
Unit 8:

Mitigation

Overview

Mitigation is:

Any action of a long-term, permanent nature that reduces the actual or potential risk of loss of life or property from a hazardous event.

“Mitigation is getting out of Nature’s way.”

Sample Mitigation Measures

Sample mitigation measures include:

- Acquisition of structures.

Acquisition, often referred to as “buyouts,” is an option that has grown in public interest and support since the Midwest Floods of 1993. After acquired structures are demolished, property is devoted to open space.

- Relocation of structures.

Relocation moves structures out of hazardous locations.

- Strengthening/retrofitting structures to withstand forces.

Foundations, floors, walls, and roofs can be strengthened/retrofitted to prevent seismic or wind damage.

- Making utilities, structural components, and contents resistant to damage.

Examples: Utilities such as water heaters can be strapped to prevent toppling in an earthquake, or they can be moved to a higher spot to prevent flood damage; shutters can protect windows from wind damage.

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- ❑ Diverting the hazard.

Structural means to divert hazards are often the most difficult and expensive to achieve. (Diverting the hazard is not really getting out of Nature's way.)

- ❑ Elevating structures.

Building the structure on stilts to prevent water damage from rising floodwaters or coastal waters. Elevation gets the structure out of harm's way.



Pre-Disaster Mitigation Programs/Activities

Pre-disaster mitigation focuses on State mitigation planning.

Before a disaster occurs, the State decides on the types of mitigation projects it wants to pursue and sets priorities on potential mitigation projects. FEMA requires States to create and maintain an Administrative Plan and a State Mitigation Plan to qualify for mitigation assistance.

NFIP Increased Cost of Compliance

One non-disaster funding source is the NFIP Increased Cost of Compliance program, which provides added coverage to standard flood insurance policies to supplement the cost of elevating structures.

Flood Mitigation Assistance Program (FMA)

The Flood Mitigation Assistance Program, which began in 1997, provides pre-disaster grants for both planning and implementation. Grant funds are made available from NFIP insurance premiums and are only available to communities participating in the NFIP. Grants will be made available in each region, distributed based on the number of NFIP policies in force, and awarded on the number of repetitive claims paid. FMA addresses the problem of mitigation funds being available after disasters, not before.

Requirements of Executive Orders 11988 and 11990

A number of environmental regulations affect mitigation projects. Two of these regulations, Executive Orders 11988, Floodplain Management, and 11990, Protection of Wetlands, are presidential edicts that require an eight-step decisionmaking process whenever Federal expenditures are planned within identified floodplain or wetland areas. Expenditures are allowed only when no other practicable alternatives exist.

- Step 1** Determine if the project is in a wetland and/or the 100-year floodplain (500-year floodplain for critical actions) or if the project may affect or be affected by a wetland and/or floodplain.
- Step 2** Notify the public ASAP of the intent to fund a project in a wetland and/or floodplain and to involve all affected and interested individuals and groups in the decisionmaking process.
- Step 3** Identify and evaluate practicable alternatives to locating the project in a wetland and/or floodplain. If a practicable alternative exists, FEMA must locate the project at the alternative site.
- Step 4** Identify direct/indirect impacts from the occupancy/modification of wetlands and/or floodplains, and potential direct/indirect support of wetland and/or floodplain development that could result.
- Step 5** Minimize the potential adverse impacts and support to or within wetlands and/or floodplains to be identified under Step 4, restore and preserve the natural and beneficial values served by floodplains, and preserve and enhance the natural and beneficial values served by wetlands.

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- Step 6** Reevaluate the project to determine if it is still practicable with exposure to flood hazards, the increased hazards to others, and damage to wetland and/or floodplain values; and if alternatives preliminarily rejected in Step 3 are practicable with the information gained in Steps 4 and 5. FEMA will not approve actions in a wetland and/or floodplain unless there is no practicable alternative.
- Step 7** Prepare and publicize a finding and explanation of any final decision that the wetland and/or floodplain is the only practicable alternative.
- Step 8** Review the project implementation and post-implementation stages to ensure that the EO requirements are fully met. Oversight responsibility should be integrated into existing processes.

COBRA Requirements

The Coastal Barriers Resources Act is a 1982 law that prohibits Federal expenditures within certain areas of identified barrier islands. The act includes Federally backed mortgage loans, the sale of flood insurance, and the provision of Federal disaster assistance.

Hurricane Program (HP)

FEMA and State efforts combine with the National Oceanic and Atmospheric Administration and the U.S. Army Corps of Engineers to develop evacuation plans for coastal communities vulnerable to hurricanes and severe coastal storms. Grants are available to State and local governments for property protection, hazard analysis and evacuation planning, post-storm analyses, training, exercises, public awareness, and education efforts.

National Earthquake Hazards Reduction Program (NEHRP)

The National Earthquake Hazards Reduction Program is a partnership between four Federal entities: FEMA, the U.S. Geological Survey, the National Science Foundation, and the National Institute for Standards and Technology. The program's purpose is to prompt research into earthquake hazards and engineering techniques. A newer program entitled the National Earthquake Program has expanded earthquake mitigation efforts.

Post-Disaster Mitigation Actions

After a disaster is declared, FEMA mitigation staff:

- Assist in conducting damage assessments. Spotting mitigation opportunities from the outset boosts the likelihood of eventual implementation.
- Implement the Hazard Mitigation Grant Program (also referred to as the “404” program).
- Coordinate with Public Assistance program (also referred to as the “406” program) to assure that, when feasible, mitigation opportunities are incorporated into infrastructure projects.

The following actions describe job responsibilities in the post-disaster environment.

Conduct Damage Assessments

Post-disaster repairs must be done quickly. When implementing post-disaster mitigation measures, a major consideration should be repair or replacement of damaged structures so that they do not suffer the same damages again. Key points include:

- Identifying where mitigation measures can be implemented.
- Conducting site visits and researching current community plans and codes, past disaster damages, and recurrence probabilities.

Develop Mitigation Strategy and Interagency Hazard Mitigation Team Reports

Completed soon after the disaster, these reports incorporate existing Statewide hazard mitigation plans with damage assessment information. The recommendations serve as a blueprint for disaster funding of mitigation projects.

The interagency Hazard Mitigation Team, consisting of Federal, State and local officials, determines what mitigation measures can be achieved following a disaster. The team prepares a strategy report within 15 days of the disaster. Mitigation staff duties include:

- Coordinating the participation of appropriate officials.
- Arranging site visits.
- Analyzing the situation and making recommendations.
- Developing and disseminating the report.

Conduct Applicant Briefings

Local governments, private nonprofit organizations, individuals, and businesses are eligible for different types of disaster assistance. Applicant briefings are conducted to inform officials and individuals of the types of assistance that are available. Mitigation staff is responsible for:



- Informing people of the opportunities to implement mitigation measures.
- Providing guidance for the process that must be followed.
- Preparing materials for distribution.
- Coordinating public information releases.

Coordinate FEMA's "409" Program

States develop and implement a comprehensive all-hazards mitigation plan as a condition of Federal assistance. The plan must evaluate the hazards in the areas where Federal disaster assistance has been or may be provided, and it must set forth a plan of action to mitigate those hazards. Mitigation staff duties may include:

- Providing planning assistance to States.
- Coordinating the provision of technical assistance available through other Federal agencies.
- Reviewing and evaluating the plans.

Coordinate FEMA's "404" Program (HMGP)

FEMA's 404 Program refers to the post-disaster Hazard Mitigation Grant Program (HMGP), which funds the implementation of mitigation measures that are developed in conformance with the State priorities identified in the "409" plan. The HMGP goal is to develop a long-term comprehensive mitigation program. The program is available upon State request and FEMA approval of the State plan.

States that attain “Managing State” status perform some or all required analyses and coordination, and can approve projects subject to final environmental approval by FEMA.

Projects in States without Managing State status are subject to an eligibility review by FEMA, in which States review HMGP proposals, rank them, and recommend them to FEMA for funding. FEMA staff complete required analyses and coordination.

Coordinate FEMA’s “406” Program

FEMA’s 406 Program refers to the Public Assistance program that funds the repair of damaged facilities and infrastructure. Under this program, all repairs must conform to applicable codes and standards, and damaged facilities can be improved for mitigation purposes if proposed measures are technically feasible, cost effective, and environmentally sound. FEMA may prescribe codes and standards where they are lacking. Each repair must be generated by a Project Worksheet (PW). Mitigation staff duties include:

- Reviewing PWs for mitigation opportunities.
- Making recommendations based on PW review.
- Ensuring that the solution is physically part of the damaged facility.

Carry Out Additional Post-Disaster Responsibilities

Additional post-disaster mitigation staff duties might include:

- Supporting community education programs.
- Staffing multiple Disaster Recovery Centers (DRCs).
- Providing a general discussion option available to applicants at the DRCs.
- Referring applicants to specific programs and reference materials.
- Monitoring compliance with local NFIP floodplain management ordinances or Federal Executive Orders and other regulations that pertain to the disbursement of Federal resources.
- Assisting in the coordination of mitigation efforts with FEMA’s Individual Assistance and/or Infrastructure programs.
- Gathering data for environmental assessments.
- Analyzing benefit-cost ratios for proposed projects.
- Researching issues related to Historic Preservation.

Hazard Mitigation Grant Program (“404” Program)

The Hazard Mitigation Grant Program (HMGP), which funds mitigation projects after a disaster declaration, is the major source for FEMA’s mitigation funding.

HMGP objectives include:

- To identify and implement cost-effective mitigation measures that will reduce future losses.
- To coordinate mitigation needs with existing State and Federal efforts.
- To capitalize upon previous mitigation planning efforts to maximize the financial opportunities available under the HMGP.

HMGP Funding

The HMGP provides funding for mitigation measures that substantially reduce the risk of future damages.

- The amount of funding is based on Federal expenditures during the disaster response and recovery.
- FEMA may contribute up to 75 percent of the costs.

Managing States

FEMA may conclude Memorandums of Understanding (MOUs) with States that achieve Managing State status. In a Managing State, State mitigation staff perform some or all of the functions formerly performed by FEMA staff. These functions include:

- Reviewing proposals for conformance with Federal regulations.
- Completing benefit-cost analyses.
- Performing environmental reviews. FEMA must approve all environmental reviews.
- Coordinating with cultural and resource officials.

Managing State status affects HMGP funding.

HMGP Projects

Projects can include such measures as:

- Property acquisition.
- Relocation of structures.
- Retrofitting of structures.
- Implementation of local mitigation standards.
- Vegetation management to reduce wildfires.

HMGP Project Eligibility Criteria

Eligible applicants for HMGP grants include State agencies, local units of government, and certain private nonprofit organizations.

HMGP projects are not restricted to the disaster area. They may be implemented anywhere within a State that receives a declaration.

HMGP projects must:

- Conform to the State Hazard Mitigation Plan.
- Provide a beneficial impact upon the disaster area.
- Meet requirements set by environmental regulations.
- Solve a problem independently or be a functional part of a solution.
- Be cost-effective.

Cost Effectiveness

A project has to return more money during its lifetime than the initial project cost to be judged cost-effective. The "return" is money saved because a mitigation project reduces or prevents damages from a flood, hurricane, earthquake, or other natural hazard event.

FEMA has developed computer modules for analyzing the benefits and costs of various types of projects.

Environmental Regulations

Various laws and executive orders impose reviews and conditions on Federally funded projects. The eight-step decisionmaking process mandated by Executive Order 11988, Floodplain Management, and 11990, Protection of Wetlands was reviewed in the Pre-Disaster Mitigation Programs/Activities section. Other major regulations include:

- National Environmental Policy Act
- Endangered Species Act
- National Historic Preservation Act
- Clean Air and Water Acts
- Executive Order 12898, Environmental Justice

State and FEMA mitigation staffs coordinate with a variety of State and Federal agencies as part of an environmental review. Most mitigation projects receive Categorical Exclusions, a finding of little or no adverse environmental or social impact.

Failure to complete the environmental review process usually means that funding for a project cannot be approved. Rare exceptions are actions initiated in an emergency situation when life, health, property, or severe economic losses are threatened.

Summary

Mitigation is the cornerstone and foundation for the agency and for our partners. We encourage individuals, communities, States, tribal nations, and others to take preventative measures now rather than after an event.

The following table summarizes key components of FEMA's approach for mitigating against future losses.

The National Flood Insurance Program (NFIP)	The NFIP is the premier fundamental mitigation program in the United States. It provides the availability of flood insurance in exchange for the adoption of a minimum local floodplain management ordinance that regulates new and substantially improved development in identified flood hazard areas. The ordinance does not prohibit development in flood-prone areas. Rather, it directs development to be above or beyond the limits of anticipated flood inundation areas. These areas are known as the 100-year floodplain.
The 100-Year Flood	The 100-Year Flood is the national planning standard and may be referred to as the base flood elevation (BFE). The BFE references a flood that has a one-percent chance of occurring or being exceeded in any given year. It does not mean that it will occur only once every 100 years. In fact, there is a 26 percent chance that a 100-year flood will occur during the life of a 30-year mortgage on a structure located within a 100-year floodplain.
Flood Insurance Rate Maps (FIRMs)	FIRMS are the mechanism by which flood hazard areas are identified. When a community agrees to participate in the NFIP, FEMA agrees to provide the community with the FIRMS.

<p>Participation in the NFIP</p>	<p>Nearly 19,000 communities nationwide participate in the NFIP. Over 3.3 million NFIP policies are in force. The entire program is self-sufficient. That is, the cost to FEMA of paying claims, developing maps, the Flood Mitigation Assistance Program grants, and providing technical assistance through an extensive staff is entirely covered by the insurance premiums that floodplain occupants pay. While these figures are very favorable, others are equally startling. Only 30 percent of the structures in the nation's floodplains are insured. Approximately 30 percent of the claims paid are paid to only two percent of the policyholders. Another 30 percent of claims paid are for damages outside of the identified 100-year floodplain.</p>
<p>Substantial Damage and Improvement of Existing Structures</p>	<p>When a structure is damaged greater than 50 percent of its pre-damage value, it is "substantially damaged." When a structure is improved greater than 50 percent of its pre-improvement value, it is "substantially improved." In either case, regardless of the source of damage, the need for the improvement, or the amount of construction undertaken, the construction is deemed the equivalent of new construction. Therefore, it is subject to the development regulations of the local floodplain ordinance. Thus, as flood damage, general decay, or substantial improvements occur, these structures must be located above or beyond the limits of the anticipated 100-year flood. The NFIP works! More than 80 percent of the damages incurred from floods occurs to "pre-FIRM" structures. These are the structures that were built prior to the local governments' adoption of their local floodplain management ordinance. The development regulations on new and substantially damaged and improved construction prevent future, repetitive flood damage.</p>

The Community Rating System (CRS)	The CRS is a program that rewards communities for going beyond the minimum requirements of the NFIP. Communities are awarded points for activities that have been proven to reduce flood losses. Upon accumulation of enough points to reach pre-identified plateaus, every NFIP policyholder in the community receives a five percent reduction to their insurance premium, up to the maximum of a 45 percent reduction.
Multi-Hazard Implications of the NFIP	Because the substantial damage regulations are in effect regardless of the source of damage, structures must be protected from future flood damages even if they are damaged in an earthquake, a tornado, a hurricane, an explosion, or even a house fire. Thus, regardless of the type of disaster, it is always very important to identify if the community participates in the NFIP, and if there are any substantially damaged structures within the identified 100-year floodplain.
Multi-Objective Management (MOM)	MOM refers to a process that presents many opportunities following floods and other disasters. The basis of the process is to combine multiple community goals with available resources to achieve an end result that is often greater than the sum of its parts.

Adapted from *Mitigation Orientation Manual for Disaster Assistance Employees*, FEMA Region IV, October 1996.