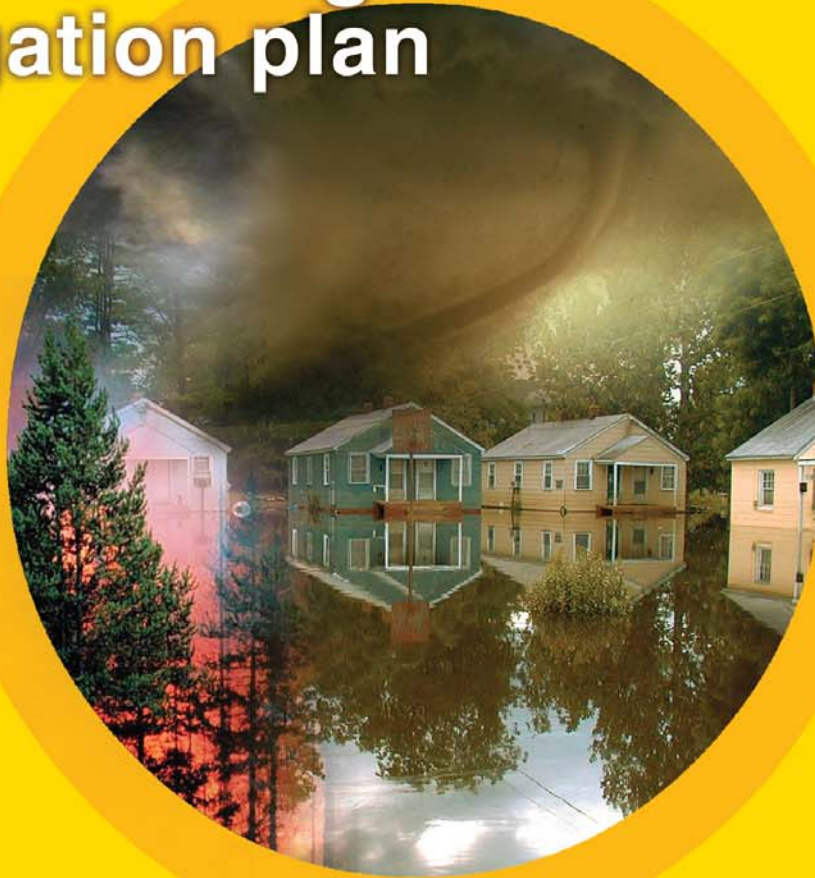


STATE AND LOCAL MITIGATION PLANNING
how-to guide

Bringing the Plan to Life

implementing the hazard
mitigation plan



FEMA

August 2003
FEMA 386-4

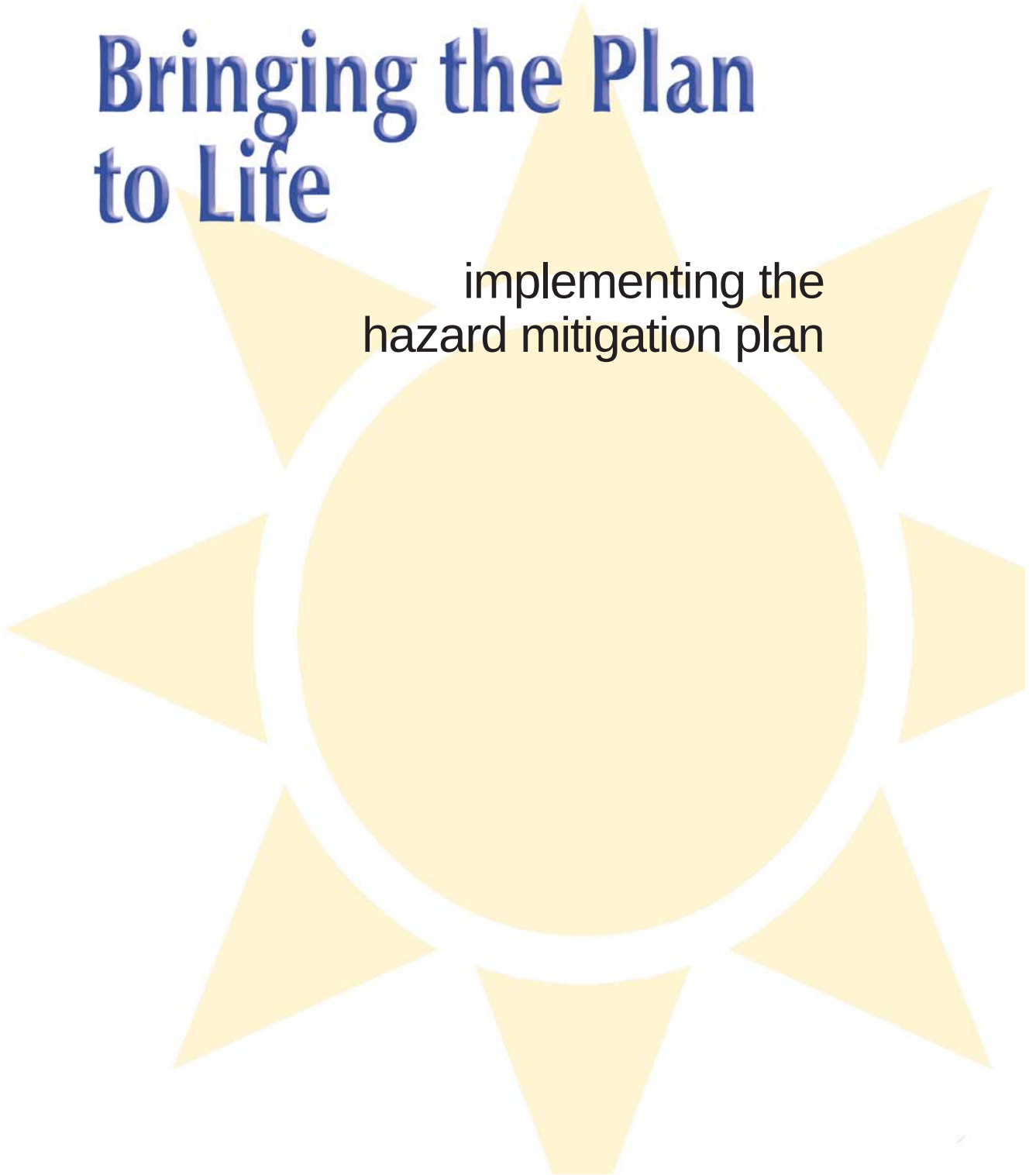
implementing the hazard mitigation plan

BRINGING THE PLAN TO LIFE

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the hazard mitigation planning process

Hazard mitigation planning is the process of determining how to reduce or eliminate the loss of life and property damage resulting from natural and manmade hazards. As shown in this diagram, the hazard mitigation planning process consists of four basic phases.

For illustration purposes, this diagram portrays a process that appears to proceed sequentially. However, the mitigation planning process is rarely a linear process. It is not unusual that ideas developed while assessing risks should need revision and additional information while developing the mitigation plan, or that implementing the plan may result in new goals or additional risk assessment.

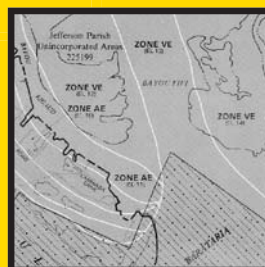
organize resources

From the start, communities should focus on the resources needed for a successful mitigation planning process. Essential steps include identifying and organizing interested members of the community as well as the technical expertise required during the planning process.



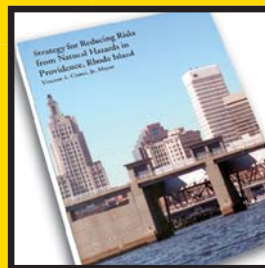
assess risks

Next, communities need to identify the characteristics and potential consequences of hazards. It is important to understand how much of the community can be affected by specific hazards and what the impacts would be on important community assets.



develop a mitigation plan

Armed with an understanding of the risks posed by hazards, communities need to determine what their priorities should be and then look at possible ways to avoid or minimize the undesired effects. The result is a hazard mitigation plan and strategy for implementation.



implement the plan and monitor progress

Communities can bring the plan to life in a variety of ways ranging from implementing specific mitigation projects to changes in the day-to-day operation of the local government. To ensure the success of an on-going program, it is critical that the plan remains relevant. Thus, it is important to conduct periodic evaluations and make revisions as needed.



foreword

foreword

The Federal Emergency Management Agency (FEMA) has developed this series of mitigation planning “how-to” guides to assist states, tribes, and communities in enhancing their hazard mitigation planning capabilities.

These guides are designed to provide the type of information states, tribes, and communities need to initiate and maintain a planning process that will result in safer and more disaster-resistant communities. These guides are applicable to states, tribes, and communities of various sizes and varying ranges of financial and technical resources.

This how-to series is not intended to be the last word on any of the subject matter covered; rather, it is meant to provide easy to understand guidance for the field practitioner. In practice, these guides may be supplemented with more extensive technical data and the use of experts when necessary.



mit-i-gate 1: to cause to become less harsh or hostile; 2: to make less severe or painful.

As defined by DMA 2000—

hazard mitigation : any sustained action taken to reduce or eliminate the long-term risk to human life and property from hazards.

plan-ning : the act or process of making or carrying out plans; *specif*: the establishment of goals, policies and procedures for a social or economic unit.

DMA

The Disaster Mitigation Act of 2000

In the past, federal legislation has provided funding for disaster relief, recovery, and some hazard mitigation planning. The Disaster Mitigation Act of 2000 (DMA 2000) is the latest legislation to improve the hazard mitigation planning process. DMA 2000 (Public Law 106-390) was signed by the President on October 30, 2000. The new legislation reinforces the importance of mitigation planning and emphasizes planning for disasters before they occur. As such, DMA 2000 establishes a pre-disaster hazard mitigation program and new requirements for the national post-disaster Hazard Mitigation Grant Program (HMGP).

Section 322 of DMA 2000 specifically addresses mitigation planning at the state and local levels. This section identifies new requirements that allow HMGP funds to be used for planning actions, and increases the amount of HMGP funds available to states that have developed a comprehensive, enhanced mitigation plan prior to a disaster. States, tribes, and communities must have an approved mitigation plan in place before receiving HMGP funds. Local and tribal mitigation plans must demonstrate that their proposed mitigation actions are based on a sound planning process that accounts for the risk to and the capabilities of the individual communities.

State governments have certain responsibilities for implementing Section 322, including:

- Preparing and submitting a standard or enhanced state mitigation plan;
- Reviewing and updating the state mitigation plan every three years;
- Providing technical assistance and training to local governments to assist them in developing local mitigation plans and applying for HMGP grants; and
- Reviewing and approving local plans if the state has an approved enhanced plan and is designated a managing state.

DMA 2000 is intended to facilitate cooperation between state and local authorities. It encourages and rewards local, tribal, and state pre-disaster planning and promotes sustainability as a strategy for disaster resistance. This enhanced planning network will better enable local, tribal, and state governments to articulate their needs for mitigation, resulting in faster allocation of funding and more effective risk reduction projects. To implement the new DMA 2000 requirements, FEMA prepared an Interim Final Rule, published in the Federal Register on February 26, 2002, at 44 CFR Parts 201 and 206, which establishes planning and funding criteria for states, tribes, and local communities.

The how-to guides cover the following topics:

- Getting started with the mitigation planning process, including important considerations for how you can organize your efforts to develop an effective mitigation plan (FEMA 386-1);
- Identifying hazards and assessing losses to your community, tribe, or state (FEMA 386-2);
- Setting mitigation priorities and goals for your community, tribe, or state and writing the plan (FEMA 386-3);
- Implementing the mitigation plan, including project funding and maintaining a dynamic plan that changes to meet new developments (FEMA 386-4);
- Evaluating and prioritizing potential mitigation actions through the use of benefit-cost analysis and other techniques (FEMA 386-5);
- Incorporating special considerations into hazard mitigation planning for historic structures and cultural resources (FEMA 386-6);
- Incorporating mitigation considerations for manmade hazards into hazard mitigation planning (FEMA 386-7);
- Using multi-jurisdictional approaches to mitigation planning (FEMA 386-8); and
- Finding and securing technical and financial resources for mitigation planning (FEMA 386-9).

Why should you spend the time to read these guides?

- It simply costs too much to address the effects of disasters only after they happen;
- State and federal aid is usually insufficient to cover the extent of physical and economic damages resulting from disasters;
- You can prevent a surprising amount of damage from hazards if you take the time to anticipate where and how they occur, and then take the appropriate action to minimize damages;
- You can lessen the impact of disasters and speed the response and recovery process for both natural and manmade hazards; and



- The most meaningful steps in avoiding the impacts of hazards are taken at the state, tribal, and local levels by officials and community members who have a personal stake in the outcome and the ability to follow through on a sustained process of planning and implementation.

The guides show how mitigation planning:

- Can help your community become more *sustainable and disaster resistant* through selecting the most appropriate mitigation actions, based on the knowledge you gained in the hazard identification and loss estimation process;
- Can be incorporated as an *integral component* of daily government business;
- Allows you to *focus your efforts on the hazard areas most important to you* by determining and setting priorities for mitigation planning efforts; and
- Can *save you money* by providing a forum for engaging in partnerships that provide the technical, financial, and staff resources in your effort to reduce the effects, and hence the costs, of natural and manmade hazards.

These guides present a range of approaches to preparing a hazard mitigation plan. There is no one right planning process; however, there are certain central themes to planning, such as engaging citizens, developing goals and objectives, and monitoring progress. Select the approach that works best for your state, tribe, or community.



The process used to develop a successful hazard mitigation plan is just as important as the plan itself.

This how-to guide focuses on the fourth phase of the hazard mitigation planning process and will help you develop a mitigation plan that meets DMA 2000 requirements.





introduction

introduction

Your community now has a plan that is a result of the planning team's effort and work with stakeholders concerned about reducing losses from hazards in your community. This plan resulted from a process that included a risk assessment, capability assessment, and the development of a mitigation strategy that features prioritized mitigation actions based upon your goals and objectives. The **implementation process** puts your planning team's hard work into motion and focuses on the actions necessary to establish and maintain the effectiveness of the plan as a fundamental tool for risk reduction.

An added benefit of having a plan is that its printed form is familiar, even reassuring, to citizens who have been part of a comprehensive planning process or, even more importantly, have suffered losses due to a hazard. In addition, those new to the community, as well as non-residents, will have easy access to this information as well. The text and accompanying graphics concisely and coherently document the hazards faced by the community, their location and extent, previous losses, actions to mitigate future hazards, and goals for a sustainable future. The development of the plan by community members increases the likelihood of hazard mitigation becoming, like transportation and education, one of the standard considerations in the evolution and growth of the community.

Once the plan has been adopted and the recommendations implemented, your accomplishments, issues, programs, policies, and project results should be accurately documented. This documentation will be very useful when it is time to evaluate, update, or revise the plan. Plans are living documents that require adjustments to maintain their relevance. You and the planning team prepared the mitigation plan to articulate your community's values and strategies at a particular point in time, but like every other plan, it must be reviewed periodically to remain a useful tool to guide growth and change in your community.

Updates and revisions may be necessary to incorporate changes in your community or tribe, new hazard information, new tribal, community, or state priorities, or lessons learned as mitigation projects are completed. It is recommended, but not required, that you com-

This series of guides shows how to identify, plan, and implement cost-effective actions through a comprehensive approach known as **Hazard Mitigation Planning**.



The process consists of four basic phases:

- **Organize resources** involves organizing resources, mobilizing the community, and getting started with the planning process;
- **Assess risks** identifies hazards and estimates the losses associated with these hazards;
- **Develop a mitigation plan** describes how to identify, plan, and initiate cost-effective actions; and
- **Implement the plan and monitor progress**, the topic of this guide—*Bringing the Plan to Life: Implementing the Hazard Mitigation Plan* (FEMA 386-4)—leads communities and states through the formal adoption of the plan and discusses how to implement, monitor, and evaluate the results of mitigation actions to keep the mitigation plan relevant over time.

The implementation and evaluation processes

ensure that you accomplish the mitigation actions in a timely way and provide the foundation for an ongoing mitigation program. This allows you to:



- Ensure that the mitigation strategy is implemented in an effective manner;
- Provide for the long-term institutionalization and monitoring of hazard mitigation practices so that the plan remains relevant in the face of change;
- Establish new protocols. The planning process educates community officials on their roles (and those of their departments) in reducing risks. Local officials will need to develop protocols for integrating mitigation principles into their daily job responsibilities; and
- Maintain momentum. The implementation phase is a good time to renew the spirit of cooperation among all partners in the planning process, particularly now that actions to reduce risk are imminent.

States should continually work with local jurisdictions

to ensure that local plans are in conformance with state guidelines and complement the goals and strategies outlined in the state hazard mitigation plan, particularly as state priorities change.



plete an internal review of the plan annually and revisit your plan after all hazard events. DMA 2000 regulations require updates every three years for state plans, and every five years for local plans, in order for states, tribes, and communities to remain eligible for disaster-related grants and assistance. This guide will help you determine when and how to review and revise your mitigation plan.

How do you use this how-to guide?

This guide will help you address the following questions:

1. How can we make sure the plan is officially recognized?

Proof of formal adoption is required under DMA 2000 regulations. Getting the plan adopted ensures the support and approval of the governing authority in your jurisdiction. Step 1, *Adopt the Mitigation Plan*, discusses ways of securing the adoption of the plan by your governing body.

2. What is the most effective mechanism to implement each recommendation? What resources are available? How can we keep the public informed and actively involved now that initiatives are underway?

Your mitigation strategy probably contains various short- and long-term recommendations. While you identified potential sources of funding in the plan, the actual sources of funding, staff time, and staffing needs may change before project implementation gets underway. The planning team always must be on the lookout for alternative sources of funding, new opportunities, and new partnerships through which to carry out the recommendations.

Determining who will bear responsibility for implementing planned actions is key to getting the implementation phase off to a successful start. Ensuring that there are appropriate authorities to implement actions is covered in Step 2, *Implement the Plan Recommendations*.

3. How will we know if our mitigation strategy is working?

Monitoring and evaluating the outcomes of the mitigation actions are essential to knowing whether to stay the course or change it. Step 3, *Evaluate Your Planning Results*, discusses how to determine whether or not the planned course of action has had the desired effect. The successes and limitations of your efforts should be documented as part of the evaluation process.

Celebrating successes, and keeping citizens actively involved and informed of the progress of the hazard mitigation initiatives, are



just as important in the adoption, implementation, and revision phases as in any other phase. Keeping everyone up to date on progress also will help sustain support for mitigation as a local, tribal, or state priority. During the implementation phase, the media will become an especially important tool in communicating the progress of the mitigation plan.

4. *When should we reexamine the plan?*

As has been noted throughout the how-to series, the community and its assets are constantly changing, requiring the mitigation plan to be updated periodically. While DMA 2000 regulations require a formal review and revision of the community plan once every five years for local jurisdictions and every three years for states, the planning team should reevaluate its implementation strategy as new opportunities, unforeseen challenges, and disasters arise. Additionally, as mitigation issues are resolved, the plan should be reexamined to determine whether there is a need to reprioritize, add, or reconfigure actions in light of what has been accomplished. Step 4, *Revise the Plan*, addresses how to incorporate new knowledge about the community, tribe, or state and ongoing mitigation efforts into your strategy.



Be sure to allow sufficient time

to complete Phase 4. If you decide to revise the plan, or if you are required to revise it as described under DMA 2000, consider the time it will take to do the following:

- Include the public and identify any new stakeholders in the evaluation process;
- Gather and evaluate data;
- Brief the public and political leadership;
- Incorporate changes into planning documents; and
- Adopt the new plan.

Type of information found in the how-to series

The how-to series contains a wide variety of information, some of which is highlighted with icons. Additional information can be found in Appendix B, *Library*. To illustrate how the guide can be used, newspaper articles from the fictional Town of Hazardville are provided.

Icons



Guidance focused solely on the role of **states and tribes** that serve as grantees under HMGP is identified as a sidebar with the “**States**” icon. Tribes that choose to serve as grantees under HMGP should follow the state icons. Although much of the information will be the same for local, tribal, and state governments, there are different requirements for state and local mitigation plans. Furthermore, states have additional responsibilities to assist local entities in their planning efforts. For tribes that choose to serve as subgrantees under HMGP, guidance focusing on local governments applies to these entities as well.



Under DMA 2000 regulations,

local governments may be defined in many different ways. A local government may be defined by a political boundary, such as an incorporated city, county, parish, or township, or it may not have a distinct political boundary, for example, a watershed or metropolitan region. “Local government” is formally defined in 44 CFR §201.2 of DMA regulations.





The “**Advanced**” icon indicates an additional step you can take or when specialists may be needed.



The “**Caution**” icon alerts you to important information and ways to avoid sticky situations later in the planning process.



The “**DMA**” icon provides information relating to the mitigation planning requirements outlined in the Disaster Mitigation Act of 2000 (DMA 2000).



The “**Glossary**” icon identifies terms and concepts for which a detailed explanation is provided in the Glossary included in Appendix A.



The “**Tips**” icon identifies helpful hints and useful information that can be used in the planning process.

Library

A mitigation planning “**Library**” has been included in Appendix B. This library has a wealth of information, including Web addresses, reference books, and other contact information to help get you started. All of the Web sites and references listed in the how-to guide are included in the library.

Town of Hazardville articles

Applications of the various steps in the mitigation planning process are illustrated through a fictional community, the Town of Hazardville, located in the State of Emergency. Hazardville, a small community with limited resources and multiple hazards, is in the process of developing a multi-hazard mitigation plan. Newspaper accounts illustrate the various steps in the mitigation planning process.

Worksheets

Finally, to help track your progress, worksheets have been developed that correspond with the structure of this guide. Worksheets have been completed with Hazardville examples to illustrate the

type of information to include. Blank worksheets are included in Appendix C. You can photocopy the worksheets to record your progress as you undertake the processes of implementing and evaluating the mitigation plan.

The Hazardville Post

Vol. CXIII No. 28

Tuesday, January 28, 2003

Public Responds to Hazardville Mitigation Plan

[Hazardville, EM] The Town of Hazardville Organization for Risk Reduction (THORR) has received over 50 comments regarding the Hazardville Mitigation Plan. The plan was created to help reduce the community's risk to hazards such as flooding, earthquakes, and other natural hazards.

Joe Norris, lead planner for THORR, said the team has been working closely with citizens, businesses, and other community representatives to develop a plan that would create a safer, more resilient Hazardville. THORR was committed to having community input throughout the planning process. "At first, we had a hard time getting the community interested. The citizens didn't know what to expect," Norris said.

Many in the community were skeptical of exactly what the plan was supposed to accomplish. Riley

Howard, an advocate for the town's less privileged citizens in the Raging River Views Park was perhaps the most outspoken opponent of the plan. At first, Howard worried that the benefits of this plan might not help the people he felt needed it the most.

"I have tried for years to get the community to help the poor residents in the low-income neighborhood who get flooded out every spring when the snow begins to melt. The town never knew how they could help the residents other than to assist in clean-up and debris removal. The residents could not afford to relocate on their own. All of the houses that are affected year after year were identified in the hazard identification and risk assessment as being in a 10-year flood zone, and are very vulnerable to any sort of flash floods or even a heavy rain." (A 10-year flood has a 10 per-

cent chance of occurring in any one year.)

"While I was deeply saddened by this information," Howard said, "I was relieved to see that it turned out to be a good thing after all. Once the town and the Council learned what a dangerous area that was, the entire neighborhood was prioritized for buyouts, which will allow these residents to get fair market value for their home and help them move out of harm's way."

In an interview, THORR's outreach coordinator, Charity Jones, who works for the Hazardville Department of Health and Human Services, said, "The citizens of Hazardville should feel good about what they did to develop this plan. I know I am proud of all the work that THORR and Hazardville community members have put into its creation. This is truly a plan driven by the community's concerns and needs."

step

1

adopt the
mitigation plan

2

implement
the plan
recommendations

3

evaluate your
planning results

4

revise the plan



adopt the mitigation plan

Overview

Congratulations! You have reached Phase 4 of the planning process. After organizing resources, assessing risks, and developing a mitigation plan, you are now ready to take the first step in Phase 4—guiding the plan through a formal adoption process. Completion of this step will establish the plan’s authority and legitimacy. In order to meet DMA 2000 regulations, your jurisdiction’s governing body must formally adopt the plan in accordance with state and local laws. Their involvement and support of the process all along should help gain approval, as you will see below. Local plans are adopted by the lead governing body (City Council, Board of Supervisors, etc.) and state plans are usually submitted to the state director of emergency management for approval and signature. Adopting the mitigation plan is the final challenge for the planning team before plan implementation can begin. The relationships you have already established with stakeholders, elected officials, and government agencies, as well as the thorough nature of your work thus far, will be important assets during the adoption process.

In addition to being required by DMA 2000, adoption of the plan is necessary because:

- It lends authority to the plan to serve as a guiding document for all local and state government officials;
- It gives legal status to the plan in the event it is challenged in court;
- It certifies to program and grant administrators that the plan’s recommendations have been properly considered and approved by the governing authority and the jurisdiction’s citizens; and
- It helps ensure the continuity of mitigation programs and policies over time because elected officials, staff, and other community decision-makers can refer to the official document when making decisions about the community’s future.



Linking the plan’s policies

to those in other land development tools ensures that development decisions are made in

consideration of the loss reduction goals of the community. Formal adoption of the plan lets public or private funding sources know that the plan has the support of citizens, elected officials, and business owners. For example, land developers should use the adopted plan to make informed decisions about their ventures with respect to mitigation policies and potential hazards.



Before you seek adoption

of the plan, check with your State Hazard Mitigation Officer (SHMO) on administrative

procedures for reviewing plans under DMA 2000 requirements. The SHMO may have established a procedure with the FEMA Regional Office to review the draft plan to make sure you included all elements for meeting the DMA 2000 or other program requirements. This may include reviewing the planning process and your documentation before you ask the governing body to adopt the plan, a step to ensure that you have to submit the plan only once to the governing body for formal adoption. A tribal jurisdiction that submits a plan as a state-level entity works directly with the appropriate FEMA Regional Office.





Ensuring Plan Adoption

The planning team has already performed activities that will help ease passage of the plan:

Recognizing the Committee. As described in *Getting Started* (FEMA 386-1), the team is formally recognized by the community's governing body as the local authority on mitigation, and has been entrusted to make recommendations about mitigation on behalf of the community. This formal recognition by elected officials extends to the planning team's scope of work as well.

Garnering Public Input. As covered in *Getting Started* (FEMA 386-1) and *Developing the Mitigation Plan* (FEMA 386-3), the planning team identified stakeholders to join the planning team, briefed elected officials, informed the public of the team's progress and findings, and involved the public in its work. By including the citizens of the community throughout the planning process, you can expect that the adoption and implementation of the plan will be broadly supported by the public and elected officials.

Communicating Information. By keeping citizens involved in the planning process and informed of progress, the planning team can maintain the community's interest in mitigation. The community now knows and understands that there is a significant risk of losing assets because of hazards, that several alternatives are being considered, and that projects and initiatives will soon be underway.



Partners in Mitigation

Citizens, businesses, and technical experts in southwest Tulsa are partnering with the City of Tulsa and the National Park Service in the development of a greenway plan for a local creek (Mooser Creek). Flood mitigation, preservation of natural resources, recreation, and sustainable development are part of a community vision shared by both citizens and government. Community leaders got involved by forming committees and identifying issues important to them. The Mooser Creek Greenway Citizens and Technical Committees agreed upon a vision statement in an effort to preserve the natural functions and beauty of Mooser Creek and to create recreational and educational opportunities.

Procedures & Techniques

Task A. Brief local leadership.

An excellent way to facilitate adoption of the plan is to periodically brief community decision makers and elected officials on the progress of your planning efforts. This is a great opportunity to demonstrate to the governing body that the plan is sound and has broad support. Plan adoption should not be difficult if the planning team has conducted activities throughout the planning process that have lent credibility to the team, the plan, and the planning process. The briefings will also allow you to address any concerns of elected officials, and to obtain their input. Having the planning team recognized, garnering public input, and communicating the progress and successes of the team will help get the plan adopted.

Task B. Demonstrate the support of partner organizations.

One way to ensure the credibility and eventual passage of the mitigation plan is to present the adopting body with letters of support from organizations and agencies on the planning team, as well as those not on the team. The community's governing body may view the plan more favorably if it has the support of neighborhood and civic organizations. Some organizations may show their commitment to implementing the plan by passing a resolution supporting it and outlining specific responsibilities that they will assume. Furthermore, supporting organizations should be encouraged to provide testimony if the plan will be adopted at a public hearing. This testimony should provide specific information on the benefits that the mitigation plan will bring to the organization's constituencies. Such testimony becomes part of the public record of the hearing.

For example, if a member of a community watershed advocacy group was part of the planning team, that group might review the plan and give its full support to the plan by outlining the group's commitment to sponsor an annual watershed clean-up day or to plant native vegetation in the open space that resulted from the acquisition of flood-prone structures. See *Getting Started* (FEMA 386-1) for more details on garnering community support.



Task C. Have the plan adopted by the proper legislative or executive authorities.

The mitigation plan will be adopted through your government's normal legal process. Depending on the laws in your state and jurisdiction, adoption of the plan will give the jurisdiction legal authority to enact ordinances, policies, or programs to reduce hazard losses and to implement other mitigation actions. Generally, most local governing bodies will adopt a hazard mitigation plan by resolution.

Build time into your planning schedule to meet federal and state deadlines for submitting the plan. Make sure you allow sufficient time for formal adoption procedures. Your local governing body may meet only once a month and may require agenda items to be submitted well ahead of time.

Task D. Submit your plan for approval.

Once your local governing body has approved the plan, it must be submitted to the State Hazard Mitigation Officer (SHMO). The SHMO should already be familiar with your plan because he or she should have reviewed a draft to determine if the plan meets DMA 2000 and other state program requirements. Someone should be designated as the point of contact with the state to answer any questions about the plan. For multi-jurisdictional plans, each jurisdiction requesting approval of the plan must document that it has been formally adopted by its respective governing body. The SHMO is responsible for forwarding the plan to the FEMA Regional Office for review.

Task E. Publicize the adoption and approval of the plan.

Once the plan has been approved, stakeholders should be informed of your success. You may want to package the message differently to reach various audiences. This can be accomplished by sending a press release to your local newspaper, holding a press conference with important civic leaders, sending a mailing, or posting a notice on the community's Web site. You may also want to celebrate your success by beginning a project immediately. For example, after the plan is approved, you may request that the governing body vote on a resolution or ordinance that is important to accomplishing your mitigation goals, or to authorize funding to undertake a highly visible project, such as flood-proofing City Hall or some other important public facility.



44 CFR §201.4(c)(6) and §201.6(c)(5) of the Interim Final Rule

require plans to be adopted before being submitted to FEMA for formal review and final approval. A copy of the resolution of adoption must be included with the plan.



Resolutions are expressions of a governing body's opinion, will, or intention and can be legally binding or not. Most planning

documents must undergo a legally binding council resolution, which, in order to be adopted, must be supported by an official vote of the majority of members.



Formal adoption of the state plan

will vary according to state protocols. Generally, states should obtain the signature of the state emergency management director as approval of the plan. The plan also can be distributed to members of the state legislature to broaden support for the plan and to potentially pave the way for any new legislation or budget items that may be necessary to carry out the plan recommendations. States must submit plans to their FEMA Regional Office for review and approval. Depending upon regional procedures, states also may opt to submit the results of the risk assessment or draft plan to FEMA for an informal review before officially adopting it and sending it to FEMA for official review and approval. Once any necessary changes have been made, the state can proceed with formal adoption and final FEMA review. If a tribal organization has developed a state-level plan, it should be submitted directly to the FEMA Regional Office.



Consider developing an executive summary

of the plan for use in publicizing it with other government agencies or partners. A brochure may be appropriate for citizens while you also make the executive summary or entire plan available to them.



Summary

By the time you finish Step 1, you will have a plan that has the support of the community, state, tribe, and elected officials. Adoption of the plan gives the plan greater authority, fulfills certain FEMA program eligibility requirements, and will ease implementation of your mitigation actions. Once the mitigation plan has been adopted, your state, tribe, or community is ready to begin implementing the mitigation strategy.



The Hazardville Post

Vol. CXIII No. 45

Friday, February 14, 2003

Town of Hazardville Adopts THORR's Plan

(Part 1 of a 4-Part Series on the Hazard Mitigation Implementation Process)

[Hazardville, EM] The Hazardville Town Council adopted the Hazardville Hazard Mitigation Plan on Thursday by resolution (included below) to serve as the town's guide in reducing risks to citizens and property. Marion Jackson, Chairperson of the Town Council, announced that "in light of the community's involvement and obvious support for the plan, indicated

by citizen turnout at the hearing and letters of support submitted for the record by respected community organizations, the Council unanimously voted to adopt the Hazardville Hazard Mitigation Plan as an official plan of the Town of Hazardville." The plan will take effect immediately.

The Town of Hazardville Organization for Risk Reduction (THORR)

was instrumental in developing the plan and marshaled its forces to support adoption of the plan through written support from the community. "This plan is one of the few community initiatives that is relatively unopposed, no doubt due to THORR's diligent public outreach efforts," Jackson said.

Resolution #2003-53

WHEREAS the Town of Hazardville has experienced severe damage from hurricanes, flooding, earthquakes, wildfires, landslides, and tornadoes on many occasions in the past century, resulting in property loss, loss of life, economic hardship, and threats to public health and safety;

WHEREAS a *Hazard Mitigation Plan* (the Plan) has been developed after more than one year of research and work by the Town of Hazardville Organization for Risk Reduction and the people of the Hazardville community;

WHEREAS the Plan recommends many hazard mitigation actions that will protect the people and property affected by the natural hazards that face Hazardville;

WHEREAS a public meeting was held to review the Plan as re-

quired by law;

NOW THEREFORE BE IT RESOLVED by the Mayor and Town Council of the Town of Hazardville that:

1. The *Hazard Mitigation Plan* is hereby adopted as an official plan of Hazardville.
2. The respective town officials identified in the strategy of the Plan are hereby directed to implement the recommended actions assigned to them. These officials will report quarterly on their activities, accomplishments, and progress to the Town of Hazardville Organization for Risk Reduction.
3. The Town of Hazardville Organization for Risk Reduction will provide annual progress reports on the status of implementation of the plan to the Mayor and Town

Council. This report shall be submitted to the Town Council by February 28th of each year.

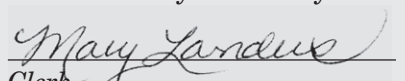
PASSED by the Town Council of Hazardville, this 13th day of February 2003.


Council Chairperson

APPROVED by me this 13th day of February 2003.


Mayor

ATTESTED and FILED in my office this 13th day of February 2003.


Clerk



step

2

implement
the plan
recommendations

1

adopt the
mitigation plan

3

evaluate your
planning results

4

revise the plan



implement the plan recommendations

Overview

Citizens and officials who participated in creating the plan will expect to see results from their hard work and effort. This step describes how to place the recommendations of the plan within the administrative framework of your state, tribe, or community. The section presents ideas on how the planning team can get the recommendations implemented on schedule and, over time, integrate mitigation actions into the day-to-day operations of government agencies. It will also show how to bring action items within the mitigation strategy to fruition through creative use of available resources.



When implementing the plan, various stakeholders will have distinct roles and responsibilities:

The Planning Team. During the implementation of the mitigation strategy, the planning team's role may change to one of overseer. As the developers of the mitigation plan, the planning team should also regularly monitor its progress.

The planning team can help ensure that the spirit of the plan is not sidetracked by political or personal concerns, and keep the community energized so citizens can hold the government accountable for the legitimate performance of the plan. The team can also alert officials to issues that may affect emergency management and hazard mitigation.

Elected Officials and Local Administrators. The executive or delegated administrator may be a likely candidate for keeping all participating local agencies or departments on track. Elected officials play a unique role in the implementation of the plan. They will be pressured by those opposed to the plan as well as those who expect to see it enacted as intended. Furthermore, elected officials have the capacity and responsibility to distribute resources among competing interests. The planning team will have identified supportive elected officials not only when organizing to prepare the plan (Phase 1, *Getting Started*, FEMA 386-1), but also when evaluating the relevant political factors of potential mitigation actions (see *Developing the Mitigation Plan*, FEMA 386-3, Step 2).

Elected officials and local administrators should provide:

- **Oversight.** Officials not only can assign staff and provide incentives to implement planning initiatives, they also can support the hard work of the professional staff and volunteers.
- **Visibility.** Community leaders must keep the spotlight on the identified hazard-related problems and opportunities and make sure that problems are not overlooked by any relevant department or office—community planning, emergency services, zoning, public service, and economic development, for example.
- **Budgets.** Elected officials and local administrators must ensure that the community's annual budget includes funding to implement previously adopted long-term actions. This includes commitments that the community has made to cost-share, maintain, operate, repair, or otherwise bear the burden for activities that may have been undertaken with outside assistance.

(continued on page 2-2)



(continued from page 2-1)

Partners–Nonprofit Organizations and Businesses. Throughout implementation of the plan, the planning team should consider innovative ways for its partners to facilitate the implementation of projects. The nonprofit and private sectors can help in a number of ways, including lending expertise, discounted materials, staff or volunteer time, or meeting space. The planning team can, in turn, offer the private organizations an opportunity for greater public exposure, and thus greater name recognition. The planning team can also offer tips and expertise in mitigation; businesses often do not realize the danger that their property or sources of income face from hazards. The planning team can inform partners about the hazards they potentially face, the ways they can mitigate these hazards, and how their staff can mitigate hazards at home.

Citizens. Citizens have an ongoing role to play in project implementation. The planning team should actively seek volunteers to help implement programs and activities. Knowledgeable citizens also can be recruited to provide expertise in specific subject areas. The more you involve people in implementing the plan, the greater the support it will receive.

State Agencies. State agencies can lend their time, expertise, and funds to the implementation of hazard mitigation projects. Make sure your list of state contacts is very broad, as the resources of one state agency may be unknown to another.

Academic Institutions. Colleges and universities can provide technical expertise to projects that may require Geographic Information System (GIS), engineering, planning, or other technical assistance. They can also provide meeting space, laboratories, and other logistical support.

In the third phase of the planning process, the planning team identified mitigation actions and implementation strategies that included target dates for the completion of projects and assigned responsibilities to agencies, departments, organizations, or specific people (see Steps 2 and 3 of *Developing the Mitigation Plan*, FEMA 386-3). This information should help the planning team meet the objectives of the plan on time and provide indicators by which the implementation will be monitored and evaluated.

It is important to decide how success will be determined before implementation and evaluation occur. From an administrative standpoint, success may be simply a measure of whether the project was finished on time, and within budget. On the other hand, even projects that are well thought out and executed may not be completed for a long period of time due to the nature of the project, the lack of available funding, or other reasons beyond the control of the community. In this case, it is important to identify successes in the short-term, even if completion is not in sight. For example, if a community decides to pursue zoning changes in flood hazard areas, the actual changes may not occur for years due to administrative procedures that must be followed within the context of local and state zoning and land use law. However, successes (in the form of completion of milestones) can and should be identified along the timeline that is appropriate for that type of mitigation action. In this zoning example, short-term successes can include key meetings or briefings held to present risk information to support zoning changes.



In Step 3, you will also measure the effectiveness of your mitigation actions. It will be therefore important in Step 2 to establish indicators of effectiveness.

The planning team should also determine the manner in which plan implementation will be monitored. In any incorporated community, there are elected or appointed officials who have the ultimate responsibility for carrying out specific community policies and programs. The planning team should continue to serve as a resource to the community by helping its leaders identify, measure, and publicize successes, and mobilize community members to contribute and participate where appropriate. The planning team can also work to secure funding to implement the plan.

Your team may decide that frequent meetings are no longer practical. It may consider an alternative, such as periodically issuing a memorandum to keep team members informed of progress in implementing the plan. An annual internal review of progress by the planning team is also a good monitoring method. Keep in mind that the need for maintaining sustained communication is more important than the form of communication selected.

Procedures & Techniques

Task A. Confirm and clarify responsibilities.

In Step 3 of *Developing the Mitigation Plan* (FEMA 386-3), the planning team identified who would be involved in implementation of the mitigation actions. Now is the time to revisit those assignments and confirm that the responsible parties understand their duties. One way to communicate your expectations to public agencies and other organizations with specific responsibilities is to draw up a Memorandum of Agreement (MOA) among the different agencies and organizations. An MOA is a non-binding statement that defines the duties, responsibilities, and commitment of the different parties or individuals as established by the hazard mitigation strategy developed in Phase 3. It provides a clear statement of values, principles, and community hazard mitigation goals, and establishes an organizational structure to assist in measuring and evaluating the plan's progress.

The MOA should include:

- A vision or goal statement;
- An organizational structure to maintain the effort over time;



- A statement that specifies the duration of the MOA and how it will be reviewed or revised;
- A statement indicating how decisions will be made to continue the MOA;
- A statement describing the circumstances under which partners should consult each other;
- A statement requiring the organization to submit periodic or annual reports on the progress of its projects or programs;
- A statement regarding responsibility for actions; and
- A resource commitment statement on the staffing, technical resources, and funding that the department, agency, or organization is expected to provide.



Example of a Memorandum of Agreement

Agreement is made this 4th day of March 2003 by these parties:

The Town of Hazardville (the Town) and its local corporate and nonprofit partners, and the State of Emergency and its partners

WHEREAS the parties:

Strive to create sustainable communities that are resistant to the human and economic costs of disasters;

Recognize that actions taken in advance of disasters are effective in reducing losses; that partnerships among government agencies, private companies, voluntary and professional associations, educational institutions, and community organizations are essential for the success of these efforts;

Recognize that vulnerable conditions exist in public and private facilities, and the utility and transportation systems that serve them; that increasing population growth and diversity, escalating disaster costs, and other factors increase the Town's vulnerability to disaster;

Recognize that financial support is necessary to enable the expansion and integration of public and private mitigation efforts;

Agree to continue to receive and encourage the input of stakeholders with the State, Town, businesses and nonprofit organizations in Hazardville, neighboring communities, citizens, and other appropriate partners;

NOW, THEREFORE, it is mutually agreed that the parties voluntarily enter into this non-binding Agreement to establish the Town of Hazardville Partnership for Disaster Mitigation (the Partnership).

The principal objective of this Agreement is to further develop private, volunteer, and public-sector capabilities (people, policies, resources, working relationships, long-term plans, and a schedule for accomplishments) necessary to carry out projects that will reduce vulnerability to risk and minimize losses.

- 1. MEMBERSHIP.** Membership in the Partnership is open and can be expanded to include new (additional) partners in the future. The Partnership will work together to advise the Town and participate in the implementation of the Town of Hazardville Hazard Mitigation Plan to further mutual loss-reduction goals subject to the terms and conditions recited below.
- 2. TERM.** The respective duties, responsibilities, and commitments of the parties hereto shall commence on the date this Agreement is signed by the parties and may be periodically renewed or revised at the option of the parties.

(continued on page 2-5)

(continued from page 2-4)

3. CONSULTATIONS. The Partners shall make their representatives available to consult with the Town of Hazardville on ways in which the Hazard Mitigation Initiative (see Appendix A below) can be improved and applied successfully. The Partners, in consultation and conjunction with other public-sector entities and related community-wide initiatives, shall consult with each other on:

- Identification and delineation of natural and manmade hazards within the Town;
- Assessment of risk to and vulnerability of buildings, facilities, utilities, communications, and transportation systems in the public and private sectors;
- Techniques to plan for, reduce, and manage expected losses; and
- Technical and financial assistance and incentives to facilitate loss reduction projects.

4. ANNUAL EVALUATION. The parties shall annually review the Partnership created by this Agreement to determine and document successes achieved over the past year and discuss actions to be undertaken in the following year. The Partnership will prepare an Annual Report describing accomplishments resulting from the Hazardville Hazard Mitigation Initiative and implementation of the Hazardville Hazard Mitigation Plan. The Partnership shall also make recommendations for improving this Agreement and other disaster mitigation/recovery strategies.

5. RESOURCE COMMITMENT. The parties will consider committing human, technical, and financial resources, coordinate with current and future partners, and carry out the fundamental actions of this voluntary, non-binding Agreement.

6. THE HAZARD MITIGATION INITIATIVE. This Agreement includes two Appendices. Appendix A offers an overview of the Hazardville Hazard Mitigation Initiative. Appendix B lists commitments made by the parties to be included as part of the Hazardville Hazard Mitigation Plan that will be acted upon after execution of this Agreement. These actions will constitute steps toward accomplishing the loss-reduction goal. The period of time for completing defined actions will be set and reported by the Partnership.

IN WITNESS WHEREOF, each party has caused this Agreement to be executed by its duly authorized representatives on the date first mentioned above.

Appendix A – Hazardville Hazard Mitigation Initiative – Proposed Actions:

The Hazardville Hazard Mitigation Initiative is an element of this Memorandum of Agreement. In summary, the Initiative addresses the following:

A. Reducing flood hazards to low-income, residential structures. The Town of Hazardville Emergency Management Agency, the Hazardville Department of Planning, and the Hazardville Habitat for Humanity are working to acquire flood-prone, low-income housing in the manufactured-housing park and other low-income areas in the floodplain, and to find appropriate, affordable housing for displaced residents.

B. Establishing public education and outreach projects. The Partnership will cooperate to inform the public about the accomplishments of the Hazardville Hazard Mitigation Initiative, progress of projects, and upcoming public planning efforts. Working with Hazardville Hardware, the Partnership will also educate the public on insurance, family disaster preparedness planning, and other safety tips to protect houses from natural and technological hazards.

C. Strengthening the community's resistance to seismic and landslide hazards by retrofitting vulnerable structures. This project component will strengthen the community's housing stock to resist damage from earthquakes by (1) developing a consistent, sustainable retrofit capability among local builders, contractors, and homeowners; (2) seismically retrofitting vulnerable structures in the downtown business district; and (3) incorporating standardized retrofit practices into home and downtown commercial rehabilitation programs.

Under this component, the Partnership will also strive to find additional funding to complete the retrofit of the Town's lighthouse, threatened by coastal erosion.

Appendix B – Hazardville Hazard Mitigation Initiative – Resource Commitments:

The Town of Hazardville will:

1. Provide leadership for the Partnership and serve as the point of contact for the Hazardville Hazard Mitigation Initiative.

(continued on page 2-6)

(continued from page 2-5)

2. Provide financial management of the grant funds provided to the Town for hazard mitigation projects, including Hazard Mitigation Grant Program funds, Flood Mitigation Assistance funds, Pre-Disaster Mitigation funds, etc.
3. Procure the support and assistance of appropriate Town departments and agencies to further the objectives of the Hazardville Hazard Mitigation Initiative.
4. Supply meeting space and other logistical support for Partnership meetings.

The State of Emergency will:

1. Supply peer review of plans, planning processes, and project implementation to identify potential problems, recommend solutions, or procure appropriate State support.
2. Attend project review meetings to meet with partners implementing the projects.
3. Facilitate Federal grants applied for by the Town and the Partnership.

Hazardville Department of Planning will:

1. Supervise the acquisition and demolition of vulnerable structures in the floodplain.
2. Designate the resultant publicly owned open space as an area precluded from future development.

Hazardville Department of Housing will:

1. Support the acquisition and demolition of the flood-prone houses of low-income residents by providing additional funding for replacement housing in non-hazardous areas.

Hazardville Habitat for Humanity will:

1. Solicit its corporate and other partners to supply building materials for new, affordable housing.
2. Organize volunteers to build new, affordable housing in non-hazard areas for current residents of the manufactured home park and other low income areas in the floodplain.

Hazardville Hardware will:

1. Design and fund public education brochures advising the public about hazard mitigation for homeowners, safety during hazard events, and the importance of purchasing insurance.
2. Develop a marketing display for the Hazardville Hardware store advertising hazard mitigation for homeowners and related products that can be purchased at the store.

Capability Assessment Results



In completing your capability assessment in Phase 3 of the planning process, you identified policies, programs, practices, and procedures that could be modified to accommodate hazard mitigation actions. Consider developing an implementation strategy that addresses recommendations that can be easily implemented first, followed by those that need to be modified, and last, those that require the adoption of new regulations or policies or infusion of outside funding sources for implementation.

Task B. Begin to integrate mitigation actions throughout government operations.

The planning team should work with chief administrative officials to begin to integrate the newly adopted hazard mitigation goals and actions into the general operations of its government and partner organizations. By initially working within existing administrative mechanisms, communities and states can quickly and efficiently implement and finance their hazard mitigation projects and programs, and incorporate them into their governing systems. The following sections discuss several options to consider.

1. Use processes that already exist.

A good initial strategy is to take advantage of tools and procedures that were identified in your capability assessment in Step 2 of



Developing the Mitigation Plan, FEMA 386-3. Your research of Social, Technical, Administrative, Legal, Economic, and Environmental (STAPLEE) criteria for mitigation activity should have uncovered information on the administrative, financial, or legal mechanisms in your state, tribe, or community. These mechanisms are already in use and familiar to the governmental departments and organizations. This will give the planning implementation phase a strong initial boost, especially if your plan calls for expanding existing agency mandates or departmental funds, or creating new programs later on.

Administrative

- **Departmental or organizational work plans, policy, and procedural changes.** Updating the work plans, policies, or procedures to include hazard mitigation concepts and activities can help integrate the plan into daily operations. These changes can include how major development projects and subdivision reviews are addressed in hazard-prone areas or ensure that hazard mitigation concerns are considered in the approval of major capital improvement projects.
- **Job descriptions.** Working with department or agency heads to revise job descriptions of government staff to include mitigation-related duties could further institutionalize hazard mitigation. This change would not necessarily result in great financial expenditures or programmatic changes.

Budgetary

- **Capital and operational budgets.** Instead of solely relying on funding from hazard mitigation programs or other external sources of grant monies, states, tribes, and communities might consider a line item for mitigation project funding in their capital or operational budgets. Having a line item in these budgets may not guarantee funding every year, but it is certainly easier to get the money allocated if it is already there. Examples include a revolving fund to finance a buyout program or a low-interest program to fund retrofits.

Examples of using existing resources to accomplish mitigation:

- The Department of Public Works could adopt more rigorous procedures for inspecting and cleaning debris from streams and ditches. Instead of cleaning only after storms or complaints from citizens, the Department could require inspections of streams and ditches at least semi-annually.
- The Planning Department could add hazard vulnerability to subdivision and site plan review criteria and incorporate any necessary actions at the planning stage.
- A community conservation society or other interested voluntary organization could perform inventories of historic sites in hazard areas that might require special treatment to protect them from specific hazards.



You may want to add

some or all of the following language into job descriptions for a community planner, floodplain manager, emergency manager,

building code official, or water resources engineer in the Public Works Department:

Knowledge, Skills, and Abilities

Knowledge. Knowledge of the principles of emergency management, specifically hazard mitigation. Knowledge of the principles and practices of sustainable development and how it is incorporated into hazard mitigation planning. Knowledge of FEMA's pre- and post-disaster mitigation programs, as well as other federal agency programs (HUD, EPA, SBA) that provide technical and/or financial assistance for implementing pre- or post-disaster mitigation planning. Knowledge of private/non-governmental programs that can support reconstruction and mitigation strategies.

Skills. Consensus building and team building, communication (verbal and written)/interpersonal skills.

Abilities. Ability to apply planning principles and tools to the goals of hazard loss reduction.



See *Developing the Mitigation Plan (FEMA 386-3)* for more information on using the following implementation tools for hazard mitigation:



- Building Codes
- Zoning Ordinances
- Subdivision Ordinances
- Special Hazard Area Regulations

Integrating Hazard Elements into Comprehensive Planning



- For guidance on what to include in a local hazard element, see the American Planning Association's *Growing Smart Legislative Guidebook* at www.planning.org/growingSMART.
- In July 2002, the Institute for Business & Home Safety (IBHS) published a report entitled *Summary of State Land Use and Natural Hazards Planning Laws*. This report focused on the relationship between state planning laws and other statutes that addressed natural hazards and their effect on local-level comprehensive planning and land-use regulations. More information about the results of this report is available at http://www.ibhs.org/research_library/view.asp?id=302.
- Oregon has long been recognized as a pioneer in local planning for natural hazards. In 1969, Oregon adopted Senate Bill 10, which required every city and county in the state to have comprehensive land use plans that met state requirements. This mandate, however, did not grant any authority to enforce the requirement or provide for any technical support or training to the communities. Subsequently, Senate Bill 100 was passed to address these issues, creating the Land Conservation and Development Commission (LCDC). Among its responsibilities, the LCDC was charged with establishing statewide planning goals that were to be congruent with regional, county, and city concerns; preparing statewide planning guidelines, model ordinances, and regulations; and ensuring widespread citizen involvement and input throughout all phases of the planning process.

One of the state planning goals requires Oregon communities to inventory known natural hazards and to implement appropriate safeguards for development in hazard areas. On behalf of the LCDC, the Department of Land Conservation and Development (DLCD) developed *Planning for Natural Hazards: Oregon Technical Resource Guide* to help communities appraise and potentially improve the effectiveness of the natural hazard planning element in their comprehensive plans. The guide also provides useful information on how to identify and plan for a variety of natural hazards, and implement programs to address them. The publication is available online at <http://www.lcd.state.or.us/hazhtml/Guidehome.htm>.

Regulatory

- **Executive Orders, ordinances, and other directives.** The governing body or local executive often has the authority to issue directives to require departments and agencies to carry out certain hazard mitigation actions. Using one of these mechanisms, the governing body or executive can direct department heads to provide progress reports to the planning team on the hazard mitigation initiatives that the departments are responsible for carrying out.

- **Comprehensive planning.** Adding a hazard element to the comprehensive plan is one of the most effective mechanisms to institutionalize hazard mitigation for new construction. For communities with a comprehensive plan, *Getting Started* (FEMA 386-1) listed several reasons why a community should integrate mitigation planning and comprehensive planning. A primary benefit of combining these processes is that they both influence the location, type, and characteristics of physical growth, specifically buildings and infrastructure. While planning in and of itself may not be regulatory, it uses regulatory mechanisms (zoning, development ordinances, etc.) for implementing goals and objectives. Additionally, in many parts of the country, the comprehensive planning process is an established activity that is already familiar to the public, and it usually generates a great deal of interest and public participation.

2. *Secure traditional sources of financing.*

In Phase 3 of the planning process, potential sources of funding to implement the priorities in your mitigation strategy were identified. Now that the plan has been adopted, you have a strong basis for obtaining these resources. Communities and states have a range of tools to finance projects. Use of fees, taxes, bonds, and loans to finance projects are options if there is proper state enabling legislation, local author-



ity, and enough political will. Once the plan has been adopted, there is a legitimate basis for initiating the process required to use these financial tools.

All of your plan's mitigation recommendations probably cannot be implemented using local funding sources. Furthermore, it may take some time to work through the legal and administrative processes to use proceeds from bond issues and similar vehicles. To supplement local funds, communities can apply for grants from federal or state governments, nonprofit organizations, and foundations, as well as seek funding from other private sources. The advantage of applying for grants is that they do not have to be paid back or generate long-term debt; however, most federal grants require state and/or local governments to provide some matching funds.

State and federal grants are a logical source of funding for some of the larger, more costly mitigation initiatives. Many federal grant mechanisms allow local "in-kind services" as a match for federal dollars, as well as the possibility of using state grant funds to meet the local match requirements. Review your capability assessment from Phase 3 and consider looking to regional planning agencies, universities, or economic development districts, if present and active in your state, for research or grant-writing technical assistance. The adjacent sidebar describes three major FEMA mitigation grant programs. Don't forget the potential of other federal grant programs for community development, even if they are not specifically disaster or mitigation related—the U.S. Department of Housing and Urban Development's Community Development Block Grant (CDBG), for example. For more on funding sources, see *Planning for a Sustainable Future: The Link Between Hazard Mitigation and Sustainability* (FEMA 364), and the *Mitigation Resources for Success CD* (FEMA 372).

3. Develop creative partnerships, funding, and incentives.

Incentives that minimize financial or administrative burden can stimulate momentum to undertake mitigation initiatives. For example, states and communities can provide tax rebates for code upgrades, offer reduced property taxes and insurance premiums for citizens and businesses that take steps to lower their exposure to hazards, or provide low interest loans for retrofit projects.

Some states, tribes, and communities have developed creative ways to get things done without spending a lot of their money. These



Three FEMA programs that provide funding for hazard mitigation actions are the **Pre-Disaster Mitigation Program**

(PDM), Flood Mitigation Assistance Program (FMA), and the Hazard Mitigation Grant Program (HMGP). Web access to information on these programs is available at www.fema.gov/fima/.

- PDM, authorized under DMA 2000, provides pre-disaster funding to states, tribal, and local governments, and tribal organizations for mitigation planning and projects through a competitive process. A FEMA-approved mitigation plan is required to receive project funding. Check with your FEMA Regional Office or SHMO for the latest information on availability of funds.
- FMA provides annual grants to communities, tribes, and states to reduce the risk of flood damage to structures with flood insurance coverage. This funding is available for mitigation planning, implementation of mitigation actions, and technical assistance. An approved flood mitigation plan is required to receive project grants, but is not required for planning or technical assistance grants. Interim final regulations implementing this program can be found at 44 CFR Part 78.
- HMGP provides post-disaster grants to states, tribes, and local governments to implement long-term hazard mitigation actions after a major disaster declaration. FEMA can fund up to 75% of the eligible costs of each project, and up to 7% of HMGP funds available per state may be used for planning. An approved mitigation plan is required to receive project funding. See Interim Final Rules at 44 CFR §201 and §206.



governments have engaged untapped resources by developing relationships with businesses, nonprofit organizations, and volunteers. Time spent earlier in the planning process developing relationships with citizens, businesses, and other communities can really pay off at this point in the process (see *Getting Started*, FEMA



Some examples of different types of partnerships that can provide funding or other resources to implement hazard mitigation actions are provided below. See *Mitigation Resources for Success* (FEMA 372) for additional examples and a more detailed discussion of funding mitigation actions.

Public-Private Partnerships. Partnership agreements between local governments and businesses or organizations can be advantageous for all parties involved. Private organizations and businesses routinely offer discounted or free goods and services to local governments in exchange for publicity or other benefits. In the end, the governments, organizations, businesses, and the public can all benefit from working together. Examples of successful public/private partnerships include the following:

- In Houston, Texas, FEMA and two prominent home improvement stores teamed up to provide information and advice on cleaning up and rebuilding after flooding caused by Tropical Storm Allison. FEMA Hazard Mitigation Teams staffed booths at both stores for three days, providing information on mitigation methods and techniques and the importance of flood insurance. By providing space, the stores played an important role in promoting community awareness of flooding hazards and helped foster public involvement in recovery.
- In Kinston, North Carolina, affordable housing was disproportionately affected by Hurricanes Fran and Floyd. The Permanent Housing Initiative, a partnership between the North Carolina Division of Emergency Management, the North Carolina Department of Corrections, and private sector home improvement companies, was formed to help address the housing shortage and subsequent housing acquisitions. Using a Habitat for Humanity housing model, energy efficient and hazard-resistant affordable housing was constructed in already established neighborhoods. Homes were constructed by volunteers using prefabricated wall panels (made by prison labor experienced in construction) and other donated tools and materials. The foundation, electrical system, and ductwork were done by certified professionals.
- In an effort to promote awareness of hurricanes and flooding in the coastal community of Virginia Beach, Virginia, the city held a Home Safety and Preparedness Exposition that included a section devoted to building disaster-resistant communities. More than 20 local businesses and organizations and the Virginia Department of Emergency Management sponsored the event. In return, sponsors were given display booths at the event to promote their goods and services.

Community Volunteers. State and local governments rely upon their citizens to perform work that might otherwise have to be paid for by money from government coffers. Some governments have institutionalized volunteerism by requiring students to contribute volunteer hours to local and regional initiatives. Others have partnered with nonprofit agencies, organizations, schools, and businesses to give their time and energy to help further community goals.

- Citizen Corps is a program within the USA Freedom Corps that promotes several initiatives to engage volunteers in Homeland Security efforts, including mitigation actions, across the country. These community-based efforts include Community Emergency Response Teams (CERTs), Neighborhood Watch, Volunteers in Police Service, Operation TIPS, and the Medical Reserve Corps.
- Following flooding in 1993, the City of Petersburg, Illinois, bought out riverfront property that had been flooded and engaged a group of high school students, the Community Problem Solvers (CmPS), to formulate a creative solution for rehabilitating the area as perpetual open space. The CmPS developed a garden and a preschool playground, a solution that was responsive to the needs of the neighborhood, city government requests, and federal government requirements. To fund the project, the CmPS team applied the same initiative and creativity that they had used to design it. The team organized a "Decorate an Abe" contest in honor of former Petersburg resident Abraham Lincoln. Area businesses sponsored and decorated Abe silhouettes, and residents paid to vote for their favorites. The "Abes" were later auctioned off to raise additional funds. In addition, the team designed and sold Historic Petersburg placemats. Volunteers from civic organizations donated funds to sponsor specific pieces of playground equipment, and a local business donated Lincoln Bears to be sold. Preschool children participated in a clean-up day at the site. Overall, many Petersburg residents



contributed their funds, talents, and energy to make the project successful. The CmPS members not only helped minimize its community's vulnerability to flooding, they did it in a way that promoted community pride and civic involvement.

- Oakland, California, developed a community partnership called Safety and Future Empowerment (SAFE). Two initiatives, the Week of Caring and Spring Break, brought together city firefighters, corporate employees, students, the California Office of Emergency Services, and AmeriCorps members to make homes in the community safer and less vulnerable to earthquakes and fire. Four volunteer teams spread out across the city for a week to make the homes of elderly and low-income residents more disaster resistant. The teams installed smoke alarms and cupboard latches, strapped water heaters and free-standing cabinets to house frames, and rigged safety releases on window security bars. Local businesses donated or provided supplies at reduced costs in support of the effort.

State cooperation. Local governments often underestimate the wealth of resources that their states can provide. States are excellent sources of funding, support, and technical assistance. State geological surveys, water resources agencies, and departments of planning or natural resources often have useful data related to hazard identification and risk assessments. Your state may also have a GIS department that can provide data and support.

Unfortunately, localities sometimes pay for studies that have already been conducted by the state. You can avoid these duplications by inviting your state officials to participate in the planning process to help ensure that studies or reports can be compiled from readily available sources.

State fairs and other state-sponsored events can be great places for displays on hazard reduction techniques and hazard awareness campaigns. States can further help publicize awareness and generate interest by declaring a Hazard Awareness Week and promoting related local events on their Web sites.

In-kind resources. Federal or state grants often require the awarded locality to provide matching funds to cover a percentage of hazard mitigation project costs. In-kind resources, however, substitute monetary outlay with services that the community can perform. For example, HMGP pays up to 75% of the eligible costs of a hazard mitigation project, but the remaining amount must also be contributed to the project by non-federal sources. A municipality without sufficient resources can ask the state to help fund the match through state or Community Development Block Grant funds, or it can use in-kind resources. In-kind resources can be labor or salaries contributed toward the implementation of the project (such as technical or administrative support from community officials and personnel). The dollar value of the resource must be calculated, and those costs must be allowable under the grant. Communities can have quite a bit of leeway in developing sources of in-kind resources; however, your state's specific program requirements must be verified first. Federal regulations regarding in-kind matches for FEMA's grant programs can be found at 44 CFR §13.24.

386-1). For more details on funding and creatively using planning resources, see FEMA 372, *Mitigation Resources for Success*.

Task C. Monitor and document the implementation of your projects and actions.

As mentioned earlier, the planning team must continuously monitor and document the progress of the plan's recommended actions. This documentation is essential for determining the progress made on the hazard mitigation initiatives.

The planning team may decide to ask the agencies, departments, organizations, or people with duties identified in the mitigation strategy to periodically submit a work progress report on those projects being implemented. This report will come in handy at evaluation time. If there is a problem with the project or program, the planning team will be better able to pinpoint where the prob-



lem lies. An example of the report agencies could use should include the following information:

- The hazard mitigation action's objectives;
- Who the lead and supporting agencies responsible for implementation are;
- How long the project should take, including a delineation of the various stages of work along with timelines (milestones should be included);
- Whether the resources needed for implementation, funding, staff time, and technical assistance are available, or if other arrangements must be made to obtain them;
- The types of permits or approvals necessary to implement the action;
- Details on the ways the actions will be accomplished within the organization, and whether the duties will be assigned to agency staff or contracted out; and
- Current status of the project, identifying any issues that may hinder implementation.

Requiring the responsible parties to explain exactly how and when the project or programs will be carried out helps determine the extent of the project's progress. It also helps break the implementation process into smaller, more manageable tasks. The responsible agency, department, or organization can decide the particulars of incorporating these additional considerations into their daily operations, while the planning team will know what to expect and when to expect it. See **Worksheet #1: Progress Report** to help you monitor progress.

Task D. Establish indicators of effectiveness or success.

In Step 3, you will measure or evaluate the effectiveness of your mitigation project and initiatives. It will be important to establish measurable indicators of effectiveness now so that those involved in the projects understand how their actions contribute to the success of the projects. Indicators should be tied to the goals and objectives of the plan and its projects. They are often expressed as numerical representations of planning objectives.

For example, if an objective of the planning process is to increase community participation in risk reduction, and a related initiative includes an outreach program to introduce new partners to



Worksheet #1

Progress Report

step **2**

Page 1 of 3

Progress Report Period: October 1, 2003 to December 31, 2003
(date) (date)

Project Title: Raging River Views Park Flood Acquisition Project Project ID#: HVMP-2003-01

Responsible Agency: Hazardville Department of Planning

Address: 1909 Burnham Way

City/County: Hazardville, Emergency

Contact Person: Eunice Euclid Title: Grants Administrator

Phone #(s): (555) 555-8473 email address: eeuclid@town.hazardville.em

List Supporting Agencies and Contacts:

Hazardville Department of Housing: Noah Hudson (555) 555-8465

Hazardville Habitat for Humanity: Carter Goodman (555) 555-9432

Total Project Cost: \$360,000

Anticipated Cost Overrun/Underrun: \$N/A

Date of Project Approval: July 21, 2003 Start date of the project: November 15, 2003

Anticipated completion date: Summer 2005

Description of the Project (include a description of each phase, if applicable, and the time frame for completing each phase):

Acquire and demolish 14 structures located at the Raging River Views Park. Work with Habitat for Humanity and the Department of Housing to construct new housing or rehabilitate existing housing for displaced low-income residents. The Department of Housing will also provide funds for temporary housing to displaced residents.

Milestones	Complete	Projected Date of Completion
Conduct surveys of ground and first-floor elevations	✓	
Obtain Notices of Intent by owners	✓	
Conduct structure appraisals	✓	
Send letters of offer to homeowners		1/31/04
Perform title work		3/30/04
Acquire structures		6/30/04
Begin construction of new housing or reconstruction of existing housing for relocated residents		6/30/04
Send payment for relocation to renters		9/30/04
Finalize contract for demolition		1/12/05
Demolish structures		4/26/05
Landscape open parcels		6/30/05

Plan Goal(s)/Objective(s) Addressed:Goal: Minimize losses to existing and future structures within hazard areas.Objective: Reduce potential damages to the manufactured home park in the floodplain.**Indicator of Success** (e.g., losses avoided as a result of the acquisition program):

In most cases, you will list losses avoided as the indicator. In cases where it is difficult to quantify the benefits in dollar amounts, you will use other indicators, such as the number of people who now know about mitigation or who are taking mitigation actions to reduce their vulnerability to hazards.

Losses Avoided. After a major flood (100-year), the Department of Economic Development will assist the Planning Department in calculating the losses avoided.

Status (Please check pertinent information and provide explanations for items with an asterisk. For completed or canceled projects, see Worksheet #2 — to complete a project evaluation):

Project Status☒ Project on schedule☐ Project completed☐ Project delayed*

*explain: _____

☐ Project canceled**Project Cost Status**☒ Cost unchanged☐ Cost overrun*

*explain: _____

☐ Cost underrun*

*explain: _____

Summary of progress on project for this report:

A. What was accomplished during this reporting period?

The Department of Planning contacted the owners of the properties vulnerable to floods to determine their willingness to sell their properties. Of the 14 property owners contacted, 10 agreed to have their homes acquired. An appraiser contracted by the Department of Planning estimated the value of the 10 properties.

B. What obstacles, problems, or delays did you encounter, if any?

The owners of four properties refused to sell. There has been some limited neighborhood opposition to various suggestions for the community open space created by the acquisitions.

C. How was each problem resolved?

The Department of Planning has proposed to the residents a design charrette to develop alternatives for the open space that would be created, with the understanding that no permanent structures can be constructed on the open parcels after acquisition and demolition has been completed. Recreational activities will be limited to passive uses such as trails and bike paths.

Next Steps: What is/are the next step(s) to be accomplished over the next reporting period?

1. Send offer letters to homeowners.

2. Do title work.

3. Work with the Department of Housing and Habitat for Humanity to identify existing housing for rehabilitation and viable vacant parcels to construct new housing for the displaced residents.

Other comments:

None

mitigation, an indicator could be the number of organizations that are on the planning team.

Task E. Celebrate success.

It is important to maintain community support throughout the implementation process. One particularly effective technique is to simply keep the community informed about the incremental progress and success of the program. Sharing the findings of progress reports with interested organizations, neighborhood groups, elected officials, and citizens keeps stakeholders up-to-date on your accomplishments and possible setbacks. Posting these findings on your local Web site or including them in your newsletter will help everyone stay informed of your progress. Consider holding events to recognize key milestones to keep the public interested. Step 3 contains more information about how to maintain this important part of the overall effort.

Summary

Implementation is the culmination of the initial planning process. Monitoring progress and maintaining momentum is key to ensuring success of the planning process. Through the implementation of your plan, you will draw upon the diverse resources of your state, tribe, or community. While many of the tools you use already exist in one form or another, your team should try to use as much creativity and resourcefulness as possible to advance your plan's goals and objectives.



The Hazardville Post

Vol. CXV No. 252

Friday, September 9, 2005

Hazardville Partnership Completes First Home

(Part 2 of a 4-Part Series on the Hazard Mitigation Implementation Process)

[Hazardville, EM] “Yep, that’s my new house,” Susan Harris grinned. “I can’t believe how great it looks!” As Mrs. Harris showed off the interior of the nearly completed house, she noted where her furniture would go. “I would have put my mother’s sideboard over here,” frowning as she pointed to a spot in the dining room, “but it was ruined in the flood in 2002. It had been passed down from her mother, and I had wanted to pass it down to my daughter.”

Mrs. Harris is just one of the residents of Hazardville affected by flooding in 2002. She and nine of her neighbors have had their homes bought by the town and are working with town, state, and federal officials to build new homes out of the floodplain. “My house really wasn’t worth very much, and I don’t have enough income to handle a big mortgage payment,” Mrs. Harris said, “but the town has been working with the Hazardville Habitat for

Humanity to help me build a new one.”

Habitat for Humanity requires contributions of “sweat equity” in order to be eligible for participation in their program. Mrs. Harris claims that thanks to her contribution she is now quite capable of fixing just about everything in her new home. “Since my husband passed away almost 10 years ago, I have had to rely on my friends to help out with even simple repairs. Now that I have helped with the construction of several of my neighbor’s houses I am very comfortable using all kinds of tools!” Mrs. Harris is so comfortable with her new skills that she is thinking about building her own shed after she gets settled.

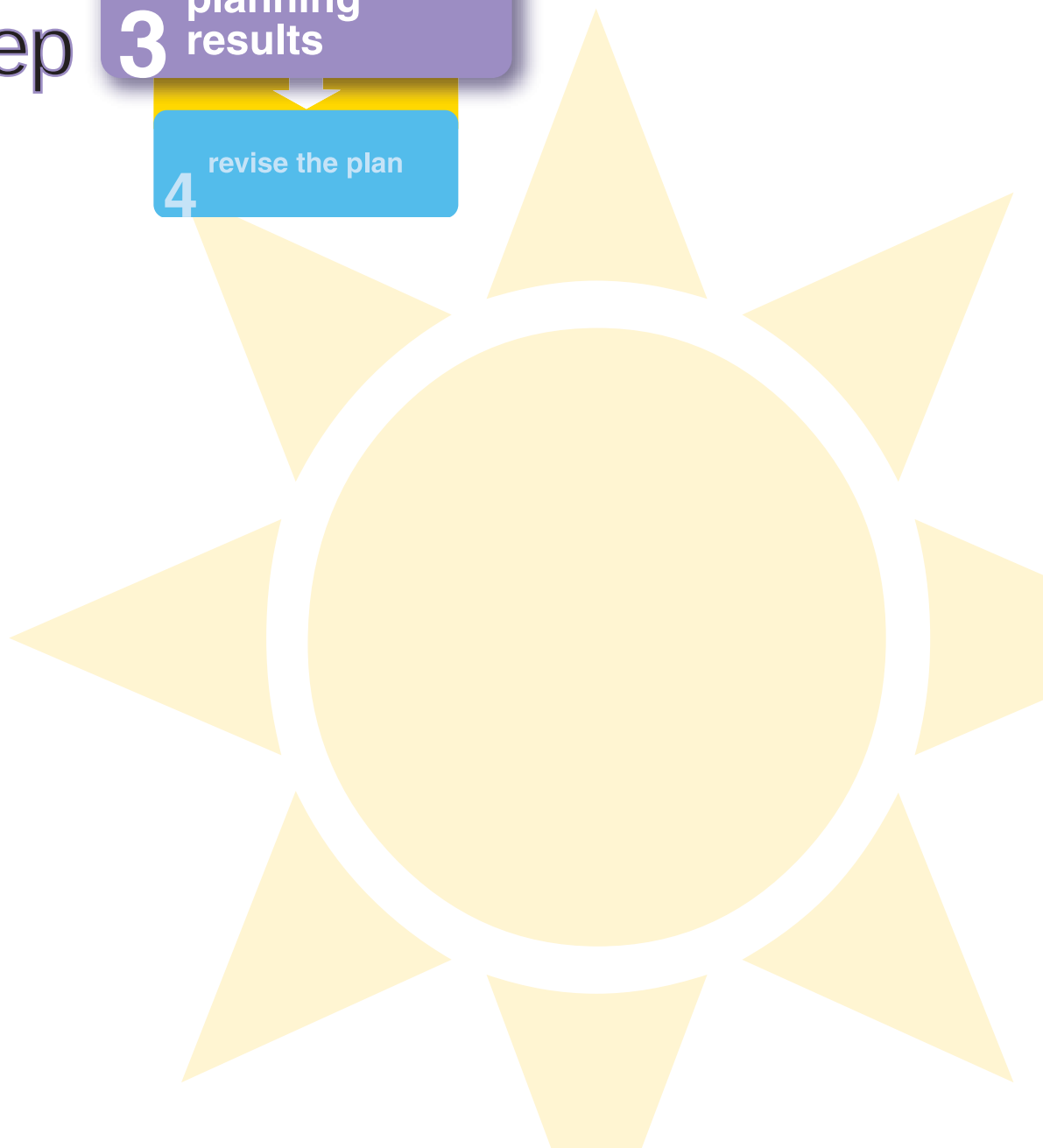
“The process is working!” beamed Joe Norris, lead planner for Hazardville. Norris, referring to the hazard mitigation plan adopted by the town in 2003, pointed to the emphasis the Town of Hazardville Organization for Risk Reduction

(THORR) had placed on reducing flooding and disaster-related damages to existing structures while recognizing the needs of residents with limited resources. Part of that emphasis was on creating and following through with community partnerships.

The Town of Hazardville Partnership for Disaster Mitigation is a partnership of nonprofits, businesses, and local, state, and federal agencies. The Partnership is an initiative that Hazardville established in 2003, following adoption of the hazard mitigation plan. Each partner contributed something to the effort. Funding from the FMA program was used to purchase ten repetitive loss structures. Local businesses contributed to the project by donating building materials and supplies. Community volunteers worked throughout the summer to make this a reality for Mrs. Harris and the other homeowners.



step



evaluate your planning results

Overview

The evaluation step of the planning process allows the planning team to review the plan, the planning process, and the results of implemented actions. The evaluation assesses whether the planning process and actions have been effective, if the community's goals are being reached, and whether changes are needed. The planning team should periodically evaluate the community's progress in implementing the plan. Regular evaluation keeps the community informed of the plan's status and, ideally, keeps those responsible for implementing the mitigation actions motivated. These periodic evaluations may reveal the need for small changes that may not be necessary to incorporate into the plan annually, but that accumulate over time until large-scale revision to the plan is needed (see Step 4, *Revise the Plan*).

Communities that commit to conducting periodic evaluations give themselves the opportunity to determine the effectiveness of their procedures and recommendations, identify new areas of concern, and renew enthusiasm for the cause of hazard mitigation. This step will show you how to keep the planning team, the planning process, and the implementation actions effective. The result is a hazard mitigation process that people have confidence in, and are willing to support.

What you learn in this evaluation will be used to determine whether or not to revise the plan document, to be described in Step 4. By looking impartially at what took place the previous year, the planning team will create a foundation on which to base its revision of the plan and a trigger to re-invigorate the cause for hazard mitigation in the community.

DMA

DMA 2000 requires communities to evaluate their hazard mitigation plan at least every five years.

The way in which this is to be done must also be documented in the plan. By including a provision in the adoption mechanism to evaluate the plan and the implementation process, you have a built-in mechanism to institutionalize and sustain the mitigation initiative beyond the creation of the original document.



Communities that want credit for their hazard mitigation plan under the Community Rating System (CRS) must evaluate their plan annually.



The plan should also be evaluated and revised following disasters, to determine if the recommended actions are appropriate given the impact of the event. The risk assessment should also be revisited to see if any changes are necessary based on the pattern of disaster damages.



According to DMA 2000 requirements, states that want to be eligible for the 20% share of HMGP funds must develop a process to assess the effectiveness of a mitigation activity after its completion.



The evaluation phase should not

be anticipated with anxiety. If the planning team, citizens, government, and other stakeholders have diligently implemented the recommendations, the evaluation phase will give the community reasons to celebrate the success of its mitigation efforts.



Procedures & Techniques

Task A. Evaluate the effectiveness of the planning process.

To evaluate the results of your planning efforts, begin by stepping back and looking at the big picture. Governments must be highly accountable to their citizens and able to defend their decisions. Evaluating the planning process is a good way to discover if the plan is working for the good of your state, tribe, or community. A review of the planning process will give you an idea of how successfully mitigation has been integrated into your normal administrative processes so far, and what procedural areas may need to be refined or changed.

DMA 2000 regulations

do not require annual evaluations. The recommendations presented here will help you to meet the five-year local update requirements.



The first year of the planning process is the most critical because you are beginning to implement the plan. While the energy and momentum generated during this phase of planning are still present, your state, tribe, or community may have established an annual review process at the time of adoption to address the unanticipated problems that may affect the success of your planning efforts. An annual review is also a good opportunity to reflect on whether certain relationships developed during the process should be enhanced, and to initiate new partnerships based on experiences from developing and implementing the plan. The planning team should take this opportunity to reflect on the processes used so far to engage partners and the public, to develop loss reduction priorities, and to finance projects.

1. Reconvene the planning team.

The first step in evaluating the plan is to reconvene the planning team. Ideally, the planning team was established as a permanent working group within your state, tribe, or community to oversee the development and implementation of the mitigation strategy. Even after the plan is adopted, the planning team should meet at least semi-annually to review the progress of the mitigation planning efforts.

At this point, however, your team may want to think about inviting new stakeholders to join during the evaluation. These meetings are a good opportunity to bring new members up to speed on the planning team's history, mitigation strategy, and planning process. Use **Worksheet #2: Evaluate Your Planning Team** to assist you in this task.



Worksheet #2

Evaluate Your Planning Team

step **3**

When gearing up for the plan evaluation, the planning team should reassess its composition and ask the following questions:

	YES	NO
Have there been local staffing changes that would warrant inviting different members to the planning team?		✓
Comments/Proposed Action: NA		
Are there organizations that have been invaluable to the planning process or to project implementation that should be represented on the planning team?	✓	
Comments/Proposed Action: Hazardville Habitat for Humanity has been invaluable in assisting the relocation of former Raging River Views Park residents. The organization should be invited to participate in THORR.		
Are there any representatives of essential organizations who have not fully participated in the planning and implementation of actions? If so, can someone else from this organization commit to the planning team?	✓	
Comments/Proposed Action: It is essential that the Department of Public Works be represented at each meeting because so many mitigation actions involve them. However, representatives from the department have been unable to attend meetings consistently since the development of the plan. THORR will work with the departments director to find consistent, active representation.		
Are there procedures (e.g., signing of MOAs, commenting on submitted progress reports, distributing meeting minutes, etc.) that can be done more efficiently?	✓	
Comments/Proposed Action: Again, the Department of Public Works has been unable to provide timely progress reports of its mitigation actions. Administrative duties and paperwork have fallen through the cracks since the department has been assigned numerous new duties in Hazardville's mitigation efforts. Perhaps the department, in partnership with THORR, should approach the Town Council for funding for more department staff.		
Are there ways to gain more diverse and widespread cooperation?	✓	
Comments/Proposed Action: THORR members believe that better publicity about mitigation actions will garner more interest from the public, affected/interested organizations, and state agencies.		
Are there different or additional resources (financial, technical, and human) that are now available for mitigation planning?	✓	
Comments/Proposed Action: THORR has learned about new PDM funding. The state has asked that local jurisdictions submit applications for brick and mortar projects and risk assessments studies.		

If the planning team determines the answer to any of these questions is “yes,” some changes may be necessary.



2. Review your planning process.

One of the first areas for the planning team to assess is the planning process itself. With a year of hindsight, you can now step back and see what you would have done differently had you known what you know today. Look at each of the key elements of your planning process, such as building the planning team, engaging the public, gathering data to conduct your risk and capability assessments, and coordinating with other agencies, and determine how well they worked. The following are some suggested questions to ask:

a. Building the Planning Team. In continually building your planning team, have you left anyone out? Are there roles that need to be clarified or better defined? Has the planning team met as agreed upon? Have meetings been productive? Are procedures for implementing, monitoring, and evaluating the plan being followed? Are the lead agency and staff still able to play the lead? Again, Worksheet #2 will help with this task.

b. Engaging the Public. When looking at public involvement, you may need to conduct a survey to gauge how the public perceived your planning effort. Determine whether stakeholders and citizens felt that they had enough opportunities to provide input; the extent to which they are now aware of their hazards and are willing to support your efforts; what they think of the progress you are making; and whether outreach efforts—public meetings, workshops, Web site, newspaper notices, etc. were effective. Ask them what they would like to see done differently to involve them or keep them informed. In many cases, this may be a matter of simply asking residents if they now understand what hazards they are susceptible to, and what “hazard mitigation” means to them.

c. Data Gathering and Analysis. Are data gathering procedures working? Did someone follow up with the local university or other agencies to obtain research findings or reports that were not available during the planning process? Have team members provided copies of studies that their agencies or organizations completed? Are there more efficient methods of collecting data and maintaining up-to-date information from established sources?

Evaluating Public Involvement in Hazard Mitigation



Surveys are a good tool to assess how well your public education and outreach projects are working, how the community perceives your hazard mitigation planning efforts, and to obtain feedback on proposed mitigation actions. Following are a few sample questions to ask:

- Do you have a greater understanding of the hazards to which you are susceptible? On a scale of 1-5 (1=very little; 5=a great deal), how much more do you know than you knew before planning efforts began?
- Do you now have a greater understanding of what you and your community can do to lessen the effects of natural hazards? (1=very little; 5=a great deal)

- d. Coordinating with other Agencies.** How well did coordination work? Did agencies have sufficient notice for meetings? Did they have enough time to review the draft plan? Have agreements been followed? Do MOAs need to be revised, due to changes in funding, priorities, staffing, or other events?

Look at what worked and what didn't as you prepared and implemented the plan, and identify ways to improve the process.

Task B. Evaluate the effectiveness of your actions.

Measuring the effectiveness of your programs, policies, practices, and projects is another important element of your evaluation. If your plan called for strategies with a relatively short implementation time frame, their overall success can be evaluated if they have been completed. Additionally, you can assess actual losses avoided as a result of projects implemented following a disaster. Most mitigation projects, however, are done gradually, as resources and conditions allow. The progress to date of these projects can therefore be evaluated by reviewing whether the project is on time, in line with the budget, and moving ahead as planned. Now is the time to gather data to assess your progress toward meeting your objectives, and ultimately meeting your plan goals. This is also a good time to pull together the progress reports agencies submitted to you periodically. These will enable you to answer the questions that follow and help your planning team evaluate how effective the mitigation projects and actions have been. Use **Worksheet #3: Evaluate Your Project Results** to assist you in completing this task.

1. What were the results of the implemented actions? Did the results achieve the goals/objectives outlined in the plan? Did the actions have the intended results?

Review the goals and objectives of your plan. Be able to show how (or whether) the project met the objective it was designed to achieve. This is where you can measure the results of the project against the identified indicator of success.

Sometimes projects have unintended results, which can be good if they provide an extra benefit to the state or community, or not as good if they did not achieve or protect everything to the extent planned. Examples of unintended results can extend to environmental, social, or economic impacts.



If you received federal funds

for the project, you have been submitting quarterly reports to the responsible agency on

its progress. These quarterly reports will be very helpful in showing the project's current status, such as percentage complete, total project costs obligated versus amount spent, problems with implementation, and anticipated completion date.



Project Name and Number:

Raging River Views Park Flood Acquisition Project (HVMP-2003-01)

Project Budget:

\$360,000

Project Description:

Acquisition and demolition of 14 flood-prone structures

Associated Goal and Objective(s):

Goal: Minimize losses to existing and future structures within hazard areas

Objective: Reduce potential damages to the manufactured home park in the floodplain

Indicator of Success (e.g., losses avoided):

Losses avoided by acquisition and demolition of flood-prone structures



Town of Hazardville Composite Loss Map developed previously during risk assessment (see FEMA 386-2).

Was the action implemented? ☒ YES ☐ NO

IF NO

Why not?

Was there political support for the action?

Were enough funds available?

Were workloads equitably or realistically distributed?

Was new information discovered about the risks or community that made implementation difficult or no longer sensible?

Was the estimated time of implementation reasonable?

Were sufficient resources (for example staff and technical assistance) available?

YES NO

☐ ☐

☐ ☐

☐ ☐

☐ ☐

☐ ☐

☐ ☐

IF YES

What were the results of the implemented action?

Of the 14 proposed properties, 10 were acquired. The benefit-cost ratio is 2.19, based on project benefits of \$789,000 and costs of \$360,274. Benefits are based on the net present value of the avoided damages over the project life. Furthermore, about 40 people are no longer in the path of a potential flood, making emergency rescue operations in that area less likely and evacuation easier.

page 2 of 2

	YES	NO
Were the outcomes as expected? If No, please explain:		
The project originally set out to acquire 14 properties. Four of the 14 owners did not want to participate in the buyout program.		
Did the results achieve the goal and objective(s)? Explain how:		
Despite four properties still in harm's way, the objective has been largely met. See additional comments.		
Was the action cost-effective? Explain how or how not:		
The FEMA Limited Data module was used to perform the benefit-cost analysis. Data for the analysis was collected from historical flood data and used as benchmarks in the before mitigation section of the analysis. The damages after mitigation section was left blank, due to the properties being permanently acquired, and the economic risk removed completely. The analysis resulted in a benefit-cost ratio of 2.19, with benefits totaling \$789,000 for 10 properties.		
What were the losses avoided after having completed the project?		
Total avoided losses are \$789,000 over the lifetime of the project (estimated at 100 years).		
If it was a structural project, how did it change the hazard profile?		
N/A		
Additional comments or other outcomes:		
The Planning Department has agreed to work with the remaining four homeowners in evaluating other flood-proofing options.		

Date: **October 12, 2005**

Prepared by: **Hazardville Department of Economic Development**
Hazardville Department of Planning



Sample Indicators to Measure Progress in Reducing Risk

There are a variety of ways to measure effectiveness of mitigation actions. You can look at dollar amounts in losses avoided, both expected (prior to implementing a project) and actual (following a disaster). You can also look at how the mitigation actions have changed the number of households, businesses, critical facilities, and environmental assets that are at risk. Some other indicators are listed below.

For more on indicators, see the publication *Hazard Mitigation in North Carolina: Measuring Success*, Chapter 6 available online at http://www.dem.dcc.state.nc.us/Mitigation/Library/Success_Stories/Measuring_Success_Vol2/Chapter6.pdf.

Housing	Business
Number of households living in unsafe areas.	Number of businesses in unsafe areas.
Number of households living in structures that are vulnerable to natural hazards.	Number of businesses in unsafe structures.
Number of repetitively damaged houses.	Number or percentage of businesses that have purchased adequate insurance to cover property casualty, fire, liability, loss of revenue, and flood damage.
Losses avoided as a result of the implementation of acquisitions.	
Losses avoided as a result of the implementation of elevations-in-place.	Number or percent of businesses that have conducted a business impact analysis, and have developed and implemented a business risk reduction plan.
Infrastructure and Critical Facilities	Environment
Number of infrastructure elements – water supply, roads, bridges, sewerage, telecommunications, port facilities – that are located in areas that are hazard-prone.	Number of unsafe land use activities that take place in the 100-year floodplain or in environmentally sensitive areas.
Number of repetitively damaged infrastructure elements.	
Number of critical facilities – hospitals, emergency operations centers, police and fire stations, schools – that are located in areas that are hazard-prone.	Number of commercial or industrial facilities in the 100-year floodplain that have undertaken structural or non-structural mitigation measures.
Number of repetitively damaged critical facilities.	

Source: *Hazard Mitigation in North Carolina: Measuring Success*, February 2000.



2. Were the actions cost-effective? Did (or would) the project result in the reduction of potential losses?

It is not always enough to say whether an action was generally effective or not, especially when considering publicly funded projects. This is particularly true for mitigation actions that may require a subsequent hazard event to truly determine effectiveness. Absent an event, the potential losses avoided can be estimated for most “brick and mortar” mitigation projects. The term “brick and mortar” mitigation actions in this context refers to projects such as retrofit, acquisition, demolition, or relocation, and flood works such as levees, dams, and floodwalls.

One of the most important indicators to evaluate the effectiveness of mitigation actions undertaken by the state, tribe, or community is **Losses Avoided**. This indicator provides a dollar value estimate of the structural, content, and displacement costs that would have occurred if the mitigation action were not taken. The losses avoided are most easily estimated for structural mitigation actions. Surveys and qualitative statements may have to suffice as indicators for educational or regulatory actions and to address other objectives that may be associated with specific mitigation actions.

If the cost-effectiveness of the hazard mitigation projects implemented was originally determined by benefit-cost analyses (BCA), the planning team may consider reviewing the old BCA to determine whether the costs and benefits were close to what was estimated, or whether there were unforeseen costs or benefits. The point of revisiting the BCA is to re-calculate what losses would actually be reduced if the event were to occur. If possible, repeat relevant portions of the risk assessment to see if the project reduced potential losses. If HAZUS was used to develop the initial loss estimate, you may want to re-run it using the post-project results.

An initiative that did not have a BCA performed still can be objectively evaluated for its cost-effectiveness. Projects that do not lend themselves to benefit-cost analyses (e.g., education and outreach campaigns) or those projects where public values and ethical considerations ended up weighing more heavily on the final selection of an action than the results of a BCA, may require other methods, such as surveys, to gauge their effectiveness.

Whether you used BCA or other defensible methods to determine the cost-effectiveness of your actions, remember to document your results. Citizens, as well as state, local, and federal officials, will want to know of the losses avoided or benefits gained from your



Displacement Costs

The dollar amount it would cost for a function (business or service) to be relocated to another structure because of a hazard event. In the case of residents, this would be the cost to relocate individuals or families to temporary housing.



Cost-effectiveness is a key

evaluation criterion for federal grant programs. Cost-effectiveness has several possible definitions, although for grant-making purposes FEMA defines a cost-effective project as one whose long-term benefits exceed its costs. An easier way to say this is that a project should prevent more expected damages over the course of its effective “life” than it costs to fund the effort. This is done to ensure that limited public funds are used in the most efficient manner possible. Benefit-cost analysis is one way to illustrate that a project is meritorious and deserves funding.



Be sure to stay in touch

with your state on a regular basis to ensure that you remain aware of any changes to state mitigation goals or priorities. Similarly, states must communicate such changes to all localities.



implemented actions. Let them know that their tax dollars are being well spent.

3. Document actions that were slow to get started or not implemented.

It is important to include a discussion of why certain actions were slow in getting underway, never finished, or didn't get started at all. The project may have been delayed or removed from the list of actions because of an unforeseen problem with the implementation. In the case of an elevation, acquisition, or relocation project, for example, the voluntary nature of the program gives the homeowner or business the right to change their minds *at any time*, all the way up to just before the physical work on the project begins or any financial compensation has been received.

Task C. Determine why the actions worked (or did not work).

After verifying that an action was or was not implemented and its overall results, the planning team should try to document why the action worked or did not work. If a mitigation activity or project was unsuccessful, it is important to ascertain why so that more appropriate alternatives can be developed next time. If a mitigation project ends up being only partially implemented, it is important to get to the root cause, such as exceeding the budget. On the other hand, be sure to evaluate and document what did work successfully, and why. Understanding the factors that contributed to the success of a project, program, or policy is particularly important when you want to replicate or expand it. Use **Worksheet #3** to complete this task.

Be sure to publicize

this information to other communities within the state. Don't be shy about it, either—let other states and FEMA know about your successes! If possible, also communicate caveats and warnings as a result of less positive outcomes. Everyone will benefit from lessons learned.



Several considerations to examine include:

- Availability of resources;
- The political or popular support for or against the action;
- The availability of funds;
- The workloads of the responsible parties; and
- The actual time necessary to implement the actions.





After a Disaster Strikes

If a disaster strikes after you have completed your hazard mitigation plan, don't let the document sit on the shelf—it is a valuable resource for the long-term recovery and reconstruction of your community. The initial period following a disaster can be very chaotic. So many issues require attention that any thoughts of long-term recovery are crowded out by immediate recovery efforts. Critical life and safety issues come first: search and rescue operations, treating the injured, re-establishing vital public services, and providing emergency shelter. But once the task of clearing debris is well underway, community decision-makers need to shift their attention to long-term recovery. This is the opportunity to reconvene the mitigation planning team and evaluate the list of hazard mitigation priorities in light of the recent disaster.

Critical policy issues that emerge following disasters require local governments to make difficult decisions about how best to rebuild. Disaster victims have an inherent desire to rebuild rapidly and return to normal—to the way things were before the disaster. Communities, however, must balance this need against the objective of building back better and stronger, and use the opportunity of the disaster to improve the community's disaster resilience. Pressure to restore normalcy can be so strong that safety, hazard mitigation, and community improvement goals can be compromised or abandoned. Communities have a very short period of time to introduce, and gain acceptance of, new approaches to reconstruction. The mitigation plan will provide an excellent foundation for introducing these new approaches.

The diagram on the following page shows how a disaster triggers the need to re-evaluate all aspects of the mitigation planning process to determine if changes are now warranted.

1. What opportunities for hazard mitigation are presented in light of the disaster damages?

If the hazard mitigation plan included a post-disaster recovery and reconstruction component to the implementation strategy, this section of the plan should be the initial focus for the recovery task force. Did the plan anticipate the type and intensity of disaster damages that actually occurred? Are there “off-the-shelf” mitigation actions that are relevant for this recovery effort? Are there other priority hazard mitigation actions that have not been implemented due to a lack of available resources?

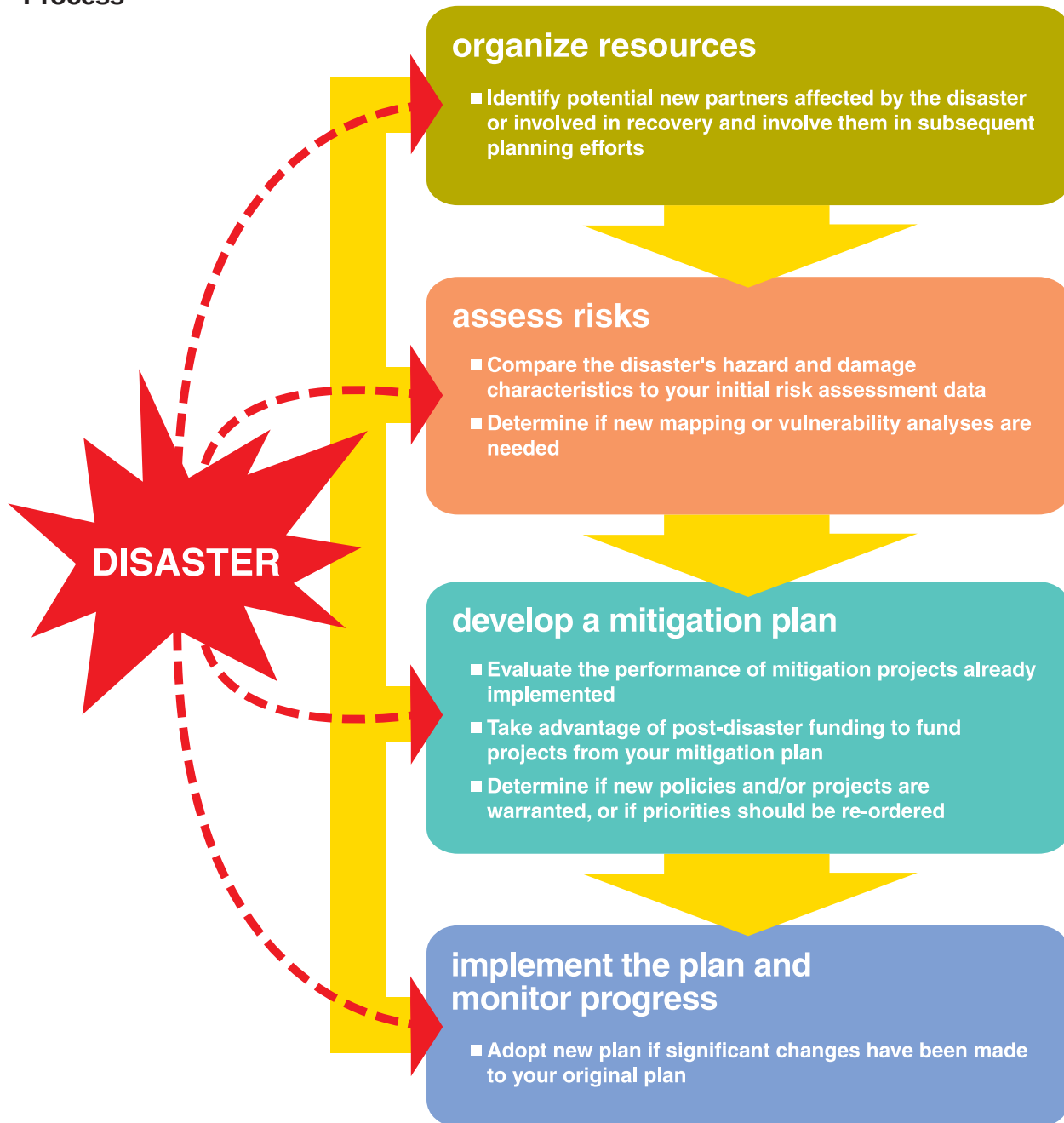
(continued on page 3-13)

Identifying potential mitigation

projects in a post-disaster scenario is the highest priority task for the planning team or recovery task force and the most time sensitive one. In a major disaster that has a presidential declaration, make sure that the SHMO and FEMA mitigation staff working out of the Disaster Field Office (DFO) have a copy of the hazard mitigation plan and have a clear understanding of community priorities for potential mitigation actions. State and federal mitigation planning staff can provide technical assistance to your community if necessary.



**After a Disaster:
Re-evaluate Your
Mitigation Plan and
the Planning
Process**





Applying for HMGP Funding

The purpose of the HMGP is to reduce the loss of life and property from natural disasters and enable mitigation actions to be implemented during the recovery process following a presidential disaster declaration.

Eligibility. Individual homeowners and businesses are not eligible, but a community may apply on their behalf. State governments, tribes and other tribal organizations, and certain nonprofit organizations are eligible, in addition to local governments.

Project possibilities. All eligible projects must provide a long-term mitigation solution. Additionally, a project's potential savings must be more than the cost of implementation. Funds may be used to protect either public or private property. Examples of possible projects include, but are not limited to: property acquisition and relocation/demolition, retrofitting of structures to minimize damage from natural hazards, elevation of flood-prone structures, and development and initial implementation of vegetative management programs. In addition, hazard mitigation planning initiatives are also eligible.

States prioritize and select project applications; however, all potential projects must meet certain minimum criteria addressing five issues:

1. Does the project conform to your State's Hazard Mitigation Plan?
2. Will the project beneficially impact the disaster area?
3. Does the application meet federal environmental requirements?
4. Does the project solve a problem independently?
5. Is the project cost-effective?

After a disaster declaration, the state will advertise the availability of HMGP funding and provide guidance on eligibility criteria. If you are interested in applying, you should contact the SHMO to find out about the application deadline and about the state's funding priorities.

Choosing a project and submitting your application. Consider your list of potential projects, and then choose the project that conforms to the state's priorities, meets all of the minimum criteria, and can be adequately funded (25% of the total cost). For additional information, contact your SHMO or the FEMA Mitigation Division in your Region, or visit FEMA's Web site at <http://www.fema.gov/fima/hmmp>. FEMA 345 (*Hazard Mitigation Grant Program Desk Reference*) contains more information as well.

Federal and state agencies

may have collected enough information from various sources to determine the reoccurrence interval for the recent event. This indicates the severity or degree of magnitude of the event. Technical assistance may be available to survey high-water marks (in the case of flooding) or to conduct a building performance assessment. Knowing the reoccurrence interval for the hazard will help you reevaluate the accuracy of the hazard information in the current plan. To do this for a flood, for example, you would compare the extent of the actual flooding to existing flood maps to determine whether the maps accurately portray the true hazard scenario.



(continued from page 3-11)

2. Following the initial recovery phase, re-evaluate the hazard profiles and vulnerability assessment.

Did the hazard information presented in the plan reflect the location, intensity, and duration of the recent event? There may be a need to collect additional data regarding the event and incorporate that information into the vulnerability assessment.

3. Following a disaster is a good time to evaluate the results of implemented projects.

How well did your mitigation actions perform? The best time to measure losses avoided is in the aftermath of a recent disaster, when you can actually see the difference that mitigation actions made. For example, if a house was protected from a flood because it was elevated above the Base Flood Elevation (BFE) before a disaster occurred, it should be relatively easy to obtain the actual flood height and determine what kind of damages would have occurred if the house had not been raised. Louisa County, Iowa, and Long Beach, Mississippi, illustrate the losses avoided due to flood mitigation actions implemented after floods in 1993 and 1998, respectively.

(continued on page 3-15)



Louisa County, Iowa

In 1993, a severe flood occurred in Louisa County, located along the Mississippi River, resulting in damage to more than 275 homes and the evacuation of nearly 200 families. Following this flood event, the County used both acquisition and relocation of affected properties to mitigate future flooding problems. In May 2001, the flood pattern of 1993 repeated itself, and the Mississippi River and its tributaries flooded Louisa County yet again. By comparing calculated damages from the 1993 flood to the 2001 flood, the effectiveness of the acquisition and relocation program could be measured. As shown in Tables 1 and 2 below, significant reductions in emergency shelter, family assistance, and public assistance expenditures were realized in 2001 as a result of the acquisitions and housing relocations that occurred in the aftermath of the 1993 flooding.

Furthermore, Table 3 shows the losses avoided as a result of the housing acquisitions that occurred. If Louisa County had chosen not to take any action following the 1993 flood, potential property damage to these structures in the 2001 flood would have exceeded one million dollars. Calculation of reduction in public assistance expenditures and losses avoided as a result of proactive mitigation can further highlight the value of hazard mitigation planning efforts to concerned citizens, local and federal governments, and potential funding agencies.

Table 1. Emergency Shelter and Family Assistance in Louisa County

	1993	2001
Number of families evacuated and temporarily sheltered due to displacement	200	11
Number of Red Cross cases (individuals requesting post-disaster assistance)	800	3
Disaster Housing Assistance (FEMA)	\$742,500	\$0

Source: Hazard Mitigation in Iowa: Measuring Success, FEMA 2003 (unpublished)

Table 2. Public Assistance Expenditures, 1993 and 2001 (2001 values)

		1993	2001
A	Debris Clearance	\$542,215	\$0
B	Emergency Protective Measures	\$44,367	\$0
C	Roads and Bridges, Culverts, Ditches	\$2,941	\$0
D	Water Control Facilities & Levees	\$0	\$0
E	Public Buildings & Contents	\$0	\$0
F	Utility Distribution Systems	\$0	\$0
G	Public Parks	\$0	\$0
H	Total Public Assistance	\$589,523	\$0

Source: Hazard Mitigation in Iowa: Measuring Success, FEMA 2003 (unpublished)

Table 3. Losses Avoided from Acquisition of Flood-Prone Properties in Louisa County, Aggregated by Building, Contents, Displacement, and Total for the Spring, 2001 Flood (DR-1367)

Depth of Flooding (Feet)	Avoided Losses to Buildings	Avoided Losses to Contents	Avoided Displacement Costs	Total
0	\$24,672	\$11,103	\$0	\$35,775
1	\$319,533	\$143,790	\$82,500	\$545,823
2	\$386,880	\$174,096	\$126,500	\$687,476
Total	\$731,085	\$328,989	\$209,000	\$1,269,074

Source: Hazard Mitigation in Iowa: Measuring Success, FEMA 2003 (unpublished)





Long Beach, Mississippi

Located along the Gulf of Mexico, the coastal city of Long Beach, Mississippi, has been affected by seven hurricanes and repetitive flooding, often as a result of spring storms. In addition to its vulnerability to flooding because of its coastal location, the City also suffered from poor drainage, resulting from three poorly maintained drainage channels. While these channels were better managed in the 1980s, the City, and particularly the areas around the canals, is still plagued by poor drainage. Following Hurricane Georges in 1998, the City began to take a proactive approach to flood damages, and identified 95 properties, many of them repetitive loss properties located adjacent to the canals, for an acquisition and demolition program. This long-term acquisition project had an estimated cost of \$7.7 million (see Table 1), with a portion of the funding coming from the Hazard Mitigation Grant Program. In 2001, midway through the acquisition and demolition project, Tropical Storm Allison struck the Gulf Coast. The storm caused an overflow from the drainage system, which flooded the neighborhoods located near the canals. Because 44 homes had already been purchased and demolished prior to the storm, the losses avoided from this single flood event were estimated to be \$690,033 (see Table 2). This figure only represents the losses avoided to houses, their contents, and displacement costs. It does not include the additional savings to the local government in emergency services and disaster assistance costs that would have been incurred had families remained in the floodplain. By combining much-needed improvements to its drainage system with the acquisition of many repetitive loss properties, the City of Long Beach shows that mitigation projects can lead to substantial savings for the local government and affected communities.

Table 1: Estimated Costs for Acquisition of 95 Properties in the City of Long Beach for the Master Watershed Plan

Item	Total Cost
Acquisition of Properties	\$6,578,924
Relocation Pay to Tenants	\$ 52,000
Demolition of Properties	\$ 918,065
Fees for Appraisals and Legal Assistance	\$ 171,000
Total	\$7,719,989

Source: Hazard Mitigation in Mississippi: Measuring Success, FEMA 2003 (unpublished)

Table 2: Losses Avoided during Tropical Storm Allison from Acquisition of 44 Flood-Prone Properties in the City of Long Beach, MS

Item	Total Cost
Estimated Avoided Losses to Buildings	\$502,917
Estimated Avoided Losses to Contents	\$ 85,826
Estimated Avoided Displacement Costs	\$101,290
Total	\$690,033

Source: Hazard Mitigation in Mississippi: Measuring Success, FEMA 2003 (unpublished)

(continued from page 3-13)

4. Depending upon the severity of the recent disaster, it may be necessary to re-evaluate the range and priority given to specific hazard mitigation actions.

Should the priority ranking of mitigation actions be re-evaluated given the type and intensity of the recent event? If the hazard event was not anticipated or given a low priority as a goal or objective, there may be a need to go through another round of identifying and prioritizing hazard mitigation actions for your community.

5. Consider including a special section in your mitigation plan devoted to post-disaster issues.

Many mitigation policies or projects are not politically or economically viable until after a disaster. Thinking through post-disaster operational and policy issues in the pre-disaster time frame enables your community to delve into these often emotional subjects in the relative luxury of a non-disaster scenario. FEMA 321, *Planning for Post-Disaster Recovery and Reconstruction*, provides more details.



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

Project implementation brings the community's hard work to fruition. The planning team should be sure to keep all stakeholders in the community informed of the progress of the projects. Ways to engage the community may include staging events to showcase your accomplishments or taking advantage of media opportunities to publicize the completion or significant steps of specific projects. Refer to *Getting Started* (FEMA 386-1) for additional ways to communicate your success to the community.

Summary

The evaluation phase of the planning process helps your planning team determine whether its planning process and recommendations have been effective, and if your community's goals are being reached. Systematically evaluating the plan keeps your community informed and hopefully motivates those responsible for implementing the mitigation actions.

After you have evaluated your actions to determine what worked and did not work, go to Step 4, *Revise the Plan*, in which you will use the evaluation results to revise the hazard mitigation plan.



Local and state agencies

should keep in contact with each other about the progress of their mitigation actions. Each

entity should update its risk assessment data using this information. Agencies responsible for maintaining the state and local plans should update their plans accordingly, as well.

Methods of communicating with constituents during implementation of the recommended projects and programs include:

- Write a newsletter to provide details on projects;
- Create 15- or 30-second public service announcements and send them to local broadcasters;
- Work with your local news or public access cable station feature a news story about your efforts;
- Hold an annual event honoring local people who have contributed to hazard mitigation projects;
- Develop a Web site to post news articles, meeting notices, and event notices; and
- Establish a speaker's bureau to talk to schools, business groups, and other organizations about mitigation.

The Hazardville Post

Vol. CXVI No. 272

Friday, September 29, 2006

Town Hall Retrofit Called a “Money Pit”

(Part 3 of a 4-Part Series on the Hazard Mitigation Implementation Process)

[Hazardville, EM] In response to a complaint about the progress of the seismic retrofit project of the historic Hazardville Town Hall, the Hazardville Board of Supervisors recently held an informal hearing on the matter. The retrofit, begun under Hazardville’s initiative to become more disaster resistant and overseen by the Town of Hazardville Organization for Risk Reduction (THORR), is now estimated to have cost taxpayers about double the original projected cost.

When asked about the escalating costs, Joe Norris, lead planner of THORR, commented that the overruns could be attributed to misjudgments THORR had made about the extent of repairs that the building needed. “We didn’t realize the ex-

tent of work that would have to be done to bring the building up to current code, much less to be seismically resistant.” Norris explained that much of the work had nothing to do with seismic standards. “Not only did the contractor discover asbestos-based insulation and ceiling tiles on the first floor where most of the work was to be done, but he also found lead-based paint on pipes that had not been removed during renovation in the late 1960s. These factors were not considered in our original project estimates, but they had to be addressed in the retrofit in order to comply with local, state, and federal laws,” Norris said.

Board of Supervisors Chairperson Seymour Hale likened the building

retrofit to a “money pit,” saying that THORR should have done its homework. Norris agreed, “As soon as we found out about these unexpected costs for the project, we began to re-evaluate all of our other projects to keep this from happening again. It seems that we placed a huge amount of work on our local building inspector. He had a tremendous work load, and did not have enough time to do in-depth investigation into some of the buildings before work began.” When asked how THORR planned to remedy this problem, Norris replied, “We are still in the process of evaluating our other hazard mitigation projects and will submit our findings to the Board by the end of the month.”

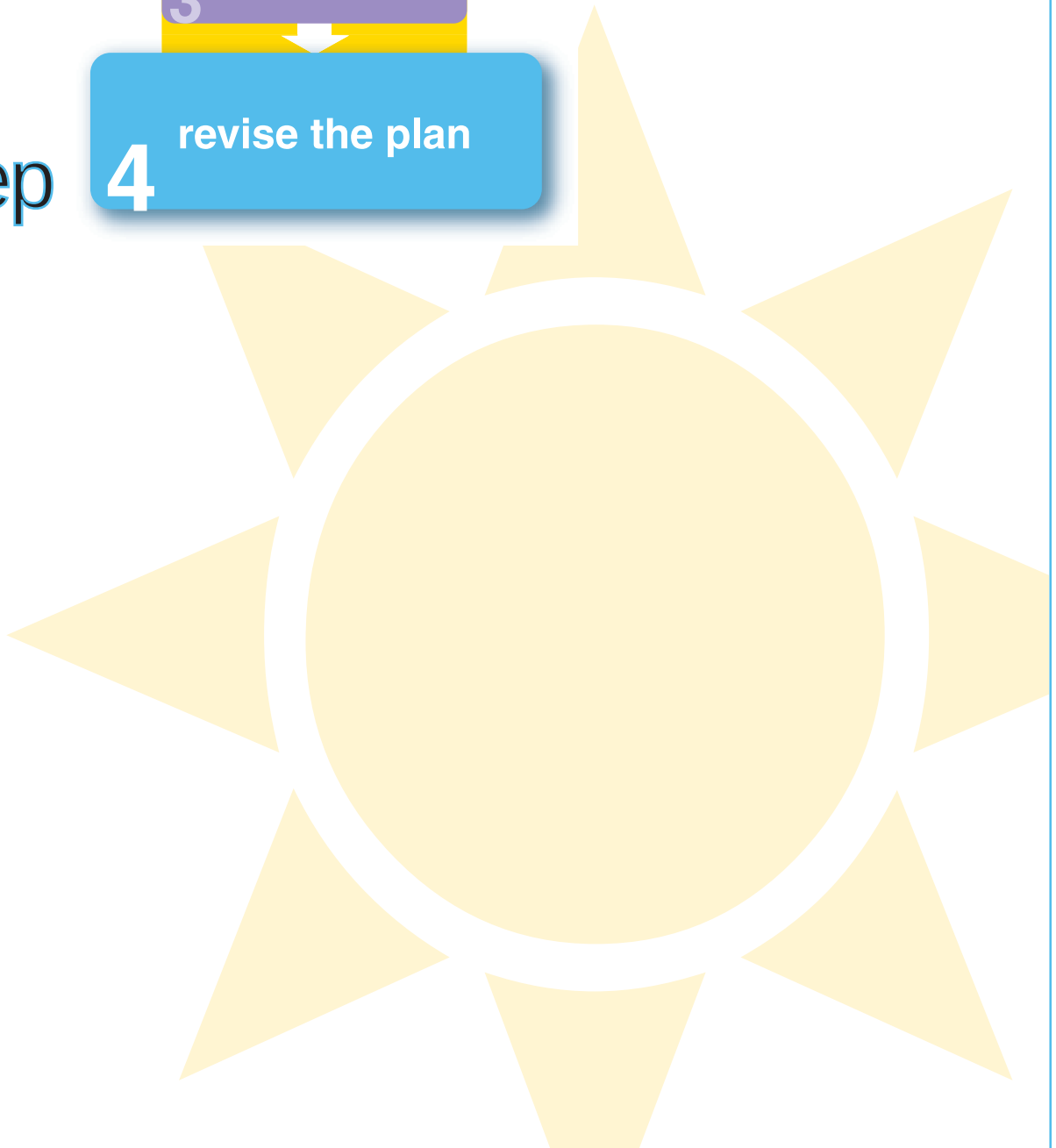




step

4

revise the plan



revise the plan

Overview

The final step in the mitigation planning process is to determine whether you need to make changes to the planning process or the mitigation plan. You will start with an evaluation of the factual underpinnings of the mitigation strategy: the risk assessment and the capability assessment. Using the results of the evaluations of the process and projects completed in Step 3, and taking into consideration the factors to be discussed under Task A below, you will determine whether you need to revise or update your mitigation plan or planning process.

The frequency of conducting a plan evaluation depends upon the speed and the intensity at which changes are occurring. For example, if your community is experiencing significant growth, or if you have experienced recent or frequent hazard or disaster events, this evaluation may have to be conducted more frequently. *Keep in mind, however, that DMA 2000 regulations require that local plans be reviewed and updated at least every five years, and state plans at least every three years, for a state or jurisdiction to remain eligible for assistance.*

Procedures & Techniques

Planning is an ongoing process, and your plan should be treated as a living document that must grow and adapt in order to keep pace with the community's growth and change as these issues affect hazard vulnerability, and with changes that may be external to the community but that affect the planning process. An annual "scan of the horizon" should be done, so that emerging trends in data availability or collection, land use and development, technology, and other factors can be documented. Just prior to the three- or five-year point, these annual observations should be evaluated to determine what types of changes should be made to your planning process and to the plan document. The results of your evaluations should be re-programmed back into each phase of the planning process and should yield decisions on how (or whether) to update each section of your plan.



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

Evaluating the following factors will help you determine what changes to the plan document are warranted. Extensive or widespread changes in any one of these categories may signal a need to reconsider some or all of your plan's fundamental assumptions.

1. Revisit the risk assessment to incorporate updated estimates of cost of living and replacement costs, new scientific data on hazard areas, the effect of hazards on the community, changes in growth patterns, and, particularly, reductions in vulnerability due to completion of projects.

Use **Worksheet #4: Revisit Your Risk Assessment** to complete this task. See *Understanding Your Risks* (FEMA 386-2) to review information on hazards and estimating losses.

- **Shifts in development.** The planning team should determine whether there are changes in development patterns that could influence the effects of hazards in your community or create additional risks. One common example of this is when upstream growth in a given watershed affects flood characteristics downstream in your community. For example, in Hazardville, coastal development caused the Planning Department to undertake a coastal development plan. The effects of erosion, wave action, and tidal surge hazards will be considered in this development plan, and corresponding policies and/or mitigation projects should be considered.
- **Areas affected by recent disasters.** Recent hazard events or disasters can provide new information about the ways in which your community can be affected. Compare the effects of the event against what the loss estimation analysis led you to expect.
- **New studies or technologies.** What have recent hydrologic, watershed, traffic, or demographic studies revealed about your community? Studies such as these may provide additional information about your community. You already should be continually researching mitigation techniques to discover whether new technologies or methods are being used.



- **Re-estimate losses.** For projects that have not yet been implemented, any new information the planning team has gathered should be used to recalculate losses or revise the benefit-cost analysis originally prepared. See *Understanding Your Risks* (FEMA 386-2) for the methodologies and considerations used to estimate losses.

2. Revisit your capability assessment to determine changes in laws, authorities, community and state resources, and availability of financial and technical tools that may affect what you can do.

Additionally, political will and priorities can change with the election cycle. See *Developing the Mitigation Plan* (FEMA 386-3) for more information on how to update your capability assessment.

- **Changes in community, state, or federal laws, policies, plans, or funding.** The strengthening, relaxing, or addition of land use, environmental, or other government regulations may present additional challenges or opportunities to the community.
- **Changes in the socioeconomic fabric of the community.** Broad social transformations often have repercussions on the community's sequence of mitigation priorities and the implementation of projects. Recessions, booming economies, cost of living increases, changes in the political climate, demographic shifts, or environmental justice issues may have some influence on the way mitigation is executed in your community. On a smaller scale, changes within the community, such as the departure of a large employer, may alter the socioeconomic balance.
- **Other changing conditions.** Have the successes achieved over the past few years created a political environment that may allow the planning team to propose a new mitigation initiative that would not have had the political support necessary earlier?



The review process
can be easier if you keep up
with annual reports.



Risk Assessment Steps	Questions	YES	NO	COMMENTS
Identify hazards	Are there new hazards that can affect your community?		✓	
Profile hazard events	Are new historical records available?		✓	
	Are additional maps or new hazard studies available?	✓		Recently completed maps and studies showing vulnerability of the new coastal development to erosion and tidal surge are available.
	Have chances of future events (along with their magnitude, extent, etc.) changed?		✓	
	Have recent and future development in the community been checked for their effect on hazard areas?	✓		
Inventory assets	Have inventories of existing structures in hazard areas been updated?	✓		
	Is future land development accounted for in the inventories?	✓		The Planning Department is preparing a coastal development plan to ensure that any future development is set back far enough to be outside the erosion zones and the coastal high hazard areas. Current and future road configurations will also be studied to ensure adequate evacuation times before hurricane events.
	Are there any new special high-risk populations?	✓		Coastal residents and business owners.
Estimate losses	Have loss estimates been updated to account for recent changes?	✓		

If you answered "Yes" to any of the above questions, review your data and update your risk assessment information accordingly.



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

The planning team should use its new knowledge to identify the areas of the plan or planning process that should be changed. Some aspects of the planning process may warrant a briefer treatment the second time around, while others, because of additional knowledge or more readily available technical assistance, may warrant a more in-depth treatment.

Consider updating the goals, objectives, and actions in the plan.

One of the most important steps in plan revision is to update or refine the community's goals, objectives, and actions, particularly in light of experiences gained from implementing mitigation actions in the current plan. The planning team has undoubtedly learned something new about the state or community, the administration of government, or the value that the community places on certain objectives—all of which need to be included in a reevaluation of the strategies. As with every step in the planning process, updating goals and strategies should use consensus building and community-driven prioritization methods, which are explained in *Getting Started* (FEMA 386-1) and *Developing the Mitigation Plan* (FEMA 386-3).

Using the information gleaned in Step 3, and your results from Task B, the planning team should discuss what actions should be undertaken, reconsidered, or even eliminated, to further the plan's goals. This discussion should result in a preliminary list of alternative mitigation actions to incorporate into the update of the plan. As in any other step of the planning process, the community should be engaged in reviewing these alternatives. The planning team may choose to present these alternatives in a public forum at this stage or as part of the plan review process discussed in Task C. For more details on researching alternatives, see Phase 3, Step 2 of *Developing the Mitigation Plan* (FEMA 386-3).

Important questions to discuss with the team include the following:

1. Are the goals and objectives still applicable? Have any changes in the state or community made the goals or objectives obsolete or irrelevant?

Review the findings of changes in the community, including changes that your mitigation initiatives have brought, to determine whether you have met your goals and if they remain consistent with current conditions. If you determine that you need to add new



goals to the plan, see Phase 3, Step 1 of *Developing the Mitigation Plan* (FEMA 386-3) for formulating goal statements.

2. Do the plan's priorities correspond with state priorities?

Where applicable, make sure your actions are consistent with any changes to state priorities. You will continue to be aligned with state goals and priorities by doing this.

3. Do existing actions need to be reprioritized for implementation?

Now that you have implemented some of the actions, learned what works and doesn't, developed new actions, and discovered that some aspects of your community may have changed, you may need to reprioritize your actions. See *Developing the Mitigation Plan* (FEMA 386-3) for prioritizing methods.

4. Are actions appropriate for available resources?

Make sure that the community or state has enough resources to carry out the actions. You probably will have to research to find out what is currently available. Are past sources of funds still available? Are there new sources of funding that can be tapped? Are there new partnerships with nonprofit organizations or businesses that can be developed? What creative ways of implementing similar actions have other communities used? *Securing Resources for Mitigation Planning* (FEMA 386-9) covers these topics in greater detail.

In order to remain eligible

for disaster related funding, your updated local plan must be re-submitted to your state and/or FEMA Regional Office for review and approval every five years. State plans must be re-submitted to the FEMA Regional Office for review and approval every three years.

DMA

Task C. Incorporate your findings into the plan.

Include your most recent findings about the community, tribe, or state, your hazards and vulnerabilities, as well as the applicable original actions of the plan, into a revised plan. Update your description of the planning process to include the steps you took to revise the plan document and how you involved the public. Update the implementation strategy to identify who will be responsible for the new or revised actions, the time frame, and funding sources.

The revised plan must be reviewed by all stakeholders in the community for its validity, and proceed through a formal adoption process as required by local or state laws.

Use **Worksheet #5: Revise the Plan** to help you keep track of where the plan document may require revisions.



Worksheet #5**Revise the Plan****step 4**

page 1 of 4

Prepare to update the plan.*When preparing to update the plan:**Check the box when addressed:*

1. Gather information, including project evaluation worksheets, progress reports, studies, related plans, etc.	
Comments: THORR must work with the Department of Public Works to update their progress reports and stream maintenance plans. While the department has been effectively conducting their new duties, it has been unable to attend to administrative paperwork such as preparing progress reports and formally updating its standard operating procedures.	
2. Reconvene the planning team, making changes to the team composition as necessary (see results from Worksheet #2).	
Comments: Invited Habitat for Humanity to participate in THORR.	

Consider the results of the evaluation and new strategies for the future.*When examining the community consider:**Check the box when addressed:*

1. The results of the planning and outreach efforts.	
Comments: All but one of the the Raging River Views Park residents attended the design charette put on by the Department of Planning.	
<i>[Note: The information here only pertains to the one project highlighted in this guide. When actually completing the worksheet, you will reflect on all projects.]</i>	
2. The results of the mitigation efforts.	
Comments: The mitigation efforts have gone as planned, except the team was unable to obtain the cooperation of the remaining Raging River Views Park residents.	
<i>[Note: The information here only pertains to the one project highlighted in this guide. When actually completing the worksheet, you will reflect on all projects.]</i>	



3. Shifts in development trends.	✓
Comments: The continued unwillingness of the Council to adopt hazard-based zoning will continue to be an issue. The reauthorization and funding of the economic development program encourages development in hazard areas. Recent development along the coast has not taken into account coastal storm hazards.	
4. Areas affected by recent disasters.	✓
Comments: Coastal windstorms have continued to erode the hillside surrounding the lighthouse.	
5. The recent magnitude, location, and type of the most recent hazard or disaster.	✓
Comments: The spring coastal storm of 2002 was estimated by NOAA to have a 25-year recurrence interval and accelerated beach erosion in several areas.	
6. New studies or technologies.	✓
Comments: THORR is currently conducting a study to determine best mitigation methods for retrofitting historic structures in the downtown district.	
7. Changes in local, state, or federal laws, policies, plans, priorities, or funding.	✓
Comments: See #3.	



8. Changes in the socioeconomic fabric of the community.	✓
Comments: Most new residents along the coast are retired professionals and are new to the area.	
9. Other changing conditions.	✓
Comments: None	

Incorporate your findings into the plan.

When examining the plan consider:

Check the box when addressed:

1. Revisit the risk assessment. (See Worksheet #4)	✓
Comments: Acquisition of structures in the Raging River Views Park decreases the potential flood losses. Vulnerability assessment and loss data will be incorporated into the plan.	
2. Update your goals and strategies.	✓
Comments: N/A	
3. Recalculate benefit-cost analyses of projects to prioritize action items.	✓
Comments: N/A	



Use the following criteria to evaluate the plan:

Criteria	YES	NO	Solution
Are the goals still applicable?	✓		
Have any changes in the state or community made the goals obsolete or irrelevant?		✓	
Do existing actions need to be reprioritized for implementation?	✓		Staffing at the Department of Public Works is a high priority.
Do the plan's priorities correspond with state priorities?	✓		
Can actions be implemented with available resources?		✓	Need to identify funding for additional staff at the Department of Public Works.

Comments:

None

Summary

In order for the plan to remain a viable tool for your state, tribe, or community, you must regularly review your planning process and mitigation strategy. Communities are rarely static and new challenges will arise during every revision of the plan. Disasters also present a window of opportunity to evaluate the relative success of the mitigation plan. States, tribes, and communities should take advantage of funding that becomes available as a result of these events.

Revising the plan ensures it remains up-to-date and relevant, providing a good return on the time and resources invested in developing it.

The Hazardville Post

Vol. CXVII No. 16

Thursday, January 16, 2007

The Hazard Mitigation Planning Cycle Set to Begin Again

(Part 4 of a 4-Part Series on the Hazard Mitigation Implementation Process)

[Hazardville, EM] A strategic planning meeting to update the Hazardville Hazard Mitigation Plan was held Wednesday at the Town Hall. The Town of Hazardville Organization for Risk Reduction (THORR), continuing in its planning capacity, led the strategy session by explaining to the community the changes the town has undergone since the initial adoption of the plan in 2003.

The first meeting was to review the results of the community per-

ception survey and to discuss the status of the mitigation actions that were prioritized in the town's mitigation plan. "Overall, our residents now seem to be more aware of the hazards to which the town is vulnerable, and a large majority of the survey respondents knew what they could do to reduce their own vulnerability," said Joe Norris, lead planner for THORR. "With the exception of the Town Hall seismic retrofit project, we are proud to inform the community that our

projects are all progressing as scheduled and under budget."

"We promised to make this community a safer place to live and work, and we will continue to strive to achieve this for our community," Mayor McDonald said at a press briefing yesterday. "That promise means we must diligently prepare for and mitigate against the many hazards our community is vulnerable to. Accountability and diligence are key to making this a reality."





afterword

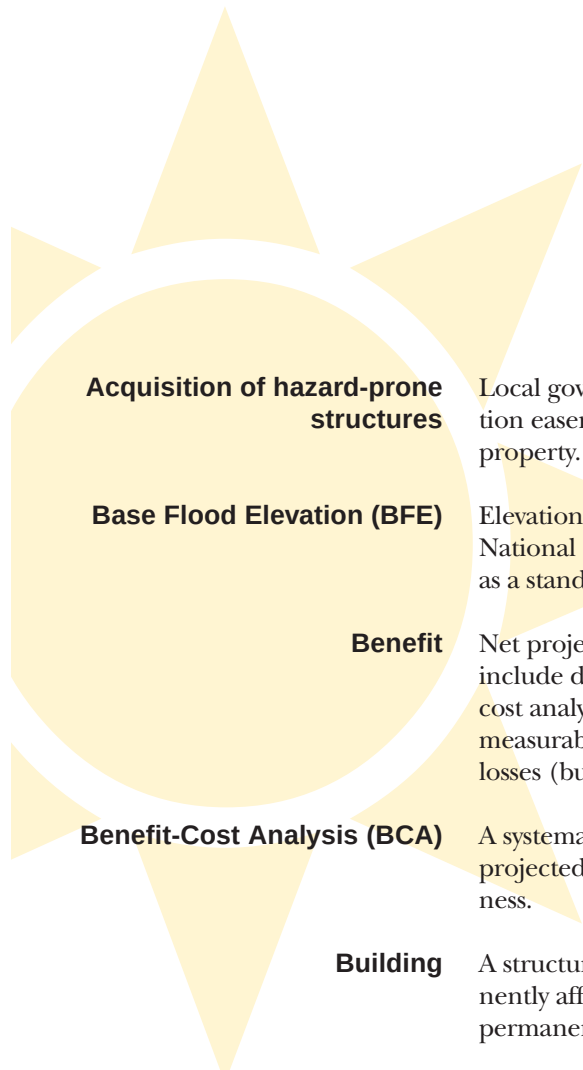
You have a mitigation plan. Now what?

The first plan your state, tribe, or community adopts establishes a baseline from which to measure progress. As you implement and evaluate actions, your knowledge of hazards and how to best reduce your vulnerabilities increases tremendously. In order to effectively monitor your progress, it is important to take advantage of the worksheets provided in the how-to series. Over time, new partners will become involved in the planning process, providing additional reservoirs of experience and support. Since the political and social arenas, as well as the natural environment, are continually changing, you must periodically revisit and update your plan. As your plan evolves over time, you should see a corresponding improvement in your state, tribe, or community's resilience to the damaging effects of disasters.





appendix a glossary



Acquisition of hazard-prone structures	Local governments can acquire lands in high hazard areas through conservation easements, purchase of development rights, or outright purchase of property.
Base Flood Elevation (BFE)	Elevation of the base flood in relation to a specified datum, such as the National Geodetic Vertical Datum of 1929. The Base Flood Elevation is used as a standard for the National Flood Insurance Program.
Benefit	Net project outcomes, usually defined in monetary terms. Benefits may include direct and indirect effects. For the purposes of conducting a benefit-cost analysis of proposed mitigation measures, benefits are limited to specific, measurable risk reduction factors, including a reduction in expected property losses (building, contents, and function) and protection of human life.
Benefit-Cost Analysis (BCA)	A systematic, quantitative method of comparing the projected benefits to projected costs of a project or policy. It is used as a measure of cost-effectiveness.
Building	A structure that is walled and roofed, principally above ground and permanently affixed to a site. The term includes a manufactured home on a permanent foundation on which the wheel and axles carry no weight.
Capability assessment	An assessment that provides a description and analysis of a community or state's current capacity to address the threats associated with hazards. The capability assessment attempts to identify and evaluate existing policies, regulations, programs, and practices that positively or negatively affect the community or state's vulnerability to hazards or specific threats.
Coastal zone	The area along the shore where the ocean meets the land as the surface of the land rises above the ocean. This land/water interface includes barrier islands, estuaries, beaches, coastal wetlands, and land areas with direct drainage to the ocean.
Community Emergency Response Team (CERT)	CERT is the mechanism to establish, train and maintain a local cadre of residents to act as first responders in the event of an emergency. A CERT team is especially critical in the first three days following a disaster when conditions may prevent access by emergency response personnel.
Community Rating System (CRS)	CRS is a program that provides incentives for National Flood Insurance Program communities to complete activities that reduce flood hazard risk. When the community completes specified activities, the insurance premiums of these policyholders in communities are reduced.



Comprehensive plan	A document, also known as a “general plan,” covering the entire geographic area of a community and expressing community goals and objectives. The plan lays out the vision, policies, and strategies for the future of the community, including all of the physical elements that will determine the community’s future development. This plan can discuss the community’s desired physical development, desired rate and quantity of growth, community character, transportation services, location of growth, and siting of public facilities and transportation. In most states, the comprehensive plan has no authority in and of itself, but serves as a guide for community decision-making.
Cost-effectiveness	Cost-effectiveness is a key evaluation criterion for federal grant programs. Cost-effectiveness has several possible definitions, although for grant-making purposes FEMA defines a cost-effective project as one whose long-term benefits exceed its costs. That is, a project should prevent more expected damages than it costs initially to fund the effort. This is done to ensure that limited public funds are used in the most efficient manner possible. Benefit-cost analysis is one way to illustrate that a project is cost-effective.
Critical facilities	Facilities vital to the health, safety, and welfare of the population and that are especially important following hazard events. Critical facilities include, but are not limited to, shelters, police and fire stations, and hospitals.
Debris	The scattered remains of assets broken or destroyed in a hazard event. Debris transported by a wind or water hazard event can cause additional damage to other assets.
Disaster Mitigation Act of 2000 (DMA 2000)	DMA 2000 (Public Law 106-390) is the latest legislation to improve the planning process. Signed into law on October 30, 2000, this legislation reinforces the importance of mitigation planning and emphasizes planning for disasters before they occur.
Earthquake	A sudden motion or trembling caused by a release of strain accumulated within or along the edge of the earth’s tectonic plates.
Elevation of structures	Raising structures above the base flood elevation to protect structures located in areas prone to flooding.
Emergency response services	The actions of first responders such as firefighters, police, and other emergency services personnel at the scene of a hazard event. The first responders take appropriate action to contain the hazard, protect property, conduct search and rescue operations, provide mass care, and ensure public safety.
Federal Emergency Management Agency (FEMA)	Agency created in 1979 to provide a single point of accountability for all federal activities related to disaster mitigation and emergency preparedness, response, and recovery. FEMA is now part of the Department of Homeland Security.
Flood Hazard Area	The area on a map shown to be inundated by a flood of a given magnitude.
Flood Insurance Rate Map (FIRM)	Map of a community, prepared by FEMA, which shows both the special flood hazard areas and the risk premium zones applicable to the community under the National Flood insurance Program.



Flood Mitigation Assistance (FMA) Program	A program created as part of the National Flood Insurance Reform Act of 1994. FMA provides funding to assist communities and states in implementing actions that reduce or eliminate the long-term risk of flood damage to buildings, manufactured homes, and other NFIP insurable structures, with a focus on repetitive loss properties.
Floodplain	Any land area, including watercourse, susceptible to partial or complete inundation by water from any source.
Flood-proofing	Actions that prevent or minimize future flood damage. Making the areas below the anticipated flood level watertight or intentionally allowing floodwaters to enter the interior to equalize flood pressures are examples of flood-proofing.
Flood Zone	A geographical area shown on a Flood Insurance Rate Map (FIRM) that reflects the severity or type of flooding in the area.
Goals	General guidelines that explain what you want to achieve. They are usually broad policy-type statements, long term in nature, and represent global visions.
Hazard	A source of potential danger or adverse condition.
Hazard event	A specific occurrence of a particular type of hazard.
Hazard identification	The process of identifying hazards that threaten an area.
Hazard information center	Information booth, publication kiosk, exhibit, etc. that displays information to educate the public about hazards that affect the jurisdiction and hazard mitigation activities people can undertake.
Hazard mitigation	Sustained actions taken to reduce or eliminate long-term risk from hazards and their effects.
Hazard Mitigation Grant Program (HMGP)	Authorized under Section 404 of the Robert T. Stafford Disaster Relief and Emergency Assistance Act, HMGP is administered by FEMA and provides grants to states, tribes, and local governments to implement hazard mitigation actions after a major disaster declaration. The purpose of the program is to reduce the loss of life and property due to disasters and to enable mitigation activities to be implemented as a community recovers from a disaster.
Hazard profile	A description of the physical characteristics of hazards and a determination of various descriptors, including magnitude, duration, frequency, probability, and extent. In most cases, a community can most easily use these descriptors when they are recorded and displayed as maps.
HAZUS, HAZUS-MH	A GIS-based, nationally standardized, loss estimation tool developed by FEMA. HAZUS-MH is the new multi-hazard version that includes earthquake, wind, hurricane, and flood loss estimate components.



Hurricane	An intense tropical cyclone, formed in the atmosphere over warm ocean areas, in which wind speeds reach 74 miles per hour or more and blow in a large spiral around a relatively calm center or “eye.” Hurricanes develop over the north Atlantic Ocean, northeast Pacific Ocean, or the south Pacific Ocean east of 160°E longitude. Hurricane circulation is counter-clockwise in the northern hemisphere and clockwise in the southern hemisphere.
Infrastructure	Refers to the public facilities of a community that have a direct impact on the quality of life. Infrastructure includes communication technology, such as phone lines or Internet access; vital services, such as public water supplies and sewer treatment facilities; and an area’s transportation system: airports, heliports, highways, bridges, tunnels, roadbeds, overpasses, railways, bridges, rail yards, depots; and waterways, canals, locks, seaports, ferries, harbors, drydocks, piers, and regional dams.
Landslide	Downward movement of a slope and materials under the force of gravity.
Loss estimation	Forecasts of human and economic impacts and property damage from future hazard events, based on current scientific and engineering knowledge.
Memorandum of Agreement (MOA)	A non-binding statement that defines the duties, responsibilities, and commitment of the different parties or individuals; provides a clear statement of values, principles, and goals; and establishes an organizational structure to assist in measuring and evaluating progress.
Mitigate	To cause something to become less harsh or hostile; to make less severe or painful.
Mitigation actions	Activities or projects that help achieve the goals and objectives of a mitigation plan.
Mitigation plan	The document that articulates results from the systematic process of identifying hazards and evaluating vulnerability, identifying goals, objectives, and actions to reduce or eliminate the effects of identified hazards, and an implementation plan for carrying out the actions.
National Flood Insurance Program (NFIP)	Federal program created by Congress in 1968 that makes flood insurance available in communities that enact minimum floodplain management regulations found in 44 CFR §60.3.
Objectives	Objectives define strategies or implementation steps to attain the identified goals. Unlike goals, objectives are specific and measurable.
Open space preservation	Preserving undeveloped areas from development through any number of methods, including low-density zoning, open space zoning, easements, or public or private acquisition. Open space preservation is a technique that can be used to prevent flood damage in flood-prone areas, land failures on steep slopes or liquefaction-prone soils, and can enhance the natural and beneficial functions of floodplains.
Ordinance	A term for a law or regulation adopted by a local government.



Planning	The act or process of making or carrying out plans; the establishment of goals, policies, and procedures for a social or economic unit.
Policy	A course of action or specific rule of conduct to be followed in achieving goals and objectives.
Post-disaster mitigation	Mitigation actions taken after a disaster has occurred, usually during recovery and reconstruction.
Post-disaster recovery ordinance	An ordinance authorizing certain governmental actions to be taken during the immediate aftermath of a hazard event to expedite implementation of recovery and reconstruction actions identified in a pre-event plan.
Post-disaster recovery planning	The process of planning those steps the jurisdiction will take to implement long-term reconstruction with a primary goal of mitigating its exposure to future hazards. The post-disaster recovery planning process can also involve coordination with other types of plans and agencies, but it is distinct from planning for emergency operations.
Preparedness	Actions that strengthen the capability of government, citizens, and communities to respond to disasters.
Probability	A statistical measure of the likelihood that a hazard event will occur.
Public education and outreach programs	Any campaign to make the public more aware of hazard mitigation and mitigation programs, including hazard information centers, mailings, public meetings, etc.
Recovery	The actions taken by an individual or community after a catastrophic event to restore order and lifelines in a community.
Regulation	Most states have granted local jurisdictions broad regulatory powers to enable the enactment and enforcement of ordinances that deal with public health, safety, and welfare. These include building codes, building inspections, zoning, floodplain and subdivision ordinances, and growth management initiatives.
Regulatory power	Local jurisdictions have the authority to regulate certain activities in their jurisdiction. With respect to mitigation planning, the focus is on such things as regulating land use development and construction through zoning, building codes, subdivision regulations, design standards, and floodplain regulations.
Relocation out of hazard areas	A mitigation technique that features the process of demolishing or moving a building to a new location outside the hazard area.
Resources	Resources include the people, materials, technologies, money, etc., required to implement strategies or processes. The costs of these resources are often included in a budget.
Response	The actions taken during and immediately after an event to address immediate life and safety needs and to minimize further damage to properties.



Resolutions	Expressions of a governing body's opinion, will, or intention that can be executive or administrative in nature. Most planning documents must undergo a council resolution, which must be supported in an official vote by a majority of representatives to be adopted. Other methods of making a statement or announcement about a particular issue or topic include proclamations and declarations.
Risk	The estimated impact that a hazard would have on people, services, facilities, and structures in a community; the likelihood of a hazard event resulting in an adverse condition that causes injury or damage. Risk is often expressed in relative terms such as a high, moderate, or low likelihood of sustaining damage above a particular threshold due to a specific type of hazard event. It also can be expressed in terms of potential monetary losses associated with the intensity of the hazard.
Stafford Act	The Robert T. Stafford Disaster Relief and Emergency Assistance Act, PL 100-107 was signed into law November 23, 1988 and amended the Disaster Relief Act of 1974, PL 93-288. The Stafford Act is the statutory authority for most federal disaster response activities, especially as they pertain to FEMA and its programs.
Stakeholder	Stakeholders are individuals or groups, including businesses, private organizations, and citizens, that will be affected in any way by an action or policy.
State Hazard Mitigation Officer (SHMO)	The state government representative who is the primary point of contact with FEMA, other state and federal agencies, and local units of government in the planning and implementation of pre- and post-disaster mitigation activities.
Structural retrofitting	Modifying existing buildings and infrastructure to protect them from hazards.
Subdivision	The division of a tract of land into two or more lots for sale or development.
Subdivision and development regulations	Regulations and standards governing the division of land for development or sale. Subdivision regulations can control the configuration of parcels, set standards for developer-built infrastructure, and set standards for minimizing runoff, impervious surfaces, and sediment during development. They can be used to minimize exposure of buildings and infrastructure to hazards.
Tornado	A violently rotating column of air extending from a thunderstorm to the ground.
Vulnerability	Describes how exposed or susceptible an asset is to damage. Vulnerability depends on an asset's construction, contents, and the economic value of its functions. Like indirect damages, the vulnerability of one element of the community is often related to the vulnerability of another. For example, many businesses depend on uninterrupted electrical power—if an electric substation is flooded, it not only affects the substation but a number of businesses as well. Often, indirect effects can be much more widespread and damaging than direct ones.



Vulnerability assessment	The extent of injury and damage that may result from a hazard event of a given intensity in a given area. The vulnerability assessment should address the effects of hazard events on the existing and future built environment.
Wildfire	An uncontrolled fire spreading through vegetative fuels, exposing and possibly consuming structures.
Zoning	The division of land within a local jurisdiction by local legislative regulation into zones of allowable types and intensities of land uses.
Zoning ordinance	Designation of allowable land use and intensities for a local jurisdiction. Zoning ordinances consist of two components: a zoning text and a zoning map.



appendix b library

General Contact Information

Federal Emergency Management Agency
(FEMA)

<http://www.fema.gov>
FEMA Headquarters:
500 C Street, SW, Washington, D.C. 20472
202-646-4600

FEMA Publications Warehouse

800-480-2520

FEMA Mitigation Publications Library

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

Web sites

American Planning Association (APA)

<http://www.planning.org>

APA, *Growing Smart
Legislative Guidebook*, 2002

<http://www.planning.org/growingsmart>

Catalog of Federal Domestic
Assistance Programs

<http://www.cfda.gov>

Community Rating System

<http://www.fema.gov/nfip/crs.shtm>

Developing the Implementation Strategy

[http://www.pro.gov.uk/recordsmanagement/eros/
framework.pdf](http://www.pro.gov.uk/recordsmanagement/eros/framework.pdf)

http://www.allhandsconsulting.com/ERI_books.htm

<http://www.esri.com/news/arcuser/0100/firetools.html>

[http://www.atlantahighered.org/memberservices/shelter/
literature.asp](http://www.atlantahighered.org/memberservices/shelter/literature.asp)

<http://www.pmel.noaa.gov/~bernard/hazard3.pdf>

Emergency Management Institute

<http://training.fema.gov/EMIWeb>

Federal Emergency Management
Agency Individual Assistance Program

<http://www.fema.gov/rrr/inassist.shtm>

FEMA Mitigation Planning

<http://www.fema.gov/fima/planning.shtm>

FEMA Public Assistance Program

<http://www.fema.gov/rrr/pa>



Flood Mitigation Assistance Program	http://www.fema.gov/fima/planfma.shtm
Habitat for Humanity	http://www.habitat.org/
Hazard Mitigation Grant Program	http://www.fema.gov/fima/hmgp
Hazard Mitigation in North Carolina: Measuring Success	http://www.dem.dcc.state.nc.us/Mitigation/Library/Success_Stories/Measuring_Success_Vol2/Chapter6.pdf
HAZUS and HAZUS-MH	http://www.fema.gov/hazus/index.shtm
HMGP Progress Report Form	http://www.dem.dcc.state.nc.us/mitigation/document_index.htm
Institute for Business & Home Safety (IBHS), Summary of State Land Use and Natural Hazards Planning Laws	http://www.ibhs.org/research_library/view.asp?id=302
Institute for Local Self Government	http://www.ilsg.org/
Mitigation Success Stories	http://www.fema.gov/fima/success.shtm
Multi-hazard Mapping Initiative	http://www.hazardmaps.gov/atlas.php
National Association of Regional Councils	http://www.narc.org
National Flood Insurance Program	http://www.fema.gov/nfip
National League of Cities	http://www.nlc.org
North Carolina Division of Emergency Management, Tools and Techniques for Mitigating the Effects of Natural Hazards	http://www.dem.dcc.state.nc.us/mitigation/Library/Full_Tools_and_Tech.pdf
Oregon Department of Land Conservation and Development (DLCD), Planning for Natural Hazards—Oregon Technical Resource Guide	http://www.lcd.state.or.us/hazhtml/Guidehome.htm
Pre-Disaster Mitigation Program	http://www.fema.gov/fima/pdm
Small Business Administration	http://www.sba.gov/disaster_recov/index.html
State Guidebook for Developing Partnerships	http://www.ibhs.org/research_library/downloads/280.pdf
U.S. Army Corps of Engineers	http://www.usace.army.mil
U.S. Department of Agriculture	http://disaster.fsa.usda.gov
U.S. Department of Agriculture, Natural Resources Conservation Service	http://www.nrcs.usda.gov



U.S. Department of Housing and Urban Development	http://www.hud.gov/offices/cpd/communitydevelopment/programs/dri/driquickfacts.cfm
U.S. Department of Transportation	http://www.fhwa.dot.gov/programadmin/erelief.html
U.S. Environmental Protection Agency	http://www.epa.gov
U.S. State and Local Government Gateway	http://www.firstgov.gov/Government/State_Local.shtml

NOTE: The World Wide Web is an ever-changing source of information. Web addresses and the information they contain can change over time.

Publications

- | | |
|-------------------------------|---|
| American Planning Association | <p><i>Capital Improvement Programming</i>, PAS Report No. 151, 1961.</p> <p><i>Capital Improvements Programs: Linking Budgeting and Planning</i>, PAS Report No. 442, 1993.</p> <p><i>Selecting and Retaining a Planning Consultant: RFPs, RFQs, Contracts, and Project Management</i>, PAS Report No. 443, 1993.</p> |
| Federal Register | <p>44 CFR Parts 201 and 206 (The Disaster Mitigation Act of 2000), February 26, 2002.</p> |
| FEMA | <p><i>Developing the Mitigation Plan: Identifying mitigation actions and implementation strategies</i> (FEMA 386-3), 2003.</p> <p><i>Getting Started: Building support for mitigation planning</i> (FEMA 386-1), 2002.</p> <p><i>Hazard Mitigation Grant Program Desk Reference</i> (FEMA 345), 1999.</p> <p><i>Hazard Mitigation in Iowa: Measuring Success</i>, 2003, unpublished to date.</p> <p><i>Hazard Mitigation in Mississippi: Measuring Success</i>, 2003, unpublished to date.</p> <p><i>Integrating Historic Property and Cultural Resource Considerations into Mitigation Planning</i> (FEMA 386-6), unpublished to date.</p> <p><i>Integrating Human-Caused Hazards into Mitigation Planning</i> (FEMA 386-7), 2002.</p> <p><i>Mitigation Resources for Success</i> (FEMA 372), 2000.</p> <p><i>Multi-jurisdictional Approaches to Mitigation Planning</i> (FEMA 386-8), unpublished to date.</p> <p><i>Planning for a Sustainable Future: The Link Between Hazard Mitigation and Livability</i> (FEMA 364), 2003.</p> |



Rebuilding for a More Sustainable Future: An Operational Framework (FEMA 365), 2000.

Securing Resources for Mitigation Planning (FEMA 386-9), unpublished to date.

Understanding Your Risks: Identifying hazards and estimating losses (FEMA 386-2), 2001.

Using Benefit-Cost Analysis in Mitigation Planning (FEMA 386-5), unpublished to date.

Gianakis, Gerasimos A. and
McCue, Clifford P., 1999

Local Government Budgeting: A Managerial Approach.

Schwab, Jim et al., 1998

Planning for Post-Disaster Recovery and Reconstruction, PAS Report Nos. 483/484.

Tyler Norris Associates, 1997

Community Indicators Handbook: Measuring Progress Toward Healthy and Sustainable Communities.



appendix c worksheets



Worksheet #1	Progress Report
Worksheet #2	Evaluate Your Planning Team
Worksheet #3	Evaluate Your Project Results
Worksheet #4	Revisit Your Risk Assessment
Worksheet #5	Revise the Plan



Worksheet #1 Progress Report

step 2

Progress Report Period: _____ to _____ Page 1 of
(date) (date)

Responsible Agency: _____

City/County: _____

Phone #(s): _____ email address: _____

Anticipated Cost Overrun/Underrun: _____

Anticipated completion date: _____

[illegible]

Plan Goal(s)/Objective(s) Addressed:

Goal: _____

Objective: _____

Indicator of Success (e.g., losses avoided as a result of the acquisition program):

In most cases, you will list losses avoided as the indicator. In cases where it is difficult to quantify the benefits in dollar amounts, you will use other indicators, such as the number of people who now know about mitigation or who are taking mitigation actions to reduce their vulnerability to hazards.

Status (Please check pertinent information and provide explanations for items with an asterisk. For completed or canceled projects, see Worksheet #2 — to complete a project evaluation):

Project Status☐ Project on schedule☐ Project completed☐ Project delayed*

*explain: _____

☐ Project canceled**Project Cost Status**☐ Cost unchanged☐ Cost overrun*

*explain: _____

☐ Cost underrun*

*explain: _____

Summary of progress on project for this report:

A. What was accomplished during this reporting period?

B. What obstacles, problems, or delays did you encounter, if any?

C. How was each problem resolved?

Next Steps: What is/are the next step(s) to be accomplished over the next reporting period?

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Other comments:

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Worksheet #2

Evaluate Your Planning Team

step 3

When gearing up for the plan evaluation, the planning team should reassess its composition and ask the following questions:

	YES	NO
Have there been local staffing changes that would warrant inviting different members to the planning team?		
Comments/Proposed Action:		
Are there organizations that have been invaluable to the planning process or to project implementation that should be represented on the planning team?		
Comments/Proposed Action:		
Are there any representatives of essential organizations who have not fully participated in the planning and implementation of actions? If so, can someone else from this organization commit to the planning team?		
Comments/Proposed Action:		
Are there procedures (e.g., signing of MOAs, commenting on submitted progress reports, distributing meeting minutes, etc.) that can be done more efficiently?		
Comments/Proposed Action:		
Are there ways to gain more diverse and widespread cooperation?		
Comments/Proposed Action:		
Are there different or additional resources (financial, technical, and human) that are now available for mitigation planning?		
Comments/Proposed Action:		

If the planning team determines the answer to any of these questions is “yes,” some changes may be necessary.

Worksheet #3 Evaluate Your Project Results

step 3

page 1 of 2

Project Name and Number: _____

Project Budget: _____

Project Description: _____

Associated Goal and Objective(s): _____

Indicator of Success (e.g., losses avoided): _____

*Insert location map.
Include before and after
photos if appropriate.*

Was the action implemented? ☐ YES ☐ NO

IF NO

Why not?

Was there political support for the action?

Were enough funds available?

Were workloads equitably or realistically distributed?

Was new information discovered about the risks or community that made implementation difficult or no longer sensible?

Was the estimated time of implementation reasonable?

Were sufficient resources (for example staff and technical assistance) available?

YES NO

☐ ☐☐ ☐☐ ☐☐ ☐☐ ☐☐ ☐

IF YES

What were the results of the implemented action? _____

	YES	NO
Were the outcomes as expected? If No, please explain:		
Did the results achieve the goal and objective(s)? Explain how:		
Was the action cost-effective? Explain how or how not:		
What were the losses avoided after having completed the project?		
If it was a structural project, how did it change the hazard profile?		
Additional comments or other outcomes:		

Date: _____

Prepared by: _____

Risk Assessment Steps	Questions	YES	NO	COMMENTS
Identify hazards	Are there new hazards that can affect your community?			
Profile hazard events	Are new historical records available?			
	Are additional maps or new hazard studies available?			
	Have chances of future events (along with their magnitude, extent, etc.) changed?			
	Have recent and future development in the community been checked for their effect on hazard areas?			
Inventory assets	Have inventories of existing structures in hazard areas been updated?			
	Is future land development accounted for in the inventories?			
	Are there any new special high-risk populations?			
Estimate losses	Have loss estimates been updated to account for recent changes?			

If you answered "Yes" to any of the above questions, review your data and update your risk assessment information accordingly.

Prepare to update the plan.*When preparing to update the plan:**Check the box when addressed:*

1. Gather information, including project evaluation worksheets, progress reports, studies, related plans, etc.	
Comments:	
2. Reconvene the planning team, making changes to the team composition as necessary (see results from Worksheet #2).	
Comments:	

Consider the results of the evaluation and new strategies for the future.*When examining the community consider:**Check the box when addressed:*

1. The results of the planning and outreach efforts.	
Comments:	
2. The results of the mitigation efforts.	
Comments:	

3. Shifts in development trends.	
Comments:	
4. Areas affected by recent disasters.	
Comments:	
5. The recent magnitude, location, and type of the most recent hazard or disaster.	
Comments:	
6. New studies or technologies.	
Comments:	
7. Changes in local, state, or federal laws, policies, plans, priorities, or funding.	
Comments:	

8. Changes in the socioeconomic fabric of the community.	
Comments:	
9. Other changing conditions.	
Comments:	

Incorporate your findings into the plan.

When examining the plan consider:

Check the box when addressed:

1. Revisit the risk assessment. <i>(See Worksheet #4)</i>	
Comments:	
2. Update your goals and strategies.	
Comments:	
3. Recalculate benefit-cost analyses of projects to prioritize action items.	
Comments:	

Use the following criteria to evaluate the plan:

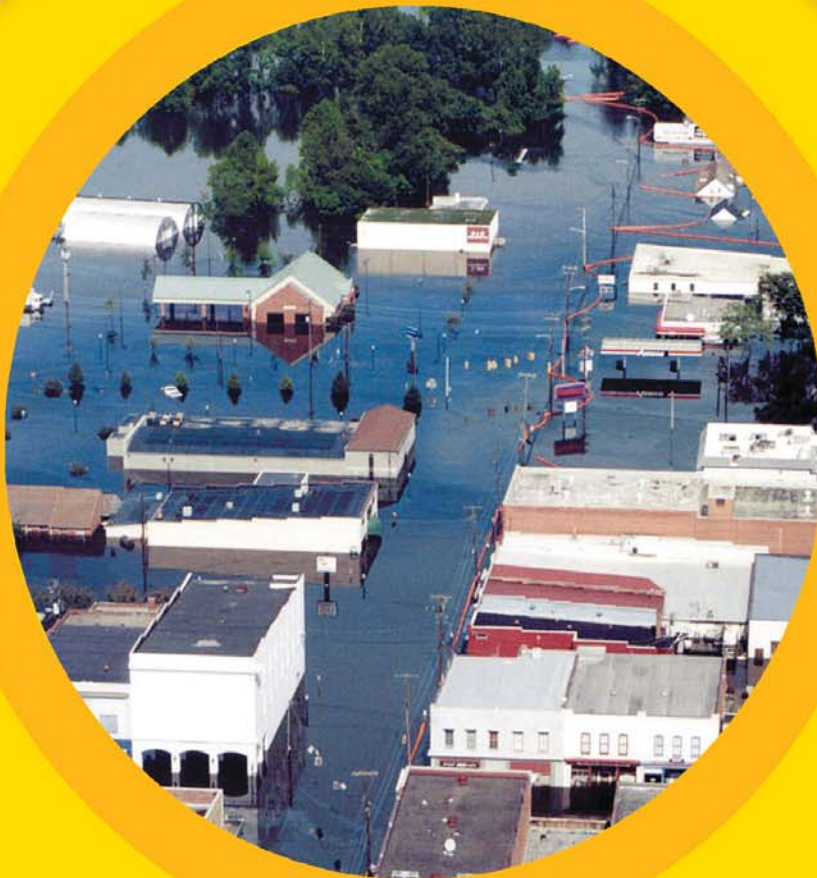
Criteria	YES	NO	Solution
Are the goals still applicable?			
Have any changes in the state or community made the goals obsolete or irrelevant?			
Do existing actions need to be reprioritized for implementation?			
Do the plan's priorities correspond with state priorities?			
Can actions be implemented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

Comments:

[illegible]

Those who cannot remember the past are condemned to repeat it

George Santayana



FEMA

August 2003
FEMA 386-4