor or memoranda of understanding may be used as needed to define authority and responsibility of team members.

State agencies to be represented on the state hazard mitigation team include:

1. Office of the Governor
2. Department of Local Government
3. Flood Control Advisory Commission
4. Finance and Administration Cabinet, Department for Facilities Management
5. Natural Resources and Environmental Protection Cabinet, Department of Environmental Protection
6. Department of Military Affairs, Division of Disaster and Emergency Services
7. State Coordinating Officer
8. State Public Assistance Officer/Governor's Authorized Representative
9. State Hazard Mitigation Officer

## Agencies Participating on State Hazard Mitigation Team

Many state agencies will be involved in developing the state hazard mitigation plan. Any agency that directly or indirectly supports, influences, or monitors development or natural resources will have a role in the mitigation planning process.

**Primary Agencies.** A core group of agencies should be represented on the State Hazard Mitigation Team.

Any state agency that influences development within hazardous areas through ongoing programs and activities should be involved in the development and implementation of hazard mitigation plans.

This includes, but is not limited to, agencies involved with:

- Emergency management
- Natural resources
- Floodplain management
- Environmental regulations
- Planning and zoning
- Community development
- Building regulations
- Infrastructure regulation or construction
- Public information
- Insurance

Subpart M  
Requirement  
44 CFR 206.406 (c)

**Secondary Agencies.** Other state agencies should be examined for the possible role they may have in the mitigation process. The State Hazard Mitigation Officer may discover a state agency not listed above that has a program or an authority that can help to support mitigation objectives.

Use of Federal,  
State, and Local  
Officials, and  
Private  
Organizations  
in Plan  
Development

During the development of a wildfire mitigation plan, the Oregon Department of Forestry utilized a working group that included, in addition to state agencies, federal and local agencies, and representatives from State Farm Insurance, Keep Oregon Green, and 1000 Friends of Oregon organizations. These groups not only contributed to the process but had a stake in the results and recommendations of the plan.

**Local Participation.** The State Hazard Mitigation Officer should encourage participation by local officials in the hazard mitigation planning process. The State Hazard Mitigation Officer should work with the Local Hazard Mitigation Officer to identify and coordinate local involvement. The State Hazard Mitigation Officer should seek participation from the regional council of government, regional planning agency, local flood-plain management agency, or local emergency management office.

Subpart M  
Requirement  
44 CFR 206.406 (d)

Local participation in hazard mitigation planning is essential because regulation and control of development within hazardous areas normally occurs at the local level.

Local programs can be utilized to help accomplish hazard mitigation objectives. Local officials may also be able to provide information on existing mitigation programs of which the State Hazard Mitigation Officer has no knowledge.

**Private Sector Involvement.** The State Hazard Mitigation Officer may also elect to involve the private sector in the planning process.

Subpart M  
Requirement  
44 CFR 206.406 (e)

Support from the private sector is often essential to successful implementation of mitigation strategies at the local level. Involvement of the private sector in the early stages of the planning process may facilitate understanding and support for mitigation.

## Role of Team Members

**Decision-maker.** The team member should be an agency representative that can facilitate decision-making and policy interpretation related to agency programs. The team member should also be knowledgeable about agency funding programs. It is desirable for the team member to have authority to commit his or her agency, however, it is realized that this may not be possible in all cases. A team member who has no authority will be less effective than a team member who can commit the agency or who has access to an official with the necessary authority.

**Technical Expert.** Mitigation team members should possess, or at least have direct access to, technical expertise appropriate to the agency. The State Hazard Mitigation Officer relies on the team member to convey this information to the group to assist in making decisions appropriate for that specific hazard. For example, an earthquake or landslide will require the technical expertise of a geologist, seismologist, or geotechnical engineer.

Technical Expertise  
of  
Team Member

In Utah, following a presidential disaster declaration for flooding and landslides in 1984, representatives from the Utah Geological and Mineral Survey participated on the state team to provide technical information on Utah's geologic hazards and to help formulate recommendations for the state hazard mitigation plan.

**Ability to Participate in Complex Projects.** Team members must be able to work together to develop and implement comprehensive mitigation programs. Team members, either alone or in cooperation with another state agency, will be responsible for implementing the recommendations in the state hazard mitigation plan.

## Role of Governmental Support in Mitigation

Governmental support, especially from the Governor's Office, is a vital element of the mitigation planning process.

**Role of the Governor's Office.** Participation by the Governor's Office can be critical to the success of a state's hazard mitigation program. The Governor can contribute to this process in several ways:

1. By issuing an Executive Order to create a State Hazard Mitigation Team and to support the development of a comprehensive state hazard mitigation program;
2. By having a staff member participate on the State Hazard Mitigation Team and in the plan development process;
3. By endorsing the state hazard mitigation plan when completed, and by actively supporting the implementation of recommendations;
4. By prioritizing hazard mitigation activities of state agencies; and
5. By influencing the legislative process to ensure mitigation objectives are achieved.

**Role of Agency or Department Head.** There are two main responsibilities of agency directors. They are responsible for providing staff to participate in the planning process. The State Hazard Mitigation Officer must convince the department head that their agency offers a particular skill, can provide technical information, or may be able to provide funding programs to support mitigation activities.

The second role of the agency director is to interface with other state agencies on mitigation activities. Much of the mitigation process involves coordination among various agencies and levels of government. Many times plan recommendations involve combining programs and funding sources from more than one agency.

The agency director may also find that involvement in the mitigation planning process will help in obtaining funding and legislative support for agency projects.

Whenever appropriate, the State Hazard Mitigation Officer should seek the active involvement of the Governor's Authorized Representative in the planning process. This representative can be very influential in obtaining the support of other state agencies.

## Benefits of State Agency Participation

A state geological survey may have tried for several years to produce a series of maps depicting areas vulnerable to landslides but due to budgetary constraints and conflicting priorities, this project is eliminated from the agency's budget by the legislature. If, after a landslide disaster, a recommendation to complete this mapping project is included in the state hazard mitigation plan, there will be more likelihood that the legislature would fund such a project since it is included in a document approved by the Governor and given state priority. In this manner, the agency can use the plan as a budget and policy tool. It also provides incentive for state agency participation.

### **Role of the Legislature, Local Elected Officials, and Others.**

The State Hazard Mitigation Officer should try to make the legislature aware of the state hazard mitigation plan and its recommendations because the success of many of the mitigation initiatives will depend on the support and funding of the legislature. The State Hazard Mitigation Officer can work through the Governor's Office to achieve this end. The Governor may be able to assist in influencing actions of the legislature. This may also be achieved by providing a copy of the completed plan to the entire legislature or, at a minimum, appropriate committee members.

The State Hazard Mitigation Officer also needs to involve local politicians, business, industry, community service groups, volunteer organizations, and environmental associations in the mitigation process. Groups that have a stake in the mitigation recommendations, either supporting or opposing an activity, should be approached by the State Hazard Mitigation Officer for participation either on the team or as part of the mitigation network. These groups can help garner support for mitigation activities.

### **NEED FOR MITIGATION TRAINING**

Training is often needed for the State Hazard Mitigation Officer, the state team, and other state and local officials before plan development begins. Often, state and local officials may not have a full understanding of the purpose or need for mitigation teams and planning. Training can identify these needs and describe the benefits of an ongoing mitigation capability and its supportive relationship to major procedural and policy decisions. Training should be conducted annually to provide updates on the implementation of plan recommendations, details on any changes in the hazard mitigation program,

and information on pending or critical issues. Annual meetings also help to maintain a sense of team and provide continuity in the hazard mitigation program.

FEMA has developed several hazard mitigation courses that can be tailored for appropriate audiences. These courses are designed for Federal, state, and local officials and can be conducted by FEMA or the State Hazard Mitigation Officer. FEMA also has a training facility, the Emergency Management Institute, that provides in-residence training in Emmitsburg, Maryland.

For additional information on available courses, the State Hazard Mitigation Officer should contact the state training officer. Appendix E identifies specific natural hazard mitigation courses available through the Emergency Management Institute as well as the FEMA regional training officers.

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**Chapter 5**

**DEVELOPING A HAZARD MITIGATION  
PLAN**

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## Chapter 5:

# DEVELOPING A HAZARD MITIGATION PLAN

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### OVERVIEW OF PLANNING PROCESS

Planning is a process that is undertaken to meet existing or anticipated needs. Plans are developed as guides, and when implemented, affect the future by not leaving it to chance. There is a similar process basic to the development of all plans that includes:

1. Identification of a need;
2. Definition of goals and objectives;
3. Identification of a range of alternative measures;
4. Selection of a set of criteria, against which acceptability of the identified measures may be judged;
5. Adoption and implementation of selected measures; and
6. Monitoring, evaluation, and adjustment of the plan.

These general planning process steps are the same steps that should be followed when developing hazard mitigation plans.

### Hazard Mitigation Planning

Subpart M  
44 CFR 206.406 (a)

A sound planning process is essential to the development of an effective mitigation plan.

**Identifying the Need.** The hazard mitigation planning process begins with either the recognition or the requirement that systematic steps must be taken in order to reduce the continued exposure to losses from natural hazards. A disaster, even one that does not qualify for Federal assistance, is a strong indication that a need exists. An accurate description of this need

can be obtained by evaluating the hazards that affect your jurisdiction and the impact they might have upon it.

**Defining the Goals and Objectives.**

Subpart M  
Requirement  
44 CFR 206.406 (f)

The participants in the planning process shall develop the basic mitigation goals and objectives from which the proposed hazard mitigation strategies, programs, and actions required under 206.405 (3) shall be drawn [see page 82].

Goals. There must be definitive, realistic goals in the planning process. Goals should be long-term and general and may be developed by analyzing the results of the hazards evaluation undertaken to describe the need this planning effort seeks to meet.

Public safety is a common goal of hazard mitigation planning. The hazard evaluation may lead to more specific purposes though, such as the minimization of damage to public and private property or the ability to maintain critical public services.

All goals should be analyzed to determine the probable consequences associated with the selection of stakeholder opinions. Stakeholders are those people and organizations that would be affected by pursuit of the goal, either directly or indirectly, and may include taxpayers, property owners, insurance agents, and local officials.

Another community goal may be to promote economic development. Notice that both public safety and economic development are general and of a wide scope. Measures such as zoning, development incentives, and location of infrastructure may be utilized to meet these goals. However, such measures, while they help in the accomplishment of one goal, may inhibit the achievement of another. For instance, building measures taken to promote economic development actually could inhibit public safety if such construction takes place in hazardous areas.

It is important to realize that goals need not be competing, though. In fact, hazard mitigation has a much greater likelihood for success when goals are effectively combined. A state goal may involve incorporating hazard mitigation into

other state programs, such as including hazard mitigation as one of the criteria for evaluating potential Community Development Block Grant projects.

All communities and states are encouraged to include the goal of protection of natural and beneficial values of floodplains within their mitigation plans. In this way, basic environmental goals can be combined with those of hazard mitigation.

Combining  
Hazard Mitigation Goals  
with  
Other Community Goals

The town of Nags Head, North Carolina, situated on the Outer Banks north of Cape Hatteras, has developed a Hurricane and Storm Mitigation and Reconstruction Plan. The plan addresses hurricane preparedness and the rebuilding of the town after a severe storm. It includes a Hurricane Reconstruction Program that will guide the community during the redevelopment process. Both the plan and the program address the long-term community development goals of maintaining economic viability while limiting growth in order to preserve the single-family character of the town. The incorporation of complementary planning goals contributed to its public acceptance.

Objectives. Unlike goals, which are both general and long-term, objectives are specific and achievable in a finite time period. Objectives are developed in order to separate established goals into management components. For example, objectives might include adoption of policies for assurance against development in hazardous areas. The objective, then, would be to establish a policy that serves to prohibit building in an area that is vulnerable to natural hazards. This objective could be an element of the general goal to promote public safety.

Objectives can also encompass a set of completed actions or improved procedures. An improved procedure, such as a specific building regulation, could also prompt the meeting of goals such as public safety or economic development.

Objectives are developed for the purpose of focusing on components of general goals. Similarly, specific mitigation measures are established for the implementation of goals.

**Identifying a Range of Alternative Mitigation Measures.** What actions or measures could be initiated in order to meet the goals of the planning process? This step requires that an examination of a jurisdiction's existing capabilities be completed. There may already be the capability to mitigate the

effects of hazards within the area. Land use zoning, building codes, and subdivision regulations are often used to protect future development.

This examination may also identify shortfalls in a jurisdiction's capability to mitigate the hazard. Measures might include adopting legislation that would enable the enactment of activities that are not currently feasible.

Examining Existing Mitigation Capabilities Can Lead to Identifying Alternative Mitigation Measures to Overcome Shortfalls and Meet Planning Goals

Rhode Island's Hazard Mitigation Plan (1986) includes a recommended mitigation action to amend state zoning enabling legislation to specifically authorize the use of cluster and planned unit developments. This would allow local governments to permit these types of developments which reduce runoff and flooding through encouraging greater provisions for open space and reduced impermeable surfacing such as roadways.

The range of measures considered should seek to go beyond conventional wisdom by assuming an environment free of constraints. Such an environment would be one without stakeholders. Application of a set of criteria will distinguish those measures that are most appropriate.

Sample Field of Alternative Mitigation Measures

#### PROPOSALS TO FUND A RELOCATION PROGRAM

- Government funding;
- Corporate or foundation funding;
- Insurance programs;
- Donation (land and/or money); or
- Public/private land swap.

**Selecting a Set of Criteria.** Criteria that support the goals of the planning effort and the goals of other jurisdictional planning efforts must be selected. Criteria should be determined by generating a range of options, analyzing each, and selecting the preferred choices. A method of selection would be to determine the probable consequences associated with one set of criteria over another. The acceptability of the proposed measures can then be judged and selected against the chosen criteria.

Using Criteria to  
Determine  
Appropriateness of  
Proposed Mitigation  
Measures

Common mitigation criteria stipulates that the selected measure be economically justifiable, technically feasible, socially equitable, and environmentally sound. If relocation of structures at risk is the chosen mitigation measure, the following conditions must be met in order to satisfy these criteria.

- The cost of relocation must be less than the cost of the repetitive repairs that would be necessary if there were no relocation.
- The structures must be able to be moved from their present location to a suitable alternative site.
- The relocation must be acceptable to those who are to participate.
- The relocation must be affordable to all of those it affects, and not discriminate against those who are unable to bear the cost of either moving the structure or finding comparable housing.
- In the case of a public facility, such as a fire station, the relocation should not result in an inequitable distribution of fire protection services.
- The relocation project must meet appropriate environmental regulations and not cause any adverse effects.

**Adopting the Selected Measures.** After scrutinizing the preferred measures against the criteria to ensure that they will achieve the chosen goals, those selected should be recommended to the appropriate governing officials. The elected officials can then conduct both in-house and public reviews, incorporate suitable recommendations, and formally adopt the necessary activities.

Figure 3 presents the relationship between mitigation planning goals, objectives, and measures.

**Implementing and Monitoring Mitigation Measures.** Following formal adoption and initiation of the mitigation activities, care should be taken to monitor their effect. It is important to be able to discern if the actions being taken are resulting in the desired objective of lessening the exposure to the hazard. Additionally, the overall exposure to hazards needs to be continually monitored to ensure that while this exposure is being decreased in one location, it is not increasing in another.

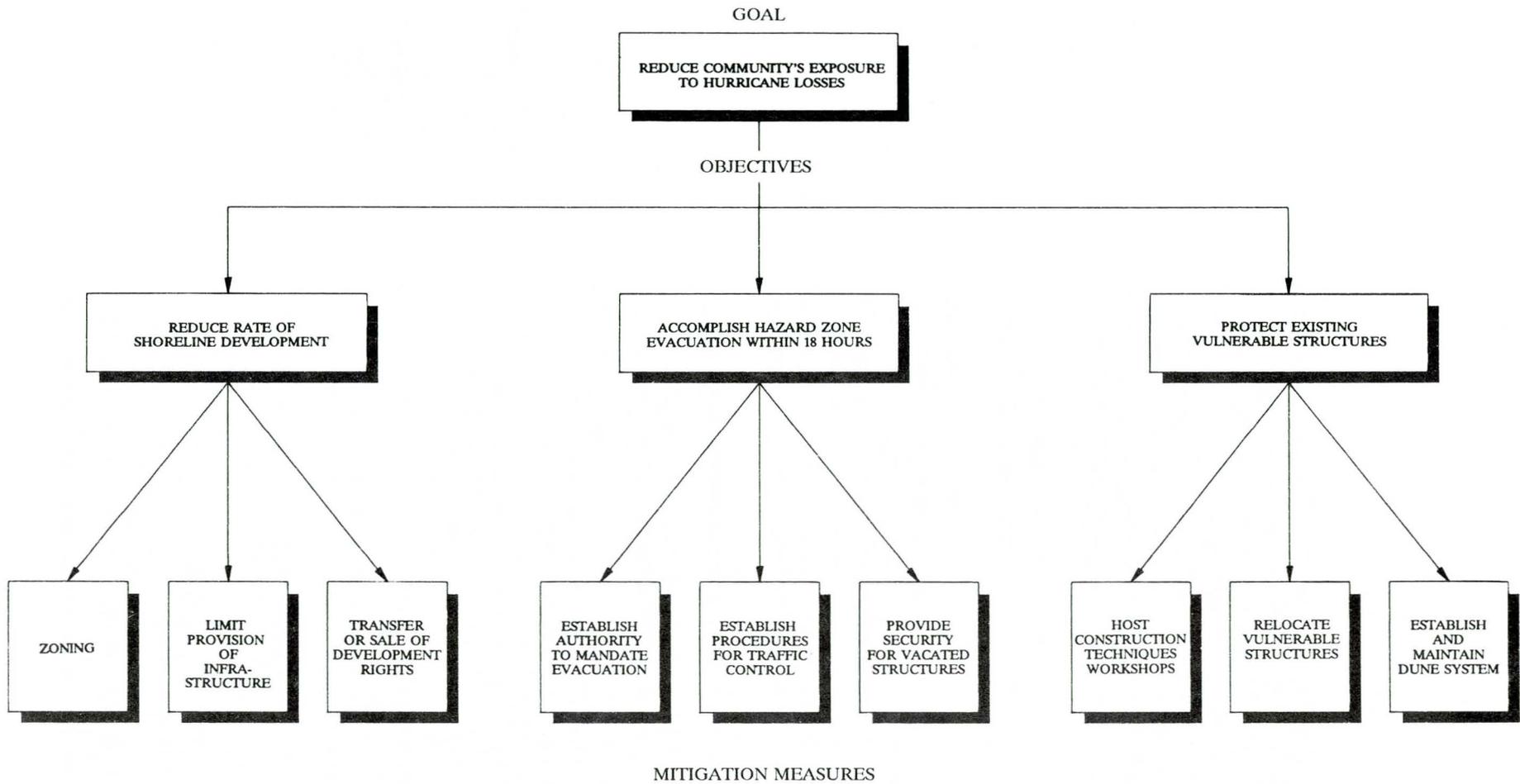


Figure 3: SAMPLE RELATIONSHIP BETWEEN GOALS, OBJECTIVES, AND MEASURES FOR HAZARD MITIGATION

If it is necessary, new or additional mitigation measures should be pursued to adjust to the changing conditions. Planning is a dynamic, not static, process. As regions or communities grow, values and priorities change. Plans need to be flexible enough to recognize and adjust to these circumstances as well.

### **Plan Approach**

Subpart M  
44 CFR 206.405 (b)

Hazard mitigation plans should be oriented toward helping states and localities to develop hazard management capabilities and programs as part of normal governmental functions. All states are encouraged to develop a basic mitigation plan prior to the occurrence of a disaster, so that the basic plan can simply be expanded or updated to address specific issues arising from the disaster. At the time of a declaration, the Regional Director, in consultation with the state, shall determine whether a new mitigation plan is required as a result of the declaration, or whether an existing plan can simply be updated or expanded.

**Plan Options.** Several options may be pursued in order to fulfill the planning requirements. These are explained below.

**Pre-Disaster Plans.** State and local governments are encouraged to develop mitigation plans before a disaster occurs. This is beneficial for several reasons:

- There are fewer constraints on time and resources to develop a hazard mitigation plan prior to a disaster. After disasters, demands on systems and people are much greater.
- Pre-disaster plans can be developed and adopted with public involvement prior to a disaster, alleviating controversial issues that often arise after a disaster.
- Pre-disaster plans allow a state to capitalize on mitigation opportunities after a disaster, rather than missing these occasions while developing the required plan.

### Benefits of Pre-Disaster Mitigation Plan

- The Hazard Mitigation Grant Program which is used to implement mitigation measures identified within the plan can be used in a more timely manner if there is an existing plan with eligible activities already identified.
- At the time of a disaster, an existing mitigation plan may only need to be updated to address the current disaster situation and to satisfy FEMA requirements.

The Nags Head Hurricane and Storm Mitigation and Reconstruction Plan was prepared and adopted by the governing board prior to a severe storm. This prior adoption allowed the plan to be developed in an atmosphere of objective decision-making rather than one that is wrought with social, political, and economic issues that typically surface after a disaster. Together, citizens and local officials have selected appropriate mitigation actions that will be implemented when storm damages occur. These actions include the possibility that some property owners will be restricted in their ability to repair, replace, or reoccupy their structures. The pre-disaster adoption of such mitigation actions and procedures will allow the community to recover and redevelop in a more orderly and beneficial manner than those that have not.

Post-Disaster Plans. Following all Presidential declarations for Federal disaster assistance or FEMA authorization of Fire Suppression Assistance, there will be a mitigation planning requirement. This requirement may be to update, amend, or expand an existing mitigation plan developed prior to the current declaration. In cases where no mitigation plan exists, or where earlier plans are determined inadequate, new plans will be required. The planning requirement will be determined by the FEMA Regional Director in consultation with the state. For those jurisdictions that have not developed a pre-disaster plan, or have not been faced with this planning requirement before, post-disaster planning includes the following advantages:

- There is increased attention to the need for mitigation planning by local officials and citizens;
- There are more financial resources available to accomplish mitigation; and
- There is greater availability of Federal technical assistance.

In addition, the initial post-disaster plan can serve as a pre-disaster plan for the next event.

Updating or Expanding Existing Plans. If a mitigation plan were developed prior to the current declaration, the FEMA Regional Director may determine that this plan will adequately serve as a base document that can be updated or expanded to fulfill the current requirement. Once states develop good basic hazard mitigation plans this option will become more common. The updating option recognizes hazard mitigation planning as a continuing process and provides an opportunity to measure and evaluate the previous effort through a hindsight review. An updated plan might include a re-evaluation of the hazards and the jurisdiction's exposure to them, a re-assessment of existing mitigation capabilities, and new or additional mitigation recommendations.

Example of Requirement  
To Update and Expand  
an Existing Mitigation  
Plan

In 1982, Colorado developed a flood mitigation plan following a disaster declaration for a dam failure. That plan addressed flooding in Colorado from rain, rain on snowmelt, and dam failure. In 1984, Colorado received another disaster declaration following a flood resulting from rain on snowmelt. For this event, the mitigation planning requirement contained within the FEMA-State Agreement stated, "The State shall review the status of implementation measures from the current State [409] hazard mitigation plan in the light of recent flooding, and modify or update such plan as appropriate to address new or additional hazard mitigation needs or issues."

Statewide and Local Mitigation Plans. The Regional Director, in conjunction with the state, may determine if a statewide or a local mitigation plan should be developed to satisfy the planning requirement. It is encouraged that a statewide plan first be developed in order to involve the many agencies that are critical to achieving effective mitigation and to ascertain a valid inventory of existing mitigation capabilities. Statewide plans are necessarily broad in their planning approach and often address multiple hazards.

Subsequent planning efforts following future disasters should then build upon this programmatic framework by focusing on site-specific mitigation activities within the localized disaster area. Localized plans can address the exact causes of community damages and provide specific mitigative measures. Localized mitigation plans are effective for areas subject to repetitive events and for areas where significant mitigation opportunities exist due to extensive damage.

Both Statewide and  
Localized Mitigation  
Plans Can Be  
Appropriate Planning  
Approaches

Following Federal disaster declarations, statewide hazard mitigation plans have been prepared in many states, including Connecticut, Illinois, and South Dakota. Many localized plans have also been developed following disasters, including the delta regions of north-central California; Council Bluffs, Iowa; Fort Wayne, Indiana; and the coastal counties of Alabama. In Puerto Rico, a statewide (territories are treated as states under the law) plan was developed and supplemented by river basin-specific plans. Most importantly, this diversity of planning approaches reinforces the policy that all disaster declarations and affected state and local governments differ, and each mitigation planning requirement should reflect these differences.

### PLAN CONTENT AND FORMAT

Subpart M  
Requirement  
44 CFR 206.405 (c)

The specific content and format of a hazard mitigation plan or update shall be determined through guidance and technical assistance that the Regional Director provides to the state during the section 409 planning process.

However, at a minimum, each plan shall include the following:

Subpart M  
Requirement  
44 CFR 206.405 (a)

1. An evaluation of the natural hazards in the designated area;
2. A description and analysis of the state and local hazard management policies, programs, and capabilities to mitigate the hazards in the area;
3. Hazard mitigation goals and objectives and proposed strategies, programs, and actions to reduce or avoid long-term vulnerability to hazards; and
4. A method of implementing, monitoring, evaluating, and updating the mitigation plan. Such evaluation is to occur at least on an annual basis to ensure that implementation occurs as planned, and to ensure that the plan remains current.

Below is a suggested plan outline for meeting mitigation plan requirements.

Sample  
Plan  
Outline

SAMPLE PLAN OUTLINE

I. Preliminaries

- A. Letter of Transmittal from Governor
- B. Preface
- C. Acknowledgements
- D. Executive Summary
- E. Table of Contents
- F. List of Figures
- G. List of Appendices

II. Introduction

- A. Purpose
- B. Scope
- C. Authority
- D. Goals and Objectives
- E. Definitions

III. Hazard Identification and Evaluation

- A. Hazard Evaluation
  - 1. Types of Hazards
  - 2. Frequency, Magnitudes, and Distributions
- B. Vulnerability Assessment
  - 1. Historical Damages
  - 2. Current Exposure
  - 3. Future Exposure
- C. Risk Information
  - 1. Loss Potential
  - 2. Potential Impact of No Action
  - 3. Liability Potential

IV. Capability Assessment

- A. Legal Framework
  - 1. Enabling Legislation
  - 2. Executive Orders
  - 3. Policy Memorandums
- B. Governmental Organization
  - 1. Roles of Different Levels and Internal Organization
- C. Existing Mitigation Plans, Programs, and Structures
  - 1. Local Government
  - 2. State Government
  - 3. Federal Government

Sample  
Plan  
Outline  
(cont.)

V. Proposed Mitigation Activities

A. Mitigation Opportunities

1. Areas of Special Opportunity
2. Identification of Potential Hazard Mitigation Grant Program Projects

B. Mitigation Strategies and Actions

1. Actions Organized by Priority
2. Actions Organized by Category

VI. Plan Implementation and Maintenance

A. Implementation and Monitoring

1. Role of State Hazard Mitigation Officer
2. Responsibilities of Lead Agencies
3. Periodic Reporting Requirements

B. Evaluation

1. Continued Relevancy of Goals and Objectives
2. Effectiveness of Mitigation Strategies and Measures

C. Maintenance

1. Periodic Plan Updates
2. Future Enhancements

## **Preliminaries and Introduction**

Chapter I of the sample outline satisfies legal and functional requirements of the post-disaster hazard mitigation plan.

- The Letter of Transmittal satisfies the responsibility committed to in the FEMA-State Agreement that the Governor submit such a plan.
- The Preface is an introductory essay. It is appropriate to have this written by the State Hazard Mitigation Officer, or the director of the agency where this officer resides, or both.
- Acknowledgements indicate the interdisciplinary and interagency nature of the planning effort. In addition, acknowledgements are a common professional courtesy extended to those who participate in the process.
- The Executive Summary provides a concise synopsis of the entire plan. Its purpose is to outline the significant components of the mitigation process and proposed

mitigation actions for use by key executives and decision-makers. These could include the Governor, members of the legislature, department and agency directors, local elected officials, and representatives of the media. It is vital that this portion be well written since these people may not have time to examine the plan in its entirety even though their position is integral to the implementation and ultimate success of the plan.

- The Tables and Lists serve organizational purposes and make the plan easier to use.

Chapter II introduces the readers to the purpose of the plan, the scope of its implications, and the authorities under which it was required and developed. The definitions prepare the reader for terms with which they may be unfamiliar. Most importantly, though, the goals and objectives of the planning process are detailed.

**Developing Goals and Objectives.** It is essential that the goals and objectives of the mitigation planning process be defined and conveyed early. The State Hazard Mitigation Team should develop these jointly, focusing on the significant residual benefits. Public safety, reduced hazard losses, and achieving multiple goals are often primary. However, the goals can also include reducing unnecessary or repetitive expenditures, eliminating redundancy or voids in government services, and lessening exposure to liability.

Goals and objectives will evolve and even change as the planning process provides more sophisticated information regarding a jurisdiction's exposure to hazard losses and ability to mitigate them. Stating the initial goals at the onset, though, will strengthen the commitment of key individuals, such as the Governor and state agency directors, to the process and the plan. Goals and objectives as part of the planning process are discussed in greater detail on pages 74-75.

Chapters III, IV, V, and VI of the sample outline each satisfy one of the four Subpart M requirements for minimum content. The remainder of this chapter is devoted to providing guidance for meeting these minimum requirements.

The plan shall contain an evaluation of the natural hazards in the designated area.

## Hazard Identification and Evaluation

### Conducting a Hazard Identification and Evaluation Study.

The planning process begins with the identification of the need for the plan, as discussed under Hazard Mitigation Planning on page 73. By identifying the hazards that affect an area, and determining the jurisdictions vulnerability (exposure) to those hazards, this need becomes apparent. For example, if the identification indicates that the area is susceptible to floods and earthquakes, and that they can be expected to occur within a densely developed and populated area with a certain degree of probability, there would be a clear need to take some mitigation actions.

At a minimum, the major natural hazards in the disaster area should be examined in terms of probability, frequency, magnitude, and distribution. Other known hazards, or secondary hazards, should also be included. Dam failures and landslides are secondary hazards often resulting from earthquakes or flooding. Mudslides frequently occur during rainstorms that soak areas previously denuded by wildfire.

More specialized information regarding these hazards may be required during the implementation process, as described in the following examples.

Need for Specialized  
Hazard Information to  
Support Implementation  
of Mitigation Measures

A mitigation strategy that includes the construction of a debris basin will require accurate data regarding the potential volume and velocity of the threatening debris flow for design purposes. Development of a stormwater management strategy may require specific data including probable maximum rainfall, the size and location of existing detention structures, and the cubic foot per second carrying capacity of culverts and reverse crowned roads.

Sources of Information for Conducting Hazard Identification Studies. In order to complete a hazard identification and evaluation study, the State Hazard Mitigation Officer and the State Hazard Mitigation Team can examine a variety of sources of information, including:

Interagency Hazard Mitigation Team and Hazard Mitigation Survey Team Reports. Following a Presidential disaster declaration, there will be an activation of either an Interagency Hazard Mitigation Team or a Hazard Mitigation Survey Team. The reports developed by these teams can serve as a frame-

work for actions and activities to be addressed through the mitigation planning process and the state hazard mitigation plan. Details of the contents of the mitigation team report are found on pages 51-53.

*Computerized Hazard Identification Program.* During the mid-1980s, FEMA initiated the Integrated Emergency Management System program. It contended that there were commonalities among emergency management decisions, plans, and actions that could be coordinated in order to save time and money. For example, whether a community were faced with a hurricane or a nuclear emergency, activities such as the coordination of emergency personnel necessary to effectuate an orderly evacuation would take place.

As part of the Integrated Emergency Management System, Hazard Identification and Capability Assessment studies were completed by every county in the nation. The purpose was to identify the hazards posing the greatest threat and the systems in place to deal with those hazards. The second step in this evaluation required counties to develop a Multi-Year Development Plan, which is a prioritized set of activities and measures designed to improve the capability of effectively managing hazards. FEMA now refers to this evaluation process as the Computerized Hazard Identification Program.

Use of  
Computerized Hazard  
Identification Program to  
Support Mitigation  
Planning Effort

The hazard evaluation and capability study for Laramie County, Wyoming was reviewed by the Federal and State Hazard Mitigation Officers following a disaster declaration for a flash flood that struck Cheyenne in 1985. The study confirmed that flooding was a previously recognized hazard, and that emergency communications might be in need of improvement. While the data obtained from the study was inexplicit, there was a sufficient degree of accuracy that prompted the results to be provided to the Interagency Hazard Mitigation Team and State Hazard Mitigation Team as background and supplementary information.

The process used to develop a state hazard mitigation plan follows the same steps used in the Computerized Hazard Identification Program: identify the hazards, determine the existing capability, and plan to improve that capability so that hazard impacts are reduced. These studies can provide the State Hazard Mitigation Officer with a valuable source of

background information that will be useful in preparing a hazard mitigation plan. Computerized Hazard Identification Program information is available from the appropriate County Emergency Management Coordinator or Federal Hazard Mitigation Officer.

Local Emergency Operations Plans. Most every community in the United States has a Local Emergency Operations Plan. Local Emergency Operations Plans are detailed response plans that address specific hazards and can provide valuable, localized information regarding the threats to a particular area and the capability to respond to them. They can be prepared for several reasons: (1) as part of FEMA's Disaster Preparedness Improvement Grant Program, with the support and direction of the state emergency management agency; (2) to meet the emergency planning criteria established under the Superfund Amendments and Reauthorization Act Title III program; or (3) because the need to do so was identified by the local government.

Previous Emergency and Disaster Declarations. Examining histories of previous disaster declarations provides a good basis for identifying the hazards that affect a jurisdiction. Federal declarations have a wealth of documentation available for examination, including hazard mitigation reports and hazard mitigation plans. State and local declarations provide an additional perspective by examining events that caused damage, but not to the degree that would warrant Federal assistance.

Other Federal, State, and Local Agency Programs and Information. Each of the programs identified in Chapter II is a potential source of information providing details about hazards that may pose a threat to a given geographical area. FEMA sponsors many hazard specific programs (National Flood Insurance Program, Hurricane Preparedness Program, National Earthquake Hazard Reduction Program, Dam Safety Program) in addition to many multi-hazard or hazard-generic programs. Many include a hazard identification section as part of their specific work effort.

How the National Flood Insurance Program Can Be Used to Support a Hazard Identification Study

For each community that participates in the National Flood Insurance Program, FEMA is required to develop flood risk data for use in both insurance rating and floodplain management. FEMA develops these data through Flood Insurance Studies. The results of these studies are used to prepare maps that depict flood hazard areas, including, in some cases, floodways, 100-year flood elevations, and areas subject to inundation during a 500-year event.

Many other Federal agencies will also be able to provide additional information. For all existing or proposed U.S. Army Corps of Engineers projects, there is detailed information regarding the history of the flood hazard in the project area. The Soil Conservation Service will have similar studies for smaller projects, and the U.S. Geological Survey and the National Weather Service will have data and statistics concerning natural hazards. Depending upon where your state is, the Tennessee Valley Authority, the Bureau of Reclamation, the U.S. Forest Service, the Bureau of Land Management, or the Office of Coastal Resources Management will be able to provide additional information. Universities, research institutes, private engineering firms, and professional associations are additional sources that can assist in determining the threats from a particular hazard.

Many of these agencies have state counterparts that also can provide detailed hazard information. Tapping these resources can be accomplished through the appropriate state hazard mitigation team member, and also contributes to the reinforcement of the many needs and uses of a State Hazard Mitigation Team.

How State Agencies (or a State Hazard Mitigation Team) Can Be Used to Support a Hazard Identification Study

The Colorado Geological Survey conducted technical analyses on more than 40 major landslides. These studies provided detailed information on the location, geology, and potential impact of the slides, including the direction they would move, what would be affected, and the cost of the impact. This information documented a significant enough threat that it led the Governor to issue an Executive Order forming the State Mitigation Council.

## Conducting a Vulnerability Assessment.

Understanding the Interaction Between People and Property. Determining vulnerability is a critical element of developing any hazard mitigation plan. Vulnerability indicates what is likely to be damaged by the identified hazards and how severely. After identifying the hazards that pose a risk to your jurisdiction, a vulnerability assessment is the logical next step. Assessing vulnerability is important because it frequently establishes mitigation priorities and contributes to obtaining popular and political support for hazard mitigation.

### Distinguishing Between Risk and Vulnerability

Dry washes (arroyos) or alluvial fans provide a physical and environmental indication that a hazard risk exists. However, there is no vulnerability to the hazard unless people have developed and are occupying that land. Natural disasters only occur when there is a conflict of space between nature and people.

Quantifying Vulnerability. Following the identification of hazards, a field investigation, coupled with research, should be completed to determine what the vulnerability is to those events. To complete the vulnerability section of a hazard mitigation plan, the State Hazard Mitigation Officer needs to examine existing development in hazardous locations. This may include population, demographics, access, and personal experience with hazards. These factors will each have an effect upon an area's vulnerability to disaster. Further, it is important to include an analysis of the potential for vulnerability. This can be accomplished by examining development patterns and population trends in the hazard areas.

To conduct a vulnerability assessment, a State Hazard Mitigation Officer might list historical accounts of earthquakes, floods, or fires. This data could be collected by tasking appropriate members of the State Hazard Mitigation Team. Then the findings could be shown on map overlays that depict the potential for groundshaking and liquefaction, natural and dam-failure floodplains, or lightning strikes and areas of abundant fuel. After existing and potential development have been added, the maps will identify the degree of vulnerability to the risk. A dollar value can be assigned to the vulnerability and an estimation of future average annual losses can be prepared.

Using Loss  
Estimations to  
Quantify  
Vulnerability

Colorado's Mitigation Plan (1985) begins with the following preface: "More than 150,000 people live in Colorado's floodplains and are vulnerable to flood hazards. As the population of Colorado grows from about 2.9 to 3.9 million people over the next decade, so will the pressure to develop more land in the floodplains. Without meaningful measures to mitigate vulnerability to flood hazards, annual flood losses in Colorado could dramatically increase from the current estimated average of \$14 million in property damages and 4 people killed. As vulnerability to flood losses increases with a growing population, the need to support and implement this plan will become regrettably clear as floods continue to happen in Colorado."

In Utah, a comprehensive assessment of damages associated with rising surface elevations of the Great Salt Lake was reported in 1984, following two consecutive years of five-foot rises. At an elevation of 4212 (mean sea level), estimated damages could equal \$269 million. At 4217 feet, the highest level reached in the past 300 years, the damages could reach \$2 billion. In 1985, Utah initiated mitigation actions after the lake reached an elevation of 4210 feet and had caused an estimated \$200 million in damages.

**Communicating Risk Information.** Upon completion of the hazard evaluation portion of the plan, the State Hazard Mitigation Officer needs to disseminate that information to those officials and citizens who have a responsibility within hazard mitigation planning. This can be accomplished through use of the State Hazard Mitigation Team, as some members such as the state National Flood Insurance Program Coordinator or State Geologist do this routinely. Those with a responsibility include decision-makers at the local, state, and Federal levels of government, and also private sector representatives. Their roles could include regulation of development, emergency planning, public health, public safety, or financing.

Risk information should be communicated in the context of the goals and objectives of the mitigation planning effort so that there is recognition of, and identification with, the need to pursue and accomplish mitigation. It is recommended that the results of these activities be summarized and included in the plan. The purpose of doing this is to promote decision-makers to take appropriate actions.

**Communicating Risk Through Local Site Visits.** An effective method of communicating risk in the hazard mitigation planning process is through community visits. In presenting risk information, the State Hazard Mitigation Officer should explain the appropriate data that indicates a community's vulnerability

to hazards. By sharing the history of frequency, magnitude, and impacts, supported by maps and photographs, the State Hazard Mitigation Officer may motivate the local officials into pursuing mitigation activities, including participation in the development of the mitigation plan. The State Hazard Mitigation Officer should also relate the findings of post-disaster damage evaluations to appropriate officials, including elected officers, town managers, emergency management coordinators, county commissioners, etc.

Communicating Risk in Terms of Cost. An effective method of communicating risk is to emphasize the impact that a hazard(s) has had on a jurisdiction in terms of cost. The examples on page 91 demonstrate how this strategy can be employed. In the example of the Great Salt Lake, the cost of doing nothing while waiting to see if surface elevations would continue to rise was unacceptable.

Using Hazard Losses  
to Justify Mitigation  
Actions

If a State Hazard Mitigation Officer can document that landslides cost the state highway department on the average \$6 million per year in response, debris removal, and reconstruction costs, then that state might initiate action to reduce that annual cost (loss). In effect, what is being demonstrated is the cost of taking no action, which in this example is \$6 million per year.

Communicating Risk in Terms of Potential Liability. Potential liability implications are another method of communicating risk and encouraging mitigation actions. Following a disaster, local and state officials may find it difficult to prove that they were unaware that there was some risk from, and vulnerability to, a particular hazard. Therefore, failure to evaluate the hazard and identify strategies to lessen their impact, should they occur again, might be construed as negligent. It may be that very little can be done to reduce the impacts of a hazard, such as a flash flood resulting from a dam failure, but not having taken structured steps towards reaching that conclusion may create an indefensible position. By taking well planned steps, one can at least demonstrate that the decisions made were based upon reasonable and prudent decisions using the best available information.

Subpart M  
Requirement  
44 CFR 206.405 (a) (2)

The plan shall contain a description and analysis of the state and local hazard management policies, programs, and capabilities to mitigate the hazards in the area.

### Capability Assessment

Next, steps need to be taken to identify existing hazard mitigation systems. This is called a capability assessment. Conducting a mitigation capability assessment should be the result of realization of unacceptable vulnerability to the identified hazards. Before initiating this evaluation, certain considerations should be reviewed and addressed.

1. Recognizing the risk that data may emerge that identifies ineffective, conflicting, or inappropriate program, policies, and procedures, does the government conducting the assessment want to measure the effectiveness of its mitigation capability?
2. Is the government willing to support and tolerate efforts necessary to conduct the data collection and subsequent planning?
3. Is the government willing to support and implement change if the research and planning justifies it?

When the answers to these questions are "yes," then it is appropriate to proceed. As detailed on pages 56-57, the agency location of the State Hazard Mitigation Officer who will be conducting the assessment can have an important impact upon the success of this effort.

**The Purpose of Conducting a Capability Assessment.** A capability assessment is an important component of the mitigation plan because it identifies and evaluates existing systems that either reduce or increase a jurisdiction's vulnerability to hazards. Another purpose is that capability assessments provide a mechanism, through the hazard mitigation plan, to cite and take credit for those systems that exist and work. These systems do not have to be explicitly designed for hazards.

**Identifying Components of Mitigation Capability.** In order to evaluate a jurisdiction's mitigation capability, the components of that capability must first be identified. The following questions are useful in recognizing activities within agencies that influence the ability to accomplish hazard mitigation.

1. Do they promote or support development in identified hazard areas?
2. Do they include actions that may place public investments at risk in identified hazard areas?
3. Do they directly or indirectly affect preparedness for, response to, or recovery from a hazard?

More detailed questions are discussed on page 95, Using Questionnaires.

Using Capability Assessments to Identify Multi-Objective Opportunities for Mitigation

A state adult education program that offers courses on building construction, maintenance, and repair, as a means of assisting people to own and maintain a home and its value, is a system that may lessen hazard vulnerability if the course content includes building codes, design standards, and construction practices that create safer, more hazard resistant structures.

A state whose emergency management agency or National Weather Service office has an arrangement to distribute severe weather warnings through the state police radio dispatch system may not need a "hard-line" or "weather-wire" terminal in every community or county.

These examples highlight the value of multi-objective planning as an additional reason to examine a jurisdiction's mitigation capabilities. Many mitigation objectives can be accomplished by dovetailing, or joining forces, with other programs and authorities. Open space planning or river corridor management programs can contribute to safe land-uses of hazardous areas. Routine fire inspections or utility billings can be used to distribute public information regarding hazards.

The purpose of multi-objective planning is to accomplish multiple goals through a single initiative. The value of multi-objective planning is more cost effective government. To assist in identifying mitigation opportunities, capability assessments must thoroughly examine all systems that either finance or support development within hazardous areas.

## Using Capability Assessments to Identify Systems That Contribute to Mitigation

The Colorado State Hazard Mitigation Officer discovered that a state agency was developing a subsidized insurance program to assist homeowners in coping with losses caused by the collapse of abandoned coal mines beneath their structures. This had not been identified as a hazard, yet there was an effort to develop a capability to address it.

In Montana, state disaster assistance is unavailable to communities that do not participate in the National Flood Insurance Program. Therefore, communities have added incentive to participate in the program and achieve both floodplain management and state disaster goals.

**Options for Determining State and Local Capabilities.** The following are useful methods in determining capabilities.

**Using Computerized Hazard Identification Data.** The Computerized Hazard Identification Program provides a valid starting point for gathering information because this work has already been completed in every county in the nation. As with the hazard identification information, the data is general but it has the advantage of being a locally produced document that can provide direction for more research. Communications capabilities are examples of capabilities that are addressed through this system. This evaluation might indicate the types, numbers, and location of communications equipment, and the time required to contact key officials such as the Governor.

**Using Questionnaires.** Survey questionnaires to state agencies can be used to obtain data regarding each agency's specific programs and authorities. These surveys seek information from appropriate representatives about their agency's day-to-day and emergency authorities, programs, and influence. This information can assist the State Hazard Mitigation Officer in making suggestions regarding an agency's participation on the State Hazard Mitigation Team or in developing a suitable mitigation proposal. In addition, questionnaires allow respondents the opportunity to make recommendations for improvement in their own agencies and in others where it might not otherwise be welcome. A sample questionnaire has been included as Appendix F.

**Using Interviews.** Personal interviews with state agency representatives can also be used to identify existing capabilities. The State Hazard Mitigation Officers who have taken this approach stress that interviews are helpful in contributing toward developing the critical professional relationship needed to build a mitigation network. Also, a personal interview allows in-

depth questioning if a particular response prompts additional questions on behalf of the State Hazard Mitigation Officer. The drawback to interviews, however, is that they take considerably more time than questionnaires.

Using Meetings. Meetings, such as those of a State Hazard Mitigation Team, can provide a forum for initiating a capability assessment study. Training and the questionnaire and interview steps can be combined so that the questionnaires can be distributed to a group that possesses a clear understanding of the information that is desired. This method also allows the State Hazard Mitigation Officer to filter out any inappropriate agencies that may have been included, and to identify additional agencies that may have a role in hazard mitigation. A sample meeting agenda is included on page 54.

Using Exercises. An additional resource for determining mitigation capabilities, particularly at the local level, is through participation in emergency management exercises. During such exercises many of the response phase mechanisms are tested, highlighting capabilities that are in place and work well, are in place but do not work well, or are not in place but are needed. Often, simple problems can be identified and resolved prior to the onset of a disaster, thereby lessening damages through an improved and more effective response.

### Using Exercises to Determine Mitigation Capabilities

A local exercise conducted to test emergency operations in the event of a potential landslide led to the identification of a significant communications problem. Every entity involved had radios, but they each operated on a separate frequency. Had the exercise been an actual event, there would have been no way for the local and state officials to communicate with each other.

Evaluating the Strengths and Weaknesses of a State's Capability. After gathering capability information and data, the data must be evaluated. It is important to assess the value of the authorities and programs of each state agency towards meeting mitigation objectives. This evaluation serves as a bridge between the citing of programs and the recommendations that suggest mitigation solutions. The assessment is the critical link between the process of investigating capabilities and developing recommendations. The evaluation should identify shortfalls in a jurisdiction's capability to accomplish mitigation. The recommendations of the plan should seek to minimize or eliminate those shortfalls and to capitalize upon

special opportunities that become available. State hazard mitigation team members can evaluate their own agencies, with the assistance of the State Hazard Mitigation Officer.

The expected level of capability will differ from state to state as a function of: the frequency, magnitude, and distribution of hazards; vulnerability to the hazard(s); and factors such as the population and economy. At a minimum, though, states should identify those agencies that can contribute to the mitigation process and those authorities and programs that either increase or decrease hazard vulnerability.

Use of Capability  
Evaluation to Identify  
Mitigation Opportunities

A newly constructed state office building is flooded. A post-disaster capability assessment identifies that state planning reviews do not mandate site investigations for state construction projects prior to their completion. Such a review might have discovered that the proposed location was in a flood hazard area. As a result, the State Hazard Mitigation Team recommends a change in the state planning review process to pre-identify hazardous locations prior to authorizing construction.

Subpart M  
Requirement  
44 CFR 206.405 (a) (3)

The plan shall contain hazard mitigation goals and objectives and proposed strategies, programs, and actions to reduce or avoid long term vulnerability to hazards.

**Proposed Mitigation Activities**

**Mitigation Opportunities.** This section includes a discussion of how to identify mitigation opportunities. Disasters highlight areas of significant weaknesses. Additionally, disasters create opportunities for breaking the damage-reconstruction-damage cycle.

**Using Post-Disaster Teams to Identify Mitigation Opportunities.** Interagency Hazard Mitigation Teams, Hazard Mitigation Survey Teams, and State Hazard Mitigation Teams will be activated immediately following disasters for the specific purpose of identifying mitigation opportunities. The reports developed by Interagency Hazard Mitigation Teams are primarily intended to provide a framework for a common Federal post-flood recovery process that emphasizes non-structural mitigation measures. These reports do, however, provide substantial guidance for state and local mitigation activities as well. On the other hand, Hazard Mitigation Survey Teams have the specific charge to identify mitigation issues that *must* be addressed in the hazard mitigation plan.

Subpart M  
44 CFR 206.404 (a)

Hazard mitigation surveys are performed immediately following the declaration of a disaster to identify the following:

1. Hazard evaluation and mitigation measures that must be incorporated into the recovery process;
2. Possible measures for funding under the Hazard Mitigation Grant Program, or other disaster assistance programs; and
3. Issues for inclusion in the Section 409 plan.

The Hazard Mitigation Survey Team reports are clearly a mechanism whereby the State Hazard Mitigation Officer can identify mitigation opportunities to be addressed within the mitigation plan required under Section 409.

Site Visits. Site visits to areas that have significant hazards can be useful in identifying mitigation opportunities. At the site, focus on the impacts that the hazard(s) will or did have upon human activities. This will determine the scope of the problem and provide a starting point for determining what mitigation options might be appropriate. Site visits are major components of the disaster activities undertaken by Interagency Hazard Mitigation Teams and Hazard Mitigation Survey Teams.

Regulatory Review. Mitigation opportunities can be found, either pre- or post-disaster, through a review and evaluation of applicable land-use regulations, construction standards, health codes, and other local and state government tools. These reviews can identify practices that present a mitigation opportunity, such as granting variances for development in floodplains or permitting construction of buildings without fire retardant materials in forests.

Special laws, regulations, and growth management policies also offer an opportunity to achieve mitigation. Executive Orders 11988 and 11990, Superfund Amendments and Reauthorization Act Title III, the conditioning of disaster assistance, the sale or transfer of development rights, limitation of building permits, designation of historical districts, and environmental protection zones each offer an opportunity for hazard mitigation to occur.

Multi-Hazard  
Opportunities:  
Mitigating One Hazard  
as a Result of Another

Multi-Hazard Opportunities. Following a disaster, identification of structures that suffered substantial damage (generally greater than 50% of their pre-disaster value) may lead to their reconstruction in accordance with local regulations. These regulations may have been adopted for any number of reasons, including as a mitigation strategy for a hazard other than the one causing the damage.

In 1988, tornados battered the Raleigh, North Carolina region. The local building inspectors quickly compared maps of the damaged areas to those in identified flood hazard areas in order to ensure that any and all reconstruction was accomplished according to the adopted floodplain management regulations, which require all buildings that suffer damage greater than 50% be elevated above flood levels. Similar requirements were enforced following the Loma Prieta earthquake near San Francisco in 1989.

Also in 1989, a tornado struck an Illinois community. There, a destroyed fire station will be reconstructed with designs that incorporate seismic building provisions, reflecting a heightened concern for the region's proximity to the New Madrid fault.

Review of Plans. Review and evaluation of emergency plans, including those for warning and evacuations, can lead to the discovery of areas that can be improved as a result of more experience and better technologies. This can be accomplished in either a pre- or post-disaster environment.

Other plans, such as those for urban renewal, capital improvement, growth management, and land-use, may present an opportunity for mitigation. Following a disaster, these plans should be reviewed to determine if mutual benefits can be achieved because they offer the special opportunity to mitigate hazards *and* accomplish their primary program objective. This makes these programs a catalyst for mitigation and a prime target for investigation. Programs that can achieve multiple objectives are receiving increasing attention in light of limited Federal and state program dollars to support single initiative projects.

Example of  
Multi-Objective Plans  
Incorporating  
Mitigation

Multi-objective river corridor projects are established to maintain or improve water quality, provide recreational opportunities, and afford a limited degree of protection from flooding through the maintenance of a natural floodway. Such projects increase adjacent property values and enhance community and economic development by creating attractive, useful, and safe locations for people to enjoy. The opportunity to create such corridors always exists, but can be accelerated when a flood, and subsequent reconstruction regulations, stimulates redevelopment with less intensive land-uses.

**Formulating Mitigation Actions.** A mitigation strategy requires proposing an action that will resolve a hazard vulnerability problem. This section focuses on the process for developing these mitigation actions.

Resources for Identifying Recommendations.

*Mitigation Team Members.* Each state hazard mitigation team member has a special area of expertise and can be invaluable in formulating mitigation options. Many ideas will come from the team members, including whether or not an activity can be accomplished, whether or not it will have the desired effect, who could manage the effort, where funding might be available, whether or not it would be cost-effective, and how long it would take. Only expertise of this nature can provide those "unexpected" yet feasible solutions.

Professional Expertise  
Can Contribute to  
Identifying Mitigation  
Options

A mitigation team member suggested that a possibility for solving a lack of resources to maintain waterways clear of clogging vegetation is through the introduction of Grass Carp into the ecosystem. The carp eat and thrive on the vegetation that contributes to some flooding problems.

*Technical Manuals.* There are many documents available that describe mitigation techniques for a variety of hazards, including hurricanes, floods, wildfires, landslides and debris-flows, earthquakes, ice-jams, and tornados. These technical manuals detail the forces that mitigation actions are engineered to withstand, construction methods, costs (complete with formulas to make adjustments to current values), options and alternatives, cost/benefits, the pros and cons of each technique, and even suggestions of how they can be financed, adopted, or implemented.

Many of the mitigation planning documents already cited contain references to technical manuals and information concerning how and where the manuals can be obtained. A FEMA publications catalog and order form can be obtained from the appropriate FEMA regional offices or directly from FEMA, P.O. Box 70274, Washington, DC 20024. Many of the other Federal agencies, including the U.S. Army Corps of Engineers, the Soil Conservation Service, and the National Weather Service, also provide this same service.

In addition, university research institutes are good sources to investigate. The Natural Hazards Research and Applications Information Center in Boulder houses a library with more than 7,000 documents entered into their computerized bibliographic data base. They may be reached by calling the librarian at (303) 492-5787. The Association of State Floodplain Managers maintains its Floodplain Management Resource Center, a separate computerized bibliographic data base, at the Natural Hazards Research and Applications Information Center, as well. This information may be accessed by calling (303) 492-6818. The staff at the center can also provide information on how to access additional data bases for specific hazards, such as the Earthquake Engineering Research Institute in California.

FEMA's Computerized Mitigation Data Base. FEMA's computerized disaster management system can provide useful mitigation information. The program is accessible through your FEMA regional Hazard Mitigation Officer who will be able to assist in searching for information. In particular, the hazard mitigation data base supports the Federal Hazard Mitigation Officer's responsibility to encourage and support pre- and post-disaster mitigation at all levels of government.

Included in the program's tracking capabilities are:

- FEMA-State Agreements;
- Hazard Mitigation Team report data, including recommendations;
- Section 409 Plan recommendations;
- Public Assistance Damage Survey Reports that include hazard mitigation measures; and

- Special mitigation projects including those funded under the Hazard Mitigation Assistance Program, the Disaster Preparedness Improvement Grant Program, and the Hazard Mitigation Grant Program.

This should not suggest that all mitigation options have been discovered, or recommended, or successfully implemented, but rather that access exists to what has been attempted previously, including a description of the implementation success or failure.

Options for Formulating Recommendations. Once these resources have been investigated, a field of actions must be generated. Each of the alternatives must be reviewed, discussed, prioritized, and selected. There is no set way that this decision-making process has to take place. Below, several options have been identified for your consideration.

Team Formulation. The best method for developing mitigation actions is to have the State Hazard Mitigation Team develop them. As a group they can provide a wide and varied perspective, there is the opportunity for debate on the relative merit or feasibility of the action, and they are aware of a wide range of programs and financial resources that might be able to support the effort.

A common method that mitigation teams use to generate the initial field of recommendations is "brainstorming." Brainstorming is a controlled, yet minimum constraint process, the goal of which is to generate as many conceivable solutions as possible. The control is provided by following these rules:

Brainstorming  
Rules

- Quantity of ideas is sought versus quality;
- Use free association and imagination;
- No criticism of ideas; and
- 100% participation from team members.

The State Hazard Mitigation Officer, as team leader, should record all of the ideas generated. Then, by applying a set of criteria (see page 76), these ideas can be evaluated, and a strategy can be selected and developed into a mitigation action.

Development by the State Hazard Mitigation Officer. In lieu of having the team develop the mitigation actions, for reasons of time or team member availability, the actions can be developed

by the State Hazard Mitigation Officer. In order to receive team input and refinement, the State Hazard Mitigation Officer should provide team and network members the opportunity to review and comment on these actions, particularly with regard to their feasibility when their agency is identified as having a role in implementation. The State Hazard Mitigation Officer should emphasize the importance of closely reviewing the proposed actions. It may be valuable to suggest that team members allow other people within their agencies to review those actions that implicate their organization to assure that the agency leadership is willing to support recommended actions.

Components of Mitigation Actions. Every mitigation action proposed in a hazard mitigation plan should include the following components:

- A statement of the problem;
- A discussion of the alternatives and recommended strategy;
- A determination of cost and cost effectiveness;
- The identification of a lead agency;
- The identification of a schedule; and
- The identification of a potential source of funding.

Statement of the Problem. Each mitigation action should begin with a statement of the problem to be resolved.

Discussion of Alternatives and Recommended Strategy. Each action should include a brief description of those alternatives that were considered, and include an explanation of why the recommended approach was the favored solution. As a condition of funding Hazard Mitigation Grant Program projects, the alternatives considered must be described as part of the required environmental review process.

Determination of Cost and Cost Effectiveness. Every proposed action needs to address the question of whether or not the proposed mitigation measure is cost effective. Will the proposed measure reduce future disaster response and recovery costs more than the cost of implementing the measure? As a condition of funding Hazard Mitigation Grant Program projects

identified in the hazard mitigation plan, the proposed measures must be cost-effective. Though it is difficult to factor in the monetary value of a life in calculating the cost effectiveness of a mitigation measure, certain costs can, and must, be examined.

One method is to use the value of the damages suffered in the recent disaster, that could have been prevented by a measure, as a basis for comparison against the cost of the proposed measure. Next, the magnitude and probability of the event's recurrence interval should be factored in. If the damages received were from a relatively small, and more frequent, earthquake, hurricane, or flood, then it is reasonable to expect that these damages might be repeated several times over the life of a given structure. Thus, a mitigation measure could cost more than the current damages, but still be justifiable. Historical loss data can also be used. For instance, paid insurance claims and previous outlays for disaster assistance should be considered when evaluating cost effectiveness. Normal maintenance costs can be used if the situation is a chronic one. There are also economic and cost/benefit models available that can be used. Your Federal Hazard Mitigation Officer or U.S. Army Corps of Engineers representative can be contacted regarding the models used for their programs.

*Identification of a Lead Agency.* Each mitigation action must identify a lead agency. The responsibility of the lead agency will be to initiate and coordinate the activities necessary to implement the recommended mitigation measure. Experience has shown that actions without a responsible agency and regimented program for initiation and follow-up tend to be unsuccessful. The lead agency designation will differ from action to action depending upon who has technical or financial assistance to support the proposed activity. Secondary or support agencies are also identified to assist in implementation of the mitigation action.

*Identification of a Schedule.* It is important to include a suggested time-frame for the activities. This will support implementation through accomplishing several goals. First, timing may be critical if the proposed mitigation measure is intended to interrupt and redirect a post-disaster reconstruction project. Second, a time frame serves as a guide for the lead agency so that activities are coordinated with other important government functions, such as budget hearings. Third, a time-frame allows the State Hazard Mitigation Officer a guideline for tracking the progress of all activities, and for producing follow-up and after-action reports. Fourth, a specified time-

frame provides a sense of priority. Actions without a specified time-frame tend to be overlooked as being not very important. These time-frames are not iron-clad, rather their primary function is to provide guidance. A proposed schedule should be realistic, depending upon the critical nature of the measure.

Identification of a Potential Source of Funding. Each action should include one or more indications of how the measure can be funded. This does not constitute an obligation that the identified funds be utilized for this purpose, but it does provide a suggested avenue to pursue. During the formulation phase of the mitigation action, some discussion will concern the feasibility of the proposed activity, and that will include the implications of meeting the cost. Often, in the course of these discussions, sources of potential funding are identified, and these are the sources that should be listed. On some occasions, arrangements will be able to be made with team or network members to give the proposed action a certain priority of consideration for funding under a program for which they have some influence. On other occasions, the proposed work element will not require any funds for implementation. The choice of funding will have some effect on the proposed time-frame. For example, an action that proposes to submit an application for funds under the Department of Housing and Urban Development's Community Development Block Grant Program would require a time-frame that would allow the lead agency to prepare the funding proposal in time for the next review cycle.

Sources of Funding for Implementing Mitigation Actions. Each team or network member will be aware of some program that has the potential for offering financial support, whether it be available by competitive proposal, grant, or some degree of a match. The following section will discuss sources that have been used in the past.

Federal Programs. Funds from FEMA's pre- and post-disaster programs identified in Chapter 2 and from other Federal agency programs (discussed on pages 27-28) can be used to accomplish mitigation measures. Further information may be obtained through your FEMA regional Hazard Mitigation Officer.

Redirecting Existing  
Funding and Activities  
to Accomplish  
Multiple Objectives

State Programs. State agencies also have programs that can fund mitigation activities. The State Hazard Mitigation Team and the mitigation network will be valuable resources for the State Hazard Mitigation Officer in the initial effort to identify funding sources. Most often, though, the sources of mitigation funding are imbedded within indirect activities that help achieve mitigation objectives. These sources usually do not need to be reallocated or reprioritized, rather the activity being funded needs to be transferred to a new location where two purposes will be served: the original purpose plus the mitigation activity.

A state whose lottery proceeds are used to maintain and enhance parks, recreation, and open space could be used not just to create an improved or new park, but it could be used along an urban stream to create a multi-purpose corridor, providing parks, river recreation, open space, and the added benefits of environmental quality, water quality, floodplain management, and hazard mitigation.

Local Programs. Using the same multi-objective planning concept, local governments can greatly enhance their ability to mitigate the effects of hazards by giving hazard management an increased priority and incorporating that priority into those activities that occur in almost every community nationwide. These activities include general planning, comprehensive planning, economic development, environmental and growth management, and capital improvements and maintenance. More sophisticated activities include multi-jurisdictional planning efforts such as transportation, irrigation, and utility districts. There is no limit to what can be achieved, including multi-hazard, multi-jurisdictional, and multi-objective hazard mitigation.

Other Programs. More and more often, non-governmental organizations are becoming involved in hazard mitigation and contributing to the funding of the initiatives. Volunteer organizations, church organizations, service organizations, and private companies have all participated financially and otherwise in helping achieve hazard mitigation. Most often, projects have been funded utilizing a "package" or combination of funding sources.

### Multiple Source Mitigation Funding Package

In the course of implementing the Grand Forks Acquisition and Relocation Plan, this North Dakota community utilized funds from Federal, state, local, and private resources to create its floodway corridor and riverfront park. These sources included flood insurance proceeds from the National Flood Insurance Program, labor for debris clearance and channel maintenance from the North Dakota National Guard, an exchange of maintenance responsibilities for a bridge with a railroad company, a bequeathment of property by will, and easements from a utility company. This corridor is part of an even larger project that incorporates a U.S. Army Corps of Engineers floodwall and elevated roads that serve as levees.

The primary key to identifying interested participants has been through identifying stakeholders. Any individual, organization, or entity that is either at risk or has some potential gain or loss is going to be interested in the outcome. Therefore, they need to first be brought together; second, reach a compromise; and third, help finance a solution they can all afford and live with.

A secondary key is flexibility and innovation. This is at the very heart of multi-objective planning. With imagination, State Hazard Mitigation Officers should be able to develop mitigation plans where suggested resources might include utilizing scheduled bridge replacements, historical building renovations, or land and water conservation funds.

### Example of Mitigation Funding By Corporate Donation

In Midland, Michigan, the Dow Chemical Corporation matched the community's annual appropriation of \$50,000 for a period of five years to fund a voluntary relocation and acquisition project for floodplain structure owners. Dow Chemical is a major employer and stakeholder in the community, and sought to remedy a repetitive problem that impacted their employees and community, and to a lesser degree, their own facilities.

## SAMPLE HAZARD MITIGATION ACTION

### **Background:**

Hazard mitigation efforts over the past few years have created a growing awareness that state government buildings sometimes are constructed in hazardous areas. Scientific studies conducted within the state over the past several years are illustrating the nature and location of these hazards in most counties. Even though science cannot predict that natural hazards may indeed create a problem within a particular time frame of a few years, still science has documented the physical processes involved and that such hazards typically do create damage and injury when they do become active. With an abundance of scientific expertise on such hazards within, and available to, state government, it should become a matter of course that state building sites receive natural hazard investigation before construction is approved.

### **Recommendation:**

A State Executive Order shall be passed indicating that each state agency shall avoid the siting of state facilities, or facilities funded in whole or in part by state monies, and the administration of any grant or loan programs, for the construction of any facility in a 100 year floodplain as delineated on FEMA maps or other "best available" data. If the state has no alternative but to build in a hazardous area, then the building should be made as structurally sound as possible to minimize damage should a disaster occur.

### **Time Frame:**

One Year

### **Lead Agency:**

Utah Geological and Mineral Survey, Utah Comprehensive Emergency Management Agency, Utah Facilities Construction and Management

### **Activity:**

**Short Term:** Conduct a meeting involving the heads of state agencies to discuss their interests in building their facilities in safe environments. If a consensus exists, or even a partial consensus, work from that position toward obtaining an executive order requiring that state buildings not be constructed on sites with identified natural hazards. An engineering geologist should be hired by the Utah Geological and Mineral Survey or Facilities Construction and Management to provide building site inspections. If state buildings must be built in hazardous areas, they should be constructed so as to minimize damage and injury that might result from the existing hazard.

**Long Term:** The state should have the objective of ultimately owning no buildings existing on sites with known natural hazards that might damage the structure or injure its inhabitants.

### **Cost:**

Primary cost would be the salary and overhead for the Engineering Geologist, estimated at \$50,000 per year.

Mitigation Action from  
Section 409 Hazard  
Mitigation Plan  
Utah, 1985

Prioritization of Mitigation Actions for Implementation. Hazard mitigation plans are not evaluated on the basis of the number of mitigation actions that they contain, but rather the impact that the proposed measures will have upon reducing the effect of hazards upon people and property. However, it is not unusual for these plans to contain upward of 50 actions. Due to this fact, it is necessary to assign a priority to those actions. The assigned priority should reveal an action's relative importance, feasibility, and effectiveness. This priority should be based upon several criteria: Is there an immediate mitigation opportunity created by the disaster that needs to be addressed before it is eliminated? Is there a need to pursue a particular action in order to secure financial support through the Hazard Mitigation Grant Program? Are there activities that will significantly reduce or alter the impact of a hazard by its rapid implementation? Are there actions that need to be initiated in order to meet certain deadlines such as the convening of the legislature, the formulation of work plans, or a particular grant program application due date? Are there actions that are multi-objective or multi-hazard and can achieve the greatest impact in a state or community?

Categorizing Actions. It is helpful to categorize the actions either by subject matter, such as floodplain management, legislation, dam safety, etc., by degree of priority, or by lead agency for easy referral. The previous example from Utah's hazard mitigation plan was categorized as "Detailed (High Priority)" versus a general grouping and hazard specific listings. Some plans use a combined approach by including a list or chart at the beginning of the mitigation actions section cross-referencing the actions with the lead agency.

Categories Used to  
Organize Hazard  
Mitigation  
Recommendations  
(Colorado, 1985)

The Flood Hazard Mitigation Plan for Colorado lists its recommendations both by issue and by state agency. Critical Issues include Floodplain Management, Geologic Hazard Management, Dam Safety, and Emergency Preparedness. Mitigation recommendations are categorized by state agencies, including the Colorado Water Conservation Board; Colorado Geological Survey; Division of Water Resources; Division of Parks and Outdoor Recreation and the Division of Wildlife; Division of Disaster and Emergency Services; Department of Highways; Department of Institutions; and the Department of Health.

AGENCY INDEX TO POST-HURRICANE ANALYSIS &  
RECOMMENDED ACTIONS  
(PARTIAL)

<u>AGENCY</u>	<u>PAGE #</u>	<u>ACTION #</u>
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Administration, Personnel	F-4	E19,E20
Business Regulation, Dept.	F-5	H5
Coastal Resources Council	F-8	H11,L8,L20,S4,S8
Education, Dept.	F-9	E26,E27
Emergency Management	F-26	H6,E1,E2,E32,E48
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University, Coastal Resources	F-24	L20

Mitigation Action  
Cross-reference  
Listing

Rhode Island  
Hazard Mitigation Plan  
1986

SUBJECT INDEX TO RECOMMENDED ACTIONS  
(PARTIAL)

Acquisition of Hazard-Prone Land	L1,L2,L3,L4,L9
Barrier Beaches	L6,L7,L22,S7
Bridges	E4
Communications	E1,E2,E3,E5,E42
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Floodplain Regulations	H4,H12,L11,L12
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Health Facilities	E9,E11,E13,E16
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Mapping	L18
Open Space	L3,L9,L13
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Sewage Facilities	E9,E11,H2
Subdivisions	H10
Warning	E21,E22,E45,S9
Zoning	H13,L11,L12,S5

Review of the Mitigation Actions. After these previous steps are completed, the State Hazard Mitigation Officer should assemble a DRAFT plan and provide the State Hazard Mitigation Team members and all others involved in the mitigation planning process with the opportunity to review the document and the proposed actions prior to adoption. State, local, and Federal agencies will want to review the assistance it is recommended they provide. The Governor or the Governor's Authorized Representative will want to review what commitments are being made by the state. The people who will be affected by the proposed activities, such as relocation, will need to be informed, perhaps by public meetings. The goal is to involve all those with a legitimate interest, ability, or stake so that there are as few obstacles to implementation as possible.

Subpart M  
Requirement  
44 CFR 206.405 (a) (4)

The plan shall contain a method of implementing, monitoring, evaluating, and updating the mitigation plan.

### **Plan Implementation and Maintenance Methodology**

Subpart M requires that the hazard mitigation plan include a description of how the state intends to:

- Coordinate implementation of mitigation actions;
- Monitor ongoing implementation progress and any changes, positive or negative, in vulnerability to hazards;
- Evaluate the success or failure of each effort; and
- Update the hazard mitigation plan to reflect these factors.

This is a critical step towards making the plan effective. The mitigation plan is not an end in itself. Rather, completion of the plan is the beginning of the process of reducing future losses from natural hazards.

Chapter 6 is devoted entirely to how to accomplish this step. After reviewing the chapter, decide how your state will meet this requirement, and describe the intended methodology in the final portion of the plan.

## **PLAN SUBMISSION AND APPROVAL**

Subpart M  
44 CFR 206.405 (d)

All states shall submit a hazard mitigation plan or plan update on behalf of the state and any appropriate local governments included in the designated area. The plan or update is due to FEMA within 180 days of the date of the declaration. The Regional Director may grant extensions to this date not to exceed 365 days from the date of the declaration when adequate justification is received in writing from the state. Extensions beyond that date must be forwarded with justification to the Associate Director for approval.

### **Review of the Plan**

The State Hazard Mitigation Officer should work closely with the Federal Hazard Mitigation Officer throughout the planning process. This will eliminate any unforeseen problems at the end of the project. The Federal Hazard Mitigation Officer will be aware of the direction and progress that is being made and can offer assistance that will be valuable in receiving FEMA's approval of the plan when it is completed. If FEMA is involved throughout the process, there should not be a problem with approval of the plan. The Federal Hazard Mitigation Officer may provide technical assistance:

- During the Interagency Hazard Mitigation Team/Hazard Mitigation Survey Team process;
- At the initial planning meeting with the state to review scope of work and timeline; and
- During the review of timelines, outlines, and draft plans.

### **Approval of the Plan**

The plan should be submitted to FEMA for approval prior to seeking the Governor's endorsement signature. If this approach is pursued, the State Hazard Mitigation Officer will be able to make any adjustments that may be necessary without having to return to the Governor's Office for another signature. Following this "pre-approval" by FEMA, the State Hazard

Mitigation Team, and the affected local governments, the State Hazard Mitigation Officer can submit the hazard mitigation plan to the Governor with the confidence that everyone involved will approve of the product, the intent, and the process. Following the Governor's endorsement, the plan can then be returned to FEMA for final review and approval by the Regional Director.

Subpart M  
Requirement  
44 CFR 206.405 (e)

Upon receipt of a hazard mitigation plan or plan update, the Regional Director shall acknowledge receipt in writing to the Governor or appropriate agency. Written comments shall state whether the plan is approved, shall detail any shortcomings that may exist, and shall include a suggested method and timeline for correction if necessary.

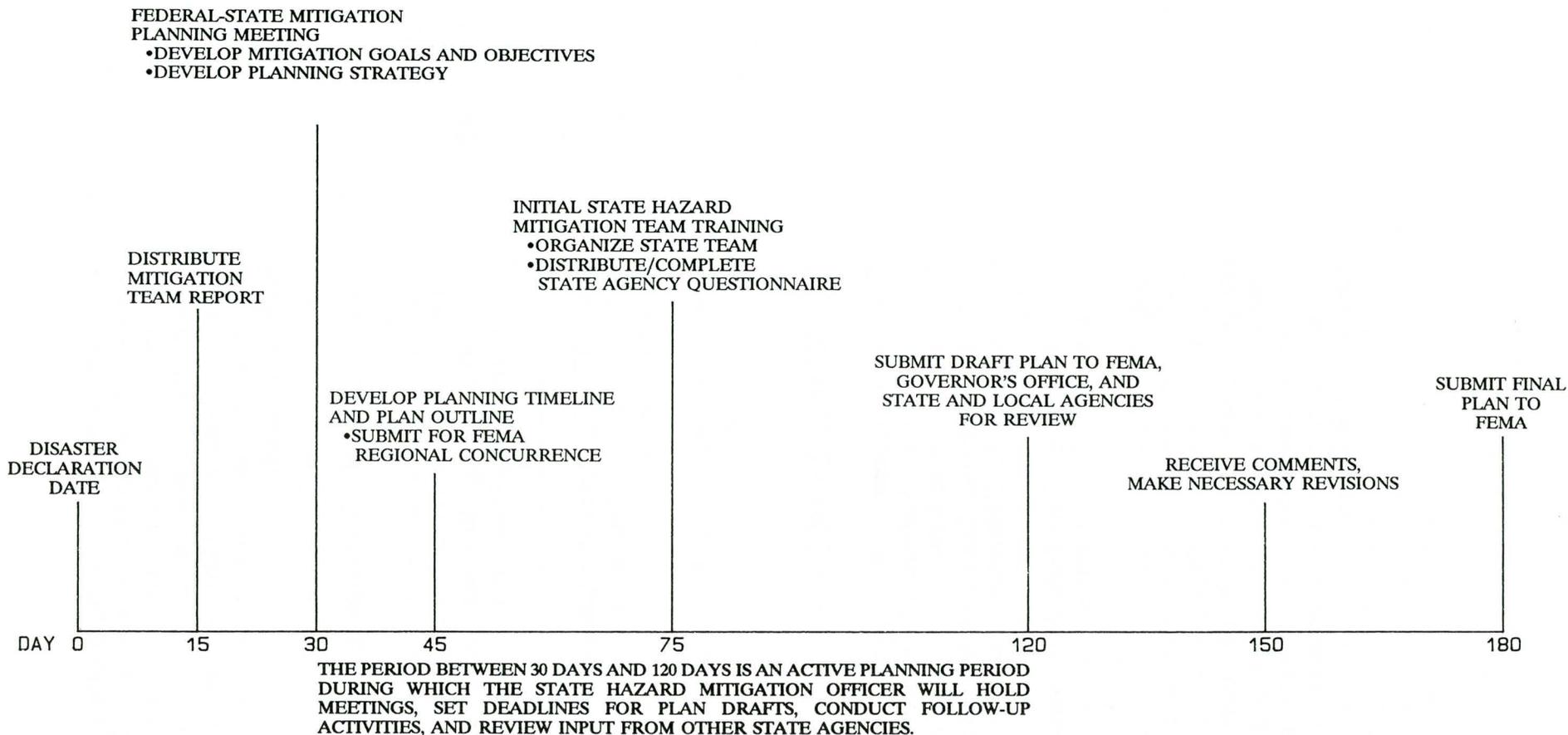
Upon FEMA approval, the most important work remains to be accomplished -- distribution of the plan and plan implementation.

Figure 4 provides a suggested timeline for developing a hazard mitigation plan.

### **DISTRIBUTION OPTIONS**

There is no requirement that a certain number of copies of the plan be printed or distributed to a particular group of people. There are many options. Each plan will involve different agencies and people. Each plan will have different sources of suggested funding. Differences in state governments will create differences in timing and the scope of work. Different vulnerability to different hazards will cause different people to become involved in the process.

Identifying who should receive a copy of the plan depends upon who was involved in its development and who will be involved in its implementation. Representatives from both of these groups will need a copy of the document, both as a reference manual and as a work plan. This will include distribution to appropriate local, state, and Federal officials. Also, any private, voluntary, or social organizations that are involved need to receive a copy.



*NOTE: MAJOR PLANNING ACTIVITIES AND EVENTS MAY VARY DEPENDING UPON THE SIZE AND SCOPE OF THE DISASTER.*

**Figure 4: SUGGESTED TIMELINE FOR DEVELOPING A STATE HAZARD MITIGATION PLAN**

In addition, a state's mitigation program will benefit significantly through the distribution of the plan to other groups. The plan will be a substantial step towards answering the pervasive question, "What is being done to keep these types of damages from recurring?" Therefore, providing copies to the media can help promote the measures the State Hazard Mitigation Officer plans to implement. Media coverage can help a project gain momentum, public knowledge, public support, and public financing. Consider the media a friend of mitigation, not a foe. Methods of soliciting media support include:

#### Methods of Soliciting Media Support for Mitigation

- Developing press releases and distributing them in coordination with each agency's Public Information Officer.
- Conducting media briefings, where the State Hazard Mitigation Officer invites the media to a formal press conference. This could be expanded to include a short mitigation training session to ensure that there is a realistic understanding of what is being accomplished.
- Inviting the media to attend some (or all) of the mitigation planning team meetings.
- Contacting those media representatives that contacted you in order to produce articles or news stories immediately after the disaster. Suggest that your current efforts are "newsworthy" follow-up stories, and that *they* have a responsibility to inform the public about significant actions being taken to reduce the potential of a similar disaster recurrence.
- Contacting the media to focus attention on implementation of the plan and specific mitigation actions, and on anniversary dates of the disaster.

Similarly, it may be beneficial to provide copies of the plan to select, or all, members of the state legislature. It is important that the people that will be deciding the fate of particular options have adequate information and preparation time to formulate an opinion.

Finally, the State Hazard Mitigation Officer will have to consider the cost of preparing the plan itself, including duplication costs for the review copies, plus printing and binding up to several hundred copies. These costs should be calculated at the

onset in order to determine the funding support for the first project, development of the plan. One state provided copies to appropriate officials free of charge and provided copies to other interested parties at the actual cost.

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**Chapter 6**

**IMPLEMENTING, MONITORING,  
EVALUATING, AND UPDATING THE  
HAZARD MITIGATION PLAN**

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**Chapter 6:****IMPLEMENTING, MONITORING,  
EVALUATING, AND UPDATING THE  
HAZARD MITIGATION PLAN**

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Subpart M  
Requirement  
44 CFR 206.405 (a) (4)

The plan shall contain a method of implementing, monitoring, evaluating, and updating the mitigation plan.

**IMPLEMENTATION**

Subpart M  
Requirement  
44 CFR 206.406 (i)

The state is responsible for monitoring and evaluating implementation of the hazard mitigation plan.

After the state hazard mitigation plan has been completed and distributed, the State Hazard Mitigation Officer is responsible for stimulating, coordinating, and managing the implementation of the plan. Development of a comprehensive state program is a continuing process and depends on the active involvement of the State Hazard Mitigation Officer and the state team in implementing, monitoring, evaluating, and updating the plan. It is important to realize that this ongoing process does not end once the plan has been written.

The real challenge of hazard mitigation planning involves converting the plans into action. The intent of implementing mitigation is to intervene in the traditional reactive processes of response and recovery. The proactive nature of mitigation planning leads to the successful reduction of hazard vulnerability.

A state's commitment to implementing the plan and accomplishing mitigation actions can also impact future disaster declarations. As part of FEMA's response to a Governor's request for a declaration, FEMA will evaluate the status of hazard mitigation planning efforts and the actions the state or local governments agreed to undertake as a condition of a previous declaration. FEMA has the authority to:

... ensure that mitigation commitments are fulfilled, and when necessary, take action, including recovery of funds or denial of future funds, if mitigation commitments are not fulfilled.

## **Responsibilities**

**Role of the State Hazard Mitigation Officer.** Implementation involves coordination by the State Hazard Mitigation Officer with state hazard mitigation team members and local government officials whose agencies have been designated as having the responsibility for implementing specific recommendations. The State Hazard Mitigation Officer can support implementation activities by assisting the lead agencies to identify, coordinate, and obtain the necessary technical and financial resources required for each goal. This may include conducting meetings that relate to the goals of the recommendation; holding training sessions; scheduling visits with the Governor's Office, legislative committees, state and Federal agencies, private businesses, community groups, and the media; developing correspondence; and making telephone calls. The purpose of these efforts should be to stimulate and support mitigation activities and to solidify official commitment and public involvement.

## Training Sessions to Support Plan Implementation

The Wyoming Emergency Management Agency conducted a 3-day training session for local officials to encourage their participation in mitigation activities and to support the recommendations of the state hazard mitigation plan. Topics included: Introduction to Hazard Mitigation; Federal, State, and Local Responsibilities and Authorities; Hazard Analysis; Hazards and Mitigation Tools (addressing the five hazards in the state mitigation plan); Mitigation Recommendations; and Local Mitigation Activities.

**Role of State and Local Team Members.** There are several activities that state and local officials can pursue that contribute towards implementing plan recommendations. Team members can educate colleagues within their respective agencies as to how the recommendations they have a lead responsibility in were formulated and why they are important. Ongoing programs and activities that either support or conflict with mitigation objectives can be identified. Team members should

also coordinate technical and financial resources available from their agencies and generate any additional activities that will help accomplish implementation of recommendations.

**Role of FEMA.** The State Hazard Mitigation Officer may request technical assistance and support from FEMA and other Federal agencies, through the Federal Hazard Mitigation Officer, to help the state carry out its hazard mitigation responsibilities (see page 36). FEMA may be asked to participate in many of the activities mentioned above. FEMA's involvement and the leverage the agency can provide may help the state achieve its mitigation objectives in a more timely manner.

### **Implementation Strategies**

**Post-Disaster Meetings.** A series of regularly scheduled post-disaster meetings with state team members will maintain an emphasis on implementing the recommendations of the mitigation plan. If a mitigation measure involves a local community, the involvement of the local government and its citizens is critical. In some instances, community meetings must be held and input solicited. This is especially true when hazard mitigation requires public support, as in the case of an acquisition or relocation project, or when hazard mitigation activities are controversial or environmentally sensitive.

#### Use of Public Meetings to Establish Support for Mitigation

In Garfield Township, Michigan, local officials utilized public meetings to discuss and resolve issues stemming from a relocation project following a severe flood disaster. State and local government representatives met with community residents affected by the flood to discuss reconstruction restrictions and issues relating to non-conforming use of properties. The township board conducted public meetings throughout the mitigation project process in order to keep residents informed of pertinent issues, to receive feedback regarding individual concerns, and to meet public information requirements as the State Community Development Grant recipient and project decision-making body.

**Special Task Forces.** State teams or special task forces that have been created to address specific issues may also assist with implementation.

Use of  
Interagency  
Task Force to  
Assist With  
Plan  
Implementation

In Wyoming, after the 1985 flood, the Mayor of Cheyenne reactivated his Drainage Task Force to address issues arising from the flood. The interagency task force implemented various recommendations of the Interagency Hazard Mitigation Team Report and the state hazard mitigation plan. Two major accomplishments were the installation of an ALERT warning system and the development and implementation of a master stormwater drainage program.

**Integration into Work Plans.** To integrate hazard mitigation activities into work plans, the State Hazard Mitigation Officer should identify the state agency and position responsible for accomplishing the specific activity and work with the individual in that position to ensure that the issue is addressed by their agency. For example, if geologic hazard mapping is necessary, the State Hazard Mitigation Officer should work with the state geologic survey to identify existing programs that could accomplish the work or new programs that can be justified.

Budget cycles are important so that the designated lead agency can incorporate the cost of the work items into budget proposals prior to their review.

Integration of  
Recommendations  
into Agency  
Work Plans

The individual tasked to develop and implement Connecticut's state hazard mitigation plan was not a full-time State Hazard Mitigation Officer. He realized that because of his normal duties, many of the recommendations for which his agency was responsible would not be achieved. His solution was to include these recommendations in his normal work plan. One recommendation implemented in this manner was the development and installation of a flood warning system.

**Use of Existing Programs.** Potential funding sources were discussed in the recommendation section of Chapter 5, however, funding is often seen as the major obstacle in achieving mitigation objectives. It is important to examine programs at all levels of government, and in the private sector. Cost-sharing and the creative use of existing programs must also be explored.

Use of the  
FEMA-State  
Agreement to  
Fund  
Mitigation  
Activities

Use of the FEMA-State Agreement to commit funds at the time of a disaster is an approach used by the state of Utah. The State Hazard Mitigation Officer realized an opportunity to accomplish some of the goals in the state hazard mitigation plan when Utah received a Presidential disaster declaration in 1986. This was the third Presidential declaration that Utah had received in three years. As part of the hazard mitigation commitment for this disaster, the state of Utah agreed to:

Commit ten percent, or \$250,000, of State Disaster Relief Board funds for structural and nonstructural hazard mitigation projects, and implementation of recommendations in the state hazard mitigation plan.

FEMA's Hazard Mitigation Assistance Program has also been used to assist in implementing recommendations of state hazard mitigation plans.

Use of the  
Hazard Mitigation  
Assistance Grant  
Program to  
Fund  
Mitigation  
Activities

The Wyoming State Hazard Mitigation Officer examined the recommendations in the state hazard mitigation plan and found that more than 15% of the recommendations were concerned with some aspect of public information. The state's first priority for implementation became those recommendations involving public awareness. Wyoming submitted a Hazard Mitigation Assistance Grant proposal to FEMA to conduct a statewide, multi-hazard public awareness program. Wyoming received \$18,000 from the Hazard Mitigation Assistance Grant Program which they supplemented with \$14,250 from the Wyoming Emergency Management Agency. These funds had previously been part of \$100,000 commitment by the state under the FEMA-State Agreement for which this plan was required.

Creative  
Use of  
Multiple  
Source Funding

For an acquisition and relocation program in Kampsville, Illinois, the state used funding from three different programs: FEMA's Flood Insurance Acquisition Program (Section 1362), state Community Development Block Grant funds, and state capitol development funds. The project involved acquiring 53 properties, elevating 7 homes, converting the floodplain to open space use, and ensuring continued water supply and highway access during flooding.

Some mitigation measures may require little or no funding, such as training activities, developing legislation, holding conferences, etc. Other activities may require time that the State Hazard Mitigation Officer may not have available. Some states have successfully used student interns from local universities or community colleges to assist with plan implementation.

Workshops:  
A Mitigation  
Measure  
Requiring  
Little Funding

Following a 1984 flood disaster, the Texas Departments of Water Resources and Public Safety held a Flood Hazard Mitigation Workshop for local officials in San Patricio County, one of the impacted areas. The Department of Water Resources initiated a policy to conduct workshops for public officials following the development of the state hazard mitigation plan to increase a community's awareness of the plan and to encourage local officials to use the plan as a basis for further action. Topics included: floodplain management, floodplain mapping procedures, local ordinances/court orders, developing public awareness, flood insurance rates in relation to construction practices, and lending money for construction in the floodplain.

**Use of the Media.** Recommendations may be implemented promptly if the disaster were a high visibility event or impacted a large population area and if the disaster is still receiving media coverage. Keeping issues in front of the media can help garner support and serve as an impetus for implementation. Media involvement can be very effective if properly coordinated with all participants.

Media involvement begins at the time of a disaster declaration and, depending on the size of the disaster and the issues involved, can continue indefinitely. The State Hazard Mitigation Officer should work through the state Public Information Officer to establish media contacts. Use of print media, TV, and radio can help bring issues to the public's attention and increase support of mitigation activities.

Press releases can be developed by the State Hazard Mitigation Officer to announce milestones in the planning process. These may include completion and distribution of post-disaster team reports and the state hazard mitigation plan, formation of a state team or task force, and status of critical recommendations.

The media should be provided with a copy of the plan and subsequent progress reports. The media should also be invited to conferences in support of mitigation recommendations. When the Governor's Office is involved with mitigation

activities, higher visibility and increased media coverage usually occurs.

Implementation involves continued coordination and follow-up to ensure that the plan becomes an effective working document, and to establish a comprehensive state hazard mitigation program.

Colorado has developed a very sophisticated state and local mitigation implementation process as part of their Landslide Mitigation Plan. Figure 5 depicts this process. The plan, available from the Colorado Division of Emergency Services, provides a thorough narrative description.

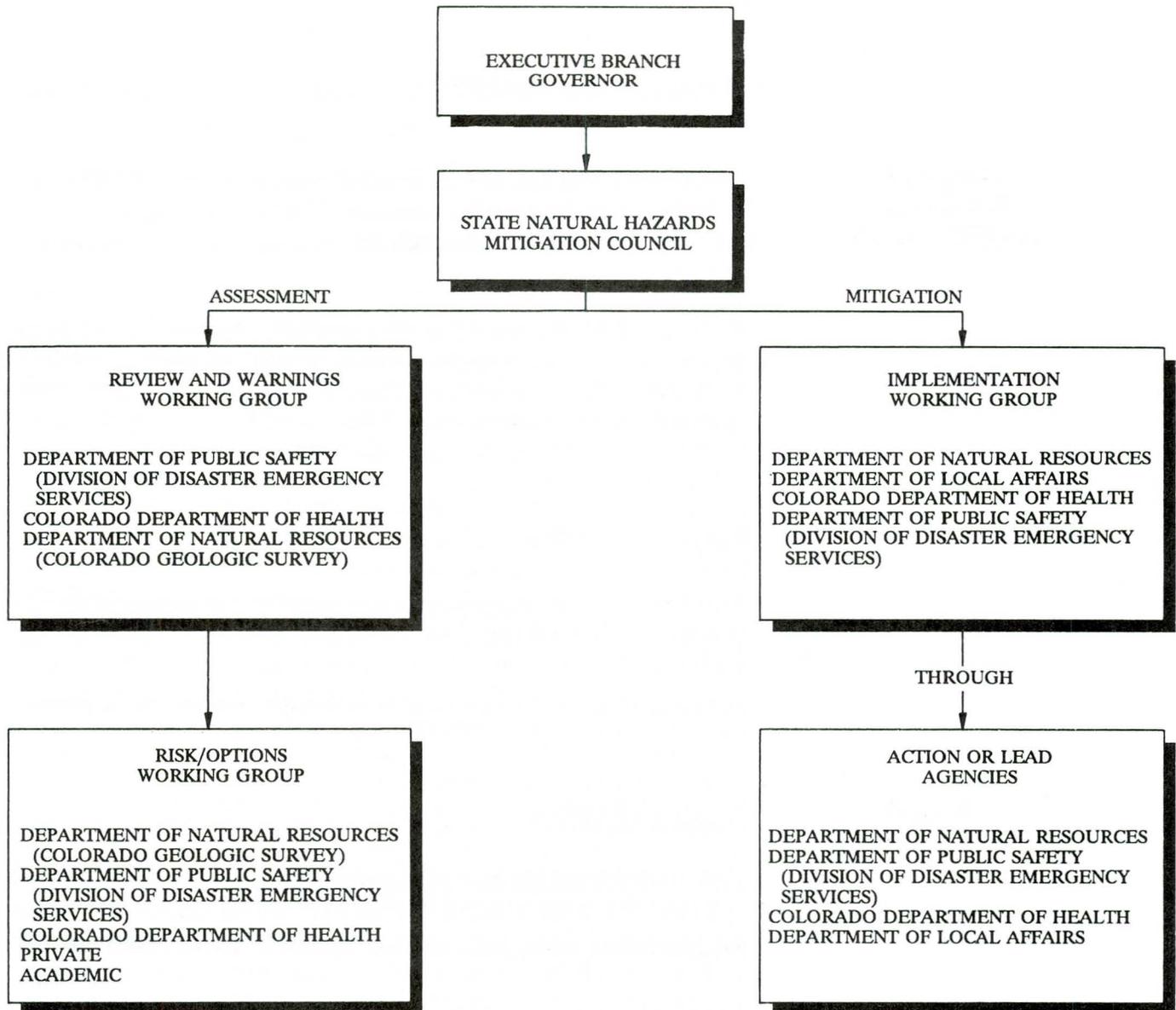
## **MONITORING**

Monitoring is an important component of the implementation process. A tracking and reporting system is essential to monitor the progress of the recommendations. The State Hazard Mitigation Officer should have an established system to accomplish this requirement.

### **Responsibilities**

**Role of the State Hazard Mitigation Officer.** To assist with this process, the State Hazard Mitigation Officer should designate an individual from each agency to report periodically on the status of each recommendation. This information, as well as the annual progress report, should be shared with other team members and appropriate individuals to keep them informed and involved in the process. State Hazard Mitigation Officers can also monitor progress through phone calls, visits, and meetings.

**Role of State and Local Team Members.** State and local team members who have implementation responsibilities can provide the State Hazard Mitigation Officer with meeting agenda, attendance sheets, correspondence, legislation, minutes of public meetings, telephone records, and grant proposals as the basis for their report to the State Hazard Mitigation Officer.



**Figure 5: PROPOSED ORGANIZATION OF THE COLORADO NATURAL HAZARDS MITIGATION SYSTEM**

## Monitoring Strategies

Subpart M  
Requirement  
44 CFR 206.406 (i)

The state is responsible for submitting annual progress reports to FEMA.

**Annual Progress Reports.** At a minimum, the state is responsible for submitting an annual progress report to FEMA on the implementation status of the hazard mitigation plan. If FEMA feels the need for additional tracking on specific items, more frequent reports can be required.

The progress report should indicate the status of each mitigation measure contained in the state hazard mitigation plan, evaluate the status by describing any problems or issues that have developed, and include recommendations for additional, modified, or no action. If local plans have been developed, the status and evaluation of those recommendations should also be included.

Annual  
Flood Hazard  
Mitigation Report

The state of Illinois issues an Annual Flood Hazard Mitigation Report. The report covers the activities that are implemented jointly by the Illinois Department of Transportation, Division of Water Resources, the Illinois Emergency Services and Disaster Agency, and FEMA. In 1986, the report reviewed activities conducted during the year and discussed the status of recommendations contained in previous Interagency Hazard Mitigation Team reports and the state hazard mitigation plan.

Annual progress reports will be reviewed by FEMA. If the state agreed to implement certain critical elements that have not been implemented, FEMA may ensure that these commitments are fulfilled by taking appropriate action. This may result in recovering funds or denying future funds to the state.

Annual progress reports should be provided to state team members; other appropriate state, local, and Federal government officials; any other parties involved in plan implementation, including the private sector, community groups, etc.; and the media.

It is also essential to provide a copy of the annual progress report to the Governor's Office and the legislature. This is useful in renewing support and in prompting various individuals to act. If state agencies are aware that a report will be sent to

the Governor's Office and the legislature, they are more likely to complete their assigned tasks.

**Comprehensive Cooperative Agreement.** The Comprehensive Cooperative Agreement is FEMA's vehicle for funding state and local programs and activities, including hazard mitigation. Plan recommendations may be included under hazard mitigation program activities to be accomplished during the year. Each quarter the state is required to complete a Computerized Activities Results List describing the status of each activity. This serves to make sure that projects are being completed in a timely manner.

## **PLAN EVALUATION**

Subpart M  
Requirement  
44 CFR 206.405 (a) (4)

The plan will be evaluated on at least an annual basis to ensure that implementation occurs as planned, and to ensure that the plan remains current.

The State Hazard Mitigation Officer and the state team should evaluate the plan to determine the effectiveness of the program that the plan has created.

Evaluation of the hazard mitigation planning effort might benefit from a review of the assumptions and presumptions on which the plan is based. The following criteria may be applied.

1. Are the goals and objectives still applicable?  
  
Do plan objectives still correspond with state priorities?
2. Are the problems the same? Are they different? What is the magnitude of change?  
  
Are the hazards the same? Are there new hazards that pose a threat? Do new recommendations need to be developed for new hazards? Do existing recommendations need to be reprioritized for implementation?
3. Is the plan appropriate for the available resources?  
  
Are staff time and the required funding available to implement the recommendations? Do additional sources

of funding need to be identified? Do lead agencies need to be reassigned for implementation?

4. Are there problems with implementation, i.e., technical, political, legal, coordination, etc.?

Is agency coordination a problem? Is the political atmosphere preventing the recommendations from being implemented? Is it still feasible to pursue implementation of certain recommendations?

5. Are the outputs/outcomes as expected?

Have the critical recommendations been implemented? Have state agencies actively participated in plan implementation?

In the long-term, changes in policy administration may affect the usefulness of the plan and the relevance of issues. Factors such as a change in administration, reorganization of state agencies, new priorities, or an economic transformation may impact the direction of a state hazard mitigation program.

## **PLAN UPDATES**

At the time of the next Presidential disaster declaration, the state will be required to update its existing state hazard mitigation plan. A supplemental section may need to be developed to address new hazard mitigation needs or issues, reprioritize existing recommendations, or expand the plan to address additional hazards. For those states that do not receive frequent disaster declarations, it is recommended that the plan be updated at least every five years.

### **Expanding Existing Plans**

Plans may be expanded for two reasons. In the case of a disaster declaration, an existing hazard mitigation plan may be expanded to address a new hazard. After a major disaster is declared, the State Hazard Mitigation Officer should examine the existing plan to determine if there are policies, programs, and capabilities to address the hazard and reduce future vulnerability. If necessary, the State Hazard Mitigation Officer

will need to expand the plan and develop recommendations to address those issues.

If the declaration is for a hazard not addressed in the state hazard mitigation plan, the State Hazard Mitigation Officer will need to expand the existing plan to include the new hazard. The supplemental section or annex to the plan will need to include the same components as the existing plan (see discussion on expanding existing plans on page 81).

A new hazard may require different or additional team members to participate on the state team and in the planning process. The State Hazard Mitigation Officer may also change if the position is appointed from an agency with technical expertise for that particular hazard, such as the state geological survey for a landslide.

In other instances, a state may expand upon their existing plan in response to a known hazardous situation. There are available programs and funding to assist with this effort since most states do not have the staff time and financial resources to dedicate to such an effort in a non-disaster environment. Both the Disaster Preparedness Improvement and Hazard Mitigation Assistance programs can be used for this purpose. FEMA encourages the use of these programs for developing pre-disaster plans, the benefits of which are discussed in Chapter 5.

Use of Hazard  
Mitigation Assistance  
Grant Program  
to Expand  
Existing Plan

The state of Utah has used funding from the Hazard Mitigation Assistance program to develop three annexes to its existing state hazard mitigation plan. The annexes address wild fires, hazardous materials, and debris flows. Each annex is a statewide plan focusing on a specific hazard. Each annex consists of four sections: Hazard Assessment, Risk Analysis, Evaluation of Existing Mitigation Measures, and Recommendations.

The State Hazard Mitigation Officer developed a different team of agency representatives for each hazard. The team provided technical assistance and participated in the same planning process used to develop a state hazard mitigation plan. For the wild fires annex, team members included city and county fire fighters, county fire marshals, a state fire suppression specialist, a wildfire training specialist, and the supervisor of the Wasatch National Forest.

Hazard mitigation programs continue to develop and evolve requiring systematic monitoring and evaluation to keep them current.

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In summary, successful mitigation planning requires a comprehensive, coordinated approach that instigates proactive actions by all levels of government. This handbook is meant to provide detailed guidance for the State Hazard Mitigation Officer who is assigned the primary responsibility for this effort. However, as the examples indicate, mitigation is a constantly evolving field. Through the continued growth and exercising of your mitigation network, you will be able to share and exchange ideas and strategies that will help you develop and implement a successful mitigation program.

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## APPENDICES

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Appendix A: DEFINITIONS

Appendix B: COMMONLY USED HAZARD MITIGATION ACRONYMS

Appendix C: HAZARD MITIGATION INFORMATION RESOURCES

Appendix D: FEMA REGIONAL HAZARD MITIGATION OFFICERS

Appendix E: FEMA HAZARD MITIGATION PROGRAMS AND TRAINING OPPORTUNITIES

Appendix F: CAPABILITY ASSESSMENT QUESTIONNAIRE

## DEFINITIONS

**Computerized Hazard Identification Program:** part of FEMA's Integrated Emergency Management System, this evaluation program identifies the hazards posing the greatest threat to state and local governments and the capabilities of existing programs to respond. (Formerly referred to as Hazard Identification and Capability Assessment.)

**Disaster Preparedness Improvement Grant Program:** authorized under Section 201 of the Stafford Act. Annual matching awards not to exceed \$50,000 are provided to states to improve or update their disaster assistance plans and capabilities.

**Emergency:** any hurricane, tornado, storm, flood, high water, wind-driven water, tidal wave, tsunami, earthquake, volcanic eruption, landslide, mudslide, snowstorm, drought, fire, explosion, or other catastrophe in any part of the United States which requires Federal emergency assistance to supplement state and local efforts to save lives and protect property, public health and safety or to avert or lessen the threat of a disaster.

**Emergency Operations Plan:** sets forth actions to be taken by state or local governments for response to emergencies or major disasters.

**Executive Orders 11988 and 11990:** the requirements to avoid direct or indirect support of floodplain development and to minimize harm to floodplains and wetlands. Federal decision-makers are obligated to comply with these orders, accomplished through an eight-step decision-making process.

**Executive Order 12699:** requires that new construction of Federal buildings must comply with appropriate seismic design and construction standards.

**Federal Hazard Mitigation Officer:** the FEMA employee responsible for representing the agency for each declaration in carrying out the overall responsibilities for hazard mitigation and for Subpart M, including coordinating post-disaster hazard mitigation actions with other agencies of government at all levels.

**FEMA-State Agreement:** states the understandings, commitments, and conditions for assistance under which FEMA disaster assistance shall be provided. This agreement imposes binding obligations on FEMA, states, and their local governments in the form of conditions for assistance which are legally enforceable.

**Hazard Mitigation:** any action taken to reduce or permanently eliminate the long-term risk to human life and property from natural hazards.

**Hazard Mitigation Assistance Program:** provides a limited amount of funding to states to cover or to assist in covering the cost of preparing a pre-disaster hazard mitigation plan, one or more components of such a plan, or a related activity which will contribute to reducing vulnerability to hazards either throughout the state or for a selected area within the state.

**Hazard Mitigation Grant Program:** authorized under Section 404 of the Stafford Act. Provides funding for hazard mitigation projects that are cost effective and complement existing post-disaster mitigation programs and activities by providing funding for beneficial mitigation measures that are not funded through other programs.

**Hazard Mitigation Plan:** the plan resulting from a systematic evaluation of the nature and extent of vulnerability to the effects of natural hazards present in society that includes the actions needed to minimize future vulnerability to hazards.

**Hazard Mitigation Plan Update:** an update to an existing hazard mitigation plan, which may be accomplished either by updating the status of mitigation actions within the existing plan or by expanding the existing plan to address additional hazards or mitigation issues.

**Hazard Mitigation State Administrative Plan:** the plan developed by the state to describe the procedures for administration of the Hazard Mitigation Grant Program.

**Hazard Mitigation Survey Team:** the FEMA/State/Local survey team that is activated following disasters to identify immediate mitigation opportunities and issues to be addressed in the Section 409 hazard mitigation plan. The Hazard Mitigation Survey Team may include representatives of other Federal agencies, as appropriate.

**Hazard Mitigation Survey Team Report:** developed by the Hazard Mitigation Survey Team, and similar in format to the Interagency Hazard Mitigation Team Report, the report identifies mitigation measures for implementation and recommends issues to be addressed in the State Hazard Mitigation Plan, including those measures recommended for funding under the Hazard Mitigation Grant Program.

**Individual Assistance:** supplementary Federal assistance provided under the Stafford Act to individuals and families adversely affected by a major disaster or emergency.

**Interagency Agreement for Post-Flood Hazard Mitigation:** agreement signed by 12 Federal agencies as a result of a July 10, 1980 directive issued by the Office of Management and Budget to these agencies to coordinate their post-disaster recovery assistance following Presidentially declared flood disasters and to use this assistance to promote non-structural approaches to reducing future flood damages.

**Interagency Hazard Mitigation Team:** the mitigation team that is activated following flood related disasters pursuant to the Office of Management and Budget directive on Nonstructural Flood Protection Measures and Flood Disaster Recovery, and the subsequent December 15, 1980 Interagency Agreement for Nonstructural Damage Reduction.

**Interagency Hazard Mitigation Team Report:** developed within 15 days following any Presidentially declared flood disaster by an interagency, intergovernmental, and interdisciplinary team representing each of the signatory agencies of the Interagency Agreement for Post-Flood Hazard Mitigation. The report identifies post-flood mitigation opportunities and common post-flood recovery policies.

**Local Hazard Mitigation Officer:** the representative of local government who serves on the Hazard Mitigation Survey Team or the Interagency Hazard Mitigation Team, and who is the primary point of contact with FEMA, other Federal agencies, and the state in the planning and implementation of post-disaster hazard mitigation activities.

**Major Disaster:** any hurricane, tornado, storm, flood, high water, wind-driven water, tidal wave, tsunami, earthquake, volcanic eruption, landslide, mudslide, snowstorm, drought, fire, explosion, or other catastrophe in any part of the United States which in the determination of the President, causes damage of sufficient severity and magnitude to warrant major disaster assistance under this Act, above and beyond emergency services by the Federal government, to supplement the efforts and available resources of states, local governments, and disaster relief organizations in alleviating the damage, loss, hardship, or suffering, caused thereby.

**Measure:** any mitigation measure, project, or action proposed to reduce risk of future damage, hardship, loss, or suffering from disasters.

**Public Assistance:** Federal financial assistance provided to state and local governments or to eligible private nonprofit organizations for disaster-related requirements.

**Section 404:** of the Stafford Act, authorizes the Hazard Mitigation Grant Program which provides funding for cost-effective hazard mitigation measures.

**Section 409:** of the Stafford Act, enacted to encourage identification and mitigation of hazards at all levels of government, Section 409 requires the identification and evaluation of mitigation opportunities as a condition for receiving Federal disaster assistance.

**Section 409 Hazard Mitigation Plan:** the hazard mitigation plan required under Section 409 as a condition of receiving Federal disaster assistance.

**Stafford Act:** Robert T. Stafford Disaster Relief and Emergency Assistance Act, PL 100-707, signed into law November 23, 1988; amended the Disaster Relief Act of 1974, PL 93-288.

**State Hazard Mitigation Officer:** the representative of state government who serves on the Hazard Mitigation Survey Team and Interagency Hazard Mitigation Team, and who is the primary point of contact with FEMA, other Federal agencies, and local units of government in the planning and implementation of post-disaster mitigation activities.

**State Hazard Mitigation Team:** composed of key state agency representatives, local units of government, and other public or private sector bodies or agencies, the purpose of the State Hazard Mitigation Team is to evaluate hazards, identify strategies, coordinate resources, and implement measures that will reduce the vulnerability of people and property to damage from hazards.

**Subpart M, Hazard Mitigation Planning:** 44 CFR Part 206 Subpart M prescribes the actions and procedures for implementing Section 409 of the Stafford Act.

**Subpart N, Hazard Mitigation Grant Program:** 44 CFR Part 206 Subpart N provides guidance on the administration of hazard mitigation grants made under provisions of Section 404 of the Stafford Act.

**LIST OF COMMONLY USED HAZARD MITIGATION ACRONYMS**

<b>CFR</b>	Code of Federal Regulations
<b>CHIP</b>	Computerized Hazard Identification Program
<b>DAPD</b>	Disaster Assistance Programs Division
<b>DPIG</b>	Disaster Preparedness Improvement Grant
<b>DSR</b>	Damage Survey Report
<b>EMI</b>	Emergency Management Institute
<b>EO</b>	Executive Order
<b>EOP</b>	Emergency Operations Plan
<b>FEMA</b>	Federal Emergency Management Agency
<b>FHMO</b>	Federal Hazard Mitigation Officer
<b>HMA</b>	Hazard Mitigation Assistance Program
<b>HMGP</b>	Hazard Mitigation Grant Program
<b>HMST</b>	Hazard Mitigation Survey Team
<b>IEMS</b>	Integrated Emergency Management System
<b>IFG</b>	Individual and Family Grant Program
<b>IHMT</b>	Interagency Hazard Mitigation Team
<b>LHMO</b>	Local Hazard Mitigation Officer
<b>NEHRP</b>	National Earthquake Hazards Reduction Program
<b>NFIP</b>	National Flood Insurance Program
<b>SHMO</b>	State Hazard Mitigation Officer
<b>SHMT</b>	State Hazard Mitigation Team

**HAZARD MITIGATION INFORMATION RESOURCES**

NATIONAL ORGANIZATIONS AND AGENCIES

1. Association of State Floodplain Managers

The Association of State Floodplain Managers has established a Floodplain Management Resource Center located at the Natural Hazards Research and Applications Information Center. Documents are summarized and entered into a computerized bibliographic data base. Topics include floodproofing, arid west issues, stormwater management, and guidance for local officials. Most inquiries are handled by phone, or you may write:

Floodplain Management Resource Center  
Natural Hazards Research and Applications Information Center  
Institute of Behavioral Science #6  
Campus Box 482  
University of Colorado  
Boulder, CO 80309-0482  
(303) 492-6818

The Association of State Floodplain Managers also publishes flood hazard reduction planning and implementation documents, in addition to proceedings from their annual conferences. Members receive News & Views, their bi-monthly newsletter. For a list of publications, contact:

ASFPM Publications  
P.O. Box 2051  
Madison, WI 53701-2051  
(608) 249-0649

2. Building Seismic Safety Council

The Building Seismic Safety Council provides publications regarding reduction of seismic hazards to society, lifelines, and buildings. Much of the work developed through the National Earthquake Hazards Reduction Program is available through this council.

Building Seismic Safety Council  
1201 L Street, NW, Suite 400  
Washington, DC 20005  
(202) 289-7800

3. Federal Emergency Management Agency

The Federal Emergency Management Agency publishes various documents on emergency management and hazard reduction planning. A complete listing is available from:

Federal Emergency Management Agency  
P.O. Box 70274  
Washington, DC 20024  
(202) 646-3484

4. Tennessee Valley Authority

The Tennessee Valley Authority collects and maintains data on floodplain management. For available information, please contact:

Tennessee Valley Authority  
Liberty Building  
Knoxville, TN 37902  
(615) 632-4792

5. U.S. Army Corps of Engineers

The U.S. Army Corps of Engineers develops documents in support of their floodplain management responsibilities. Many of their publications are listed in their annotated Flood Proofing Bibliography. For information on obtaining copies of this bibliography and other documents, please contact the Floodplain Management Section Chief of your district or division U.S. Army Corps of Engineers or the FEMA regional Hazard Mitigation Officer for the name and telephone number of the U.S. Army Corps of Engineers representative.

HAZARD RESEARCH CENTERS

The following research centers, organized by hazard, can provide bibliographic data, case studies, research reports, and a list of contacts for additional information.

General Hazard Information

Natural Hazards Research and Applications Information Center  
Institute of Behavioral Science #6  
Campus Box 482  
University of Colorado  
Boulder, CO 80309-0482  
(303) 492-5787

Disaster Research Center  
University of Delaware  
Newark, DE 19716  
(302) 451-6618

Hazard Reduction and Recovery Center  
College of Architecture  
Texas A&M University  
College Station, TX 77843-3137  
(409) 845-7813

Center for Hazards Research and Policy Development  
Urban Research Institute  
University of Louisville  
Louisville, KY 40292  
(502) 588-6276

Center for Natural and Technical Hazards  
270 Orson Spencer Hall  
University of Utah  
Salt Lake City, UT 84112  
(801) 581-8218

Emergency Administration and Planning Degree Program  
School of Community Service  
University of North Texas  
Box 13438  
Denton, TX 76203  
(817) 565-2996

Emergency Disaster Management Degree Program  
Thomas A. Edison State College  
101 W. State Street  
CN 545  
Trenton, New Jersey 08625  
(609) 984-1150

Coastal

Center for Urban and Regional Studies  
University of North Carolina at Chapel Hill  
Hickerson House 067A  
Campus Box 3410  
Chapel Hill, NC 27514-3410  
(919) 962-3074

## Drought

The International Drought Information Center  
Center for Agricultural Meteorology, and Climatology  
236 L.W. Chase Hall  
University of Nebraska  
Lincoln, NE 68583-0728  
(402) 472-3679

## Earthquake

National Earthquake Information Center  
U.S. Geological Survey  
MS 967  
Denver Federal Center, Box 25046  
Denver, CO 80225  
(303) 236-1506

Earthquake Engineering Research Institute  
6431 Fairmount Ave., Suite 7  
El Cerrito, CA 94530  
(415) 525-3668

National Center for Earthquake Engineering Research  
Red Jacket Quadrangle  
State University of New York at Buffalo  
Buffalo, NY 14261  
(716) 636-3377

## Hurricane

National Hurricane Center  
Gable One Tower, Room 631  
1320 S. Dixie Highway  
Coral Gables, FL 33146  
(305) 666-4612

## Landslide

National Landslide Information Center  
U.S. Geological Survey  
MS 966  
Denver Federal Center, Box 25046  
Denver, CO 80225  
(303) 236-0616

## Tsunami

International Tsunami Information Center  
P.O. Box 50027  
Honolulu, HI 96850-4993  
(808) 541-1658

## Wildfire

Fire Research Institute  
Box 241  
Roslyn, WA 93941-0241  
(509) 649-2940

Boise Interagency Fire Center  
3905 Vista Avenue  
Boise, ID 83705  
(208) 389-2603

## Wind

National Severe Storm Laboratory  
1313 Halley Circle  
Norman, OK 73069  
(405) 366-0421

Tornado and Natural Hazards Files  
National Climatic Data Center  
National Oceanic and Atmospheric Administration  
Federal Building  
Asheville, NC 28801  
(704) 259-0682

Institute for Disaster Research  
Texas Tech  
Box 4089  
Lubbock, TX 79409  
(806) 742-3476

For additional information, the Natural Hazards Research and Applications Information Center has published the Natural Hazards Data Resources Directory. The directory is divided into geological hazards, meteorological hazards, and societal response to hazards. Copies of the directory are available for \$15.00 from the center at the address above.

**FEMA REGIONAL HAZARD MITIGATION OFFICERS**

**Region I**

(Connecticut, Maine, Massachusetts, New Hampshire, Rhode Island, and Vermont)

Hazard Mitigation Officer  
 FEMA Region I  
 J.W. McCormack Post Office and  
 Courthouse, Room 442  
 Boston, MA 02109  
 Commercial: (617) 223-9546  
 FTS: 223-9546

**Region II**

(New Jersey, New York, Puerto Rico, and Virgin Islands)

Hazard Mitigation Officer  
 FEMA Region II  
 26 Federal Plaza, Room 1349  
 New York, NY 10278  
 Commercial: (212) 238-8297  
 FTS: 649-8297

**Region III**

(Delaware, District of Columbia, Maryland, Pennsylvania, Virginia, and West Virginia)

Hazard Mitigation Officer  
 FEMA Region III  
 Liberty Square Building, 2nd Floor  
 105 South Seventh Street  
 Philadelphia, PA 19106  
 Commercial: (215) 931-5708  
 FTS: 489-5708

**Region IV**

(Alabama, Florida, Georgia, Kentucky, Mississippi, North Carolina, South Carolina, and Tennessee)

Hazard Mitigation Officer  
 FEMA Region IV  
 1371 Peachtree Street, N.E., Suite 700  
 Atlanta, GA 30309  
 Commercial: (404) 853-4346  
 FTS: 230-4346

**Region V**

(Illinois, Indiana, Michigan, Minnesota, Ohio, and Wisconsin)

Hazard Mitigation Officer  
 FEMA Region V  
 175 West Jackson Blvd., 4th Floor  
 Chicago, IL 60604  
 Commercial: (312) 408-5383  
 FTS: 363-5383

**Region VI**

(Arkansas, Louisiana, New Mexico, Oklahoma, and Texas)

Hazard Mitigation Officer  
 FEMA Region VI  
 Federal Regional Center  
 800 North Loop 288  
 Denton, TX 76201  
 Commercial: (817) 898-9138  
 FTS: 749-9138

**Region VII**

(Iowa, Kansas, Missouri, and Nebraska)

Hazard Mitigation Officer  
FEMA Region VII  
Federal Office Building  
911 Walnut Street, Room 200  
Kansas City, MO 64106  
Commercial: (816) 283-7036  
FTS: 759-7036

**Region VIII**

(Colorado, Montana, North Dakota, South Dakota, Utah, and Wyoming)

Hazard Mitigation Officer  
FEMA Region VIII  
Bldg. 710, Denver Federal Center  
P.O. Box 25267  
Denver, CO 80225-0267  
Commercial: (303) 235-4900  
FTS: 322-4900

**Region IX**

(Arizona, California, Hawaii, Nevada, Guam, American Samoa, Trust Territories of the Pacific, Republic of the Marshall Islands, Commonwealth of the Northern Marianas, and Federated States of Micronesia)

Hazard Mitigation Officer  
FEMA Region IX  
Bldg. 105, Presidio of San Francisco  
San Francisco, CA 94129  
Commercial: (415) 923-7260  
FTS: 469-7260

**Region X**

(Alaska, Idaho, Oregon, and Washington)

Hazard Mitigation Officer  
FEMA Region X  
Federal Regional Center  
130 228th Street, SW  
Bothell, WA 98021-9796  
Commercial: (206) 487-4701  
FTS: 390-4701

## FEMA HAZARD MITIGATION PROGRAMS AND TRAINING OPPORTUNITIES

### Hazard Mitigation Programs

FEMA is responsible for developing programs that will enable state and local governments to reduce loss of life and property caused by emergencies and disasters by:

- minimizing the impact of disasters through proactive mitigation actions;
- planning for and preparing to respond to emergencies;
- responding efficiently to emergencies of all kinds; and
- managing recovery from emergencies.

For information pertaining to current programs and funding levels, please contact your FEMA regional Hazard Mitigation Officer.

### Training Opportunities

One of the primary means to achieving hazard mitigation goals is through training. FEMA develops training and education programs through the Emergency Management Institute and the National Fire Academy. These training programs are delivered through the National Emergency Training Center in Emmitsburg, Maryland, and by field deployment through FEMA regional training officers and the states.

Emergency Management Training is one of the programs funded through the Comprehensive Cooperative Agreement. The Comprehensive Cooperative Agreement is used by FEMA to provide financial and technical assistance for each state and its local governments. This assistance is used to develop, maintain, and improve a state's overall emergency management capabilities. States apply for training funds each fiscal year by selecting courses from a listing of field curriculum. The hazard mitigation courses developed by the Emergency Management Institute for field deployment are selected in this manner. State Hazard Mitigation Officers should coordinate with their state training officers in selecting and conducting hazard mitigation courses.

Approximately 90 training courses are offered through the Emergency Management Institute. These courses are described in the Catalog of Activities, published annually. Copies may be obtained from:

Office of the Superintendent  
Emergency Management Institute  
16825 South Seton Avenue  
Emmitsburg, Maryland 21727

A mitigation and natural hazards curriculum is included in the training offerings. This curriculum includes courses supporting FEMA's Disaster Assistance Programs and the National Earthquake Hazards Reduction Program, as well as hazard mitigation planning. The following is a brief summary of available hazard mitigation planning courses:

#### Natural Hazards Mitigation and Recovery

This course teaches participants how to develop and implement effective hazard mitigation measures and provides knowledge about disaster recovery planning for both a Presidentially declared disaster and a non-declared disaster. The emphasis is on integrating mitigation into disaster recovery and pre-disaster mitigation planning.

#### Regional, State, and Local Hazard Mitigation Planning

This offering consists of three separate one to three-day courses designed for specific audiences. The regional course is designed to provide ongoing training and information exchange to State Hazard Mitigation Officers, who should then serve as instructors for the State and Local Hazard Mitigation Planning courses. The state level course is designed for representatives of state government agencies who are, or should be, involved in hazard mitigation planning and implementation within their own agencies. The local level course is for local officials from one or more communities who have a responsibility in developing and/or implementing hazard mitigation planning.

#### Interagency Hazard Mitigation Team Training

This course is designed to provide members of hazard mitigation teams with the knowledge and skills to perform effectively. Topics include mitigation approaches, specific tools to implement mitigation, and the overall planning framework. Team operations and group dynamics are also covered. This course is primarily for Federal and/or state teams.

Additional information regarding these and other training opportunities is available from state training officers or FEMA regional training officers.

## FEMA REGIONAL TRAINING OFFICERS

### Region I

(Connecticut, Maine, Massachusetts, New Hampshire, Rhode Island, and Vermont)

Training Officer  
FEMA Region I  
J.W. McCormack Post Office and  
Courthouse, Room 442  
Boston, MA 02109  
Commercial: (617) 223-9532  
FTS: 223-9532

### Region II

(New Jersey, New York, Puerto Rico, and Virgin Islands)

Training Officer  
FEMA Region II  
26 Federal Plaza, Room 1337  
New York, NY 10278  
Commercial: (212) 238-8294  
FTS: 649-8294

### Region III

(Delaware, District of Columbia, Maryland, Pennsylvania, Virginia, and West Virginia)

Training Officer  
FEMA Region III  
Liberty Square Building, 2nd Floor  
105 South Seventh Street  
Philadelphia, PA 19106  
Commercial: (215) 931-5614  
FTS: 489-5614

### Region IV

(Alabama, Florida, Georgia, Kentucky, Mississippi, North Carolina, South Carolina, and Tennessee)

Training Officer  
FEMA Region IV  
1371 Peachtree Street, NE  
Atlanta, GA 30309  
Commercial: (404) 853-4218  
FTS: 230-4218

### Region V

(Illinois, Indiana, Michigan, Minnesota, Ohio, and Wisconsin)

Training Officer  
FEMA Region V  
175 West Jackson Blvd., 4th Floor  
Chicago, IL 60604  
Commercial: (312) 408-5516  
FTS: 363-5516

### Region VI

(Arkansas, Louisiana, New Mexico, Oklahoma, and Texas)

Training Officer  
FEMA Region VI  
Federal Regional Center 206  
800 North Loop 288  
Denton, TX 76201  
Commercial: (817) 898-9262  
FTS: 749-9262

**Region VII**

(Iowa, Kansas, Missouri, and Nebraska)

Training Officer  
FEMA Region VII  
Federal Office Building  
911 Walnut Street, Room 200  
Kansas City, MO 64106  
Commercial: (816) 283-7043  
FTS: 759-7043

**Region VIII**

(Colorado, Montana, North Dakota, South Dakota, Utah, and Wyoming)

Training Officer  
FEMA Region VIII  
Bldg. 710, Denver Federal Center  
P.O. Box 25267  
Denver, CO 80225-0267  
Commercial: (303) 235-4920  
FTS: 322-4920

**Region IX**

(Arizona, California, Hawaii, Nevada, Guam, American Samoa, Trust Territories of the Pacific, Republic of the Marshall Islands, Commonwealth of the Northern Marianas, and Federated States of Micronesia)

Training Officer  
FEMA Region IX  
Bldg. 105, Presidio of San Francisco  
San Francisco, CA 94129  
Commercial: (415) 923-7108  
FTS: 469-7108

**Region X**

(Alaska, Idaho, Oregon, and Washington)

Training Officer  
FEMA Region X  
Federal Regional Center  
130 228th Street, SW  
Bothell, WA 98021-9796  
Commercial: (206) 487-4603  
FTS: 390-4603



3. Briefly describe the role your agency plays in efforts to decrease vulnerability to the hazards listed below. (Include pre-, during, and post-disaster activities. Please note that agency responsibilities may be the same for each hazard.)

- a. coastal flooding
- b. debris/mud flow
- c. earthquakes
- d. hazardous materials incidents
- e. hurricanes
- f. landslides
- g. riverine flooding
- h. tornadoes
- i. urban/wildland fire
- j. winter storms

(Provide responder with a list of the hazards most likely to impact the state.)

4. Does your agency own or manage lands or buildings in:

- a. 100-year floodplain
- b. earthquake fault area
- c. landslide/mudslide area
- d. coastal area
- e. areas subject to other natural hazards

If the answer is yes, what measures are being taken to protect these investments or structures?

5. With what Federal, state, local, or private agencies does your agency work in employing efforts to decrease vulnerability to the hazards listed in #3 above?

6. Describe any problems in coordination among Federal, state, and local government officials and your agency with regard to assistance programs, mitigation responsibilities, funding, etc. How might these problems be remedied?

7. What are your agency's authorities?



11. Are public opinion and input used to build support for the agency's mitigation programs?

12. Are existing staffing levels adequate to carry out hazard mitigation activities? What problems and recommended solutions can your agency identify regarding staffing levels? If solutions to staffing problems have associated costs, what are those costs and what would be the likely funding source to meet cost requirements?

13. Are existing funding levels adequate to carry out hazard mitigation activities? What short-term and long-term initiatives and funding solutions should be explored to expand funding availability?

