Local Mitigation Planning Handbook

March 2013

FEMA

About the Cover: Rainsville, Alabama citizens share their ideas for rebuilding their community during a meeting at the Tom Bevill Enrichment Center in Rainsville. Three tornadoes destroyed a large portion of Rainsville on April 27, 2011. Currently the FEMA ESF#14 team is working closely with Rainsville to rebuild the community to be better and stronger than before.

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Introduction

About the Cover: Collage of local hazard mitigation plan covers.

Introduction

The *Local Mitigation Planning Handbook* is a tool for local governments to use in developing or updating a local hazard mitigation plan. The purpose of the *Handbook* is the following:

1. To provide guidance to local governments on developing or updating hazard mitigation plans to meet the requirements of Title 44 Code of Federal Regulations (CFR) §201.6 for FEMA approval and eligibility to apply for FEMA Hazard Mitigation Assistance grant programs;[1] and
2. To offer practical approaches and examples for how communities can engage in effective planning to reduce long-term risk from natural hazards and disasters.

The *Handbook* is a companion to the *Local Mitigation Plan Review Guide*[2] released by FEMA in 2011. While the Plan Review Guide is intended to help State and Federal officials review and approve local hazard mitigation plans, the *Handbook* is intended to help local officials develop these plans.

Hazard Mitigation

Disasters can cause loss of life; damage buildings and infrastructure; and have devastating consequences for a community's economic, social, and environmental well-being. Hazard mitigation reduces disaster damages and is defined as sustained action taken to reduce or eliminate the long-term risk to human life and property from hazards. Outreach programs that increase risk awareness, projects to protect critical facilities, and the removal of structures from flood hazard areas are all examples of mitigation actions. Local mitigation actions and concepts can also be incorporated into land use plans and building codes.

Local governments have the responsibility to protect the health, safety, and welfare of their citizens. Proactive mitigation policies and actions help reduce risk and create safer, more disaster-resilient communities. Mitigation is an investment in your community's future safety and sustainability. Consider the critical importance of mitigation to:

- Protect public safety and prevent loss of life and injury.
- Reduce harm to existing and future development.
- Prevent damage to a community's unique economic, cultural, and environmental assets.

Emergency Management Activities

Mitigation. Sustained actions taken to reduce or eliminate long-term risk to life and property from hazards.*

Prevention. Actions necessary to avoid, prevent, or stop an imminent threat or actual act of terrorism.**

Protection. Actions necessary to secure the homeland against acts of terrorism and manmade or natural disasters.**

Preparedness. Actions taken to plan, organize, equip, train, and exercise to build and sustain the capabilities necessary to prevent, protect against, mitigate the effects of, respond to, and recover from those threats that pose the greatest risk to the security of the Nation.**

Response. Actions necessary to save lives, protect property and the environment, and meet basic human needs after an incident has occurred.**

Recovery. Actions necessary to assist communities affected by an incident to recover effectively.**

* Source: 44 CFR §201.2 Mitigation Planning - Definitions.

** Source: National Preparedness Goal, First Edition. September, 2011, FEMA. http://www.fema.gov/pdf/prepared/npg.pdf

1 For more information on FEMA Hazard Mitigation Assistance grant programs, see http://www.fema.gov/hazard-mitigation-assistance.

2 The Local Mitigation Plan Review Guide, as interpretation and explanation for the mitigation planning regulation in Title 44 Code of Federal Regulations (CFR) Part 201, is FEMA's official source for defining the requirements of original and updated local mitigation plans. The Guide represents FEMA's interpretation of a statutory or regulatory requirement. By itself, the Guide does not impose legally enforceable rights and obligations, but sets forth a standard operating procedure or agency practice that FEMA employees follow to be consistent, fair, and equitable in the implementation of the agency's authorities. http://www.fema.gov/library/viewRecord.do?id=4859.

Introduction

- Minimize operational downtime and accelerate recovery of government and business after disasters.
- Reduce the costs of disaster response and recovery and the exposure to risk for first responders.
- Help accomplish other community objectives, such as leveraging capital improvements, infrastructure protection, open space preservation, and economic resiliency.

"Instead of repeated damage and continual demands for federal disaster assistance, resilient communities proactively protect themselves against hazards, build self-sufficiency, and become more sustainable."[3]

Mitigation Planning

Mitigation is most effective when it is based on a comprehensive, long-term plan that is developed before a disaster occurs. The purpose of mitigation planning is to identify local policies and actions that can be implemented over the long term to reduce risk and future losses from hazards. These mitigation policies and actions are identified based on an assessment of hazards, vulnerabilities, and risks and the participation of a wide range of stakeholders and the public in the planning process. Benefits of mitigation planning include:

- Identifying actions for risk reduction that are agreed upon by stakeholders and the public.
- Focusing resources on the greatest risks and vulnerabilities.
- Building partnerships by involving citizens, organizations, and businesses.
- Increasing education and awareness of threats and hazards, as well as their risks.
- Communicating priorities to State and Federal officials.
- Aligning risk reduction with other community objectives.

Disaster Mitigation Act of 2000

The purpose of the Stafford Act, as amended by the Disaster Mitigation Act of 2000, is "to reduce the loss of life and property, human suffering, economic disruption, and disaster assistance costs resulting from natural disasters."

Section 322 of the Act specifically addresses mitigation planning and requires state and local governments to prepare multi-hazard mitigation plans as a precondition for receiving FEMA mitigation project grants.

Guiding Principles for Plan Development

The mitigation plan belongs to the local community. While FEMA has the authority to approve plans in order for local governments to apply for mitigation project funding, there is no required format for the plan's organization. When developing the mitigation plan, keep the following guiding principles in mind:

- **Focus on the mitigation strategy.** The mitigation strategy is the plan's primary purpose. All other sections contribute to and inform the mitigation strategy and specific hazard mitigation actions.
- **Process is as important as the plan itself.** In mitigation planning, as with most other planning efforts, the plan is only as good as the process and people involved in its development. The plan should also serve as the written record, or documentation, of the planning process.
- **This is your community's plan.** To have value, the plan must represent the current needs and values of the community and be useful for local officials and stakeholders. Develop the mitigation plan in a way that best serves your community's purpose and people.

3 Godschalk, David R., Adam Rose, Elliott Mittler, Keith Porter, and Carol Taylor West. 2009. "Estimating the Value of Foresight: Aggregate Analysis of Natural Hazard Mitigation Benefits and Costs." Journal of Environmental Planning and Management 52(5):739-56.

Handbook Organization

The *Handbook* is organized into nine recommended tasks for developing or updating a local hazard mitigation plan as illustrated in Figure I-1. Some of the tasks can be completed concurrently, while others depend on completing preceding tasks. Tasks 1-3 discuss the process and people needed to complete the remaining mitigation planning tasks and the best ways to document the process in the plan. Tasks 4-8 cover the specific analyses and decisions that need to be completed and recorded in the plan. Task 9 provides suggestions and resources for implementing your plan to reduce risk.

Figure I-1: *Local Mitigation Planning Handbook* Tasks.

The *Handbook* also includes the following appendices:

- **Appendix A: Planning Process Worksheets.** Provides worksheets referenced throughout the *Handbook* to help complete parts of the planning process.
- **Appendix B: Local Mitigation Plan Review Tool.** Provides the document used by State and FEMA mitigation planners to evaluate whether the plan meets Federal requirements for approval and to provide feedback to the community.
- **Appendix C: Additional Resources.** Provides links to additional online resources for mitigation planning.

Federal Planning Regulations

The requirements of 44 CFR §201.6 Local Mitigation Plans are highlighted throughout the *Handbook* to provide clear guidance on the Federal regulations that must be met before FEMA will approve a local hazard mitigation plan. Sidebars are used to reference the specific section of the regulation and the associated element in the Local Mitigation Plan Review Guide and Tool.

Mitigation Plan Updates

The *Handbook* is applicable to new and updated mitigation plans. A community must review and revise an existing plan to reflect changes in development, progress in local mitigation efforts, and changes in priorities and resubmit it for approval within 5 years to continue to be eligible for FEMA mitigation project grant funding. Plan update recommendations and requirements are addressed within each task and highlighted in the text.

Examples and Special Topics

Sidebars also are used throughout the *Handbook* to illustrate concepts using examples from actual local plans and to provide additional information on topics important to mitigation planning.

Multi-Jurisdictional Plans

FEMA may accept multi-jurisdictional plans, which must meet all of the requirements of 44 CFR §201.6. The *Handbook* tasks describe how to meet the requirements in a multi-jurisdictional planning effort and are relevant to each participating jurisdiction, whether the plan is for a single or multiple jurisdictions. Federally recognized Tribes may choose to participate in a multi-jurisdictional plan; however, they must meet the requirements for tribal mitigation planning specified in 44 CFR §201.7.[4]

4 Tribal mitigation planning requirements were created under 44 CFR §201.7 to give Tribes more flexibility and the ability to meet the eligibility requirements of a grantee or subgrantee for FEMA's Hazard Mitigation Assistance programs.

Task 1

Determine the Planning Area and Resources

About the Cover: Planning area map from the Howard County, Missouri Hazard Mitigation Plan 2012.

Task 1 – Determine the Planning Area and Resources

Once your community has decided to develop or update its hazard mitigation plan, the first task is to determine the overall scope of the planning project. *Task 1* describes how to determine the planning area and the participating jurisdictions, as well as who will lead the plan and the resources needed to support the planning process. Your community can develop its own single jurisdiction plan or work with neighboring jurisdictions on a multi-jurisdictional plan.

Establish the Planning Area

The planning area refers to the geographic area covered by the plan. Generally, the planning area follows local government[1] jurisdictional boundaries, such as cities, townships, counties, or planning districts. However, planning areas also may be defined by watersheds or other natural features, particularly where hazards create similar risks across jurisdictional boundaries. A jurisdiction's boundaries may also cross over or encompass other jurisdictions, such as a fire protection district or a utility district.

The State Hazard Mitigation Officer (SHMO)[2] or State emergency management agency can help communities determine the appropriate planning area. This determination may be based on State planning goals and planning grant funding priorities.

Mitigation Plan Updates

If you are updating your community's plan, determine if the planning area defined in the previously approved plan is still appropriate. Review any lessons learned in the previous planning process. Consider whether your community's mitigation planning needs were met by the previous planning effort or whether your community would benefit from adjusting the planning area and the participating jurisdictions.

Existing Partnerships and Planning Efforts

There are many possible options for the planning area based on existing planning projects, relationships, and partnerships. Consider whether your community currently collaborates with regional organizations, councils of government, or other established multi-jurisdictional partnerships for planning activities related to comprehensive planning, watershed protection, or transportation. Counties may provide emergency management or development review services to jurisdictions within their boundaries. These activities coordinate well with the goals of mitigation planning, so a countywide plan can be a good approach.

Prior to beginning the planning process, determine if other planning efforts could be aligned or integrated with the mitigation plan to save time and money and create better outcomes for your community. For instance, mitigation plan development could be integrated into a community's process for updating their comprehensive plan. Or, if your community participates in the Community Rating System (CRS),[3] you could design the mitigation planning process to maximize CRS credit for floodplain management planning. A FEMA program, CRS rewards communities that go beyond the minimum standards for floodplain management under the National Flood Insurance Program

1 "Local government is any county, municipality, city, town, township, public authority, school district, special district, intrastate district, council of governments (regardless of whether the council of governments is incorporated as a nonprofit corporation under State law), regional or interstate government entity, or agency or instrumentality of a local government; any Indian tribe or authorized tribal organization, or Alaska Native village or organization; and any rural community, unincorporated town or village, or other public entity." (44 CFR §201.2, Definitions.)

2 *State Hazard Mitigation Officer* is the official representative of State government who is the primary point of contact with FEMA, other Federal agencies, and local governments in mitigation planning and implementation of mitigation programs and activities required under the Stafford Act. (44 CFR §201.2, Definitions.)

3 For more information on the Community Rating System, see http://www.fema.gov/national-flood-insurance-program-2/community-rating-system.

(NFIP)[4] by providing flood insurance premium discounts for policy holders in the community. Appendix A includes a worksheet that cross-references the CRS and mitigation planning requirements (see Worksheet 1.1).

Multi-Jurisdictional Plan Coordination

Both single and multi-jurisdictional plans have benefits and challenges. Single jurisdiction plans offer sole discretion and autonomy in how the community will conduct its planning process and can be suitable for any community, large or small.

If you determine that participating in a multi-jurisdictional planning effort is the best option for your community, then identify whether it is appropriate to join an existing planning effort underway or take the lead on initiating a multi-jurisdictional plan. Multi-jurisdictional planning is most effective when jurisdictions face the same threats or hazards of concern, operate under the same authorities, have similar needs and capabilities, and have successfully partnered in the past.

You may look to partner with neighboring jurisdictions and quasi-governmental agencies, such as school districts, transportation authorities, and utility or service districts. Special districts have a vested interest in reducing threat and hazard impacts, particularly if they provide services critical to recovery efforts. In states where ice storms, tornadoes, and wind storms are common, rural electrical cooperatives and municipal electrical utilities are often mitigation partners. A Federally recognized Indian Tribal government[5] may also choose to participate in a multi-jurisdictional plan; however, the Tribe must meet the requirements specified in 44 CFR §201.7, *Tribal Mitigation Planning*. Most importantly, identify those jurisdictions that will help maximize the benefits of multi-jurisdictional plans as described in the sidebar.

After identifying the planning area and participating jurisdictions, it is helpful to secure a level of commitment from all participants. Ask the jurisdictions to sign a Memorandum of Understanding or Letter of Intent at the beginning of the planning process that outlines requirements for each participating jurisdiction. A sample Memorandum of Agreement for a multi-jurisdictional planning team can be found in Appendix A (see Worksheet 1.2).

Multi-Jurisdictional Benefits and Challenges

Multi-jurisdictional planning processes can offer the following **benefits**:

- Improves communication and coordination among jurisdictions and other regional entities
- Enables comprehensive mitigation approaches to reduce risks that affect multiple jurisdictions
- Maximizes economies of scale by leveraging individual capabilities and sharing costs and resources
- Avoids duplication of efforts
- Provides an organizational structure that local jurisdictions may find supportive

While offering these potential benefits, a multi-jurisdictional planning process can also present the following **challenges**:

- Reduces individual control and ownership over the mitigation planning process
- Involves coordinating participation of multiple jurisdictions, which may have different capabilities, priorities, and histories working together
- Requires specific information on local risks and mitigation actions for each jurisdiction
- Requires the organization of large amounts of information into a single plan document

Any jurisdiction or organization may participate in the planning process. However, to request FEMA approval, each of the local jurisdictions must meet all of the requirements of 44 CFR §201.6. In addition to the requirement for participation in the process, the Federal regulation specifies the following requirements for multi-jurisdictional plans:

4 For more information on the National Flood Insurance Program, see http://www.fema.gov/national-flood-insurance-program.

5 *Indian Tribal government* means any Federally recognized governing body of an Indian or Alaska Native Tribe, band, nation, pueblo, village, or community that the Secretary of Interior acknowledges to exist as an Indian Tribe under the Federally Recognized Indian Tribe List Act of 1994, 25 U.S.C. 479a. This does not include Alaska Native corporations, the ownership of which is vested in private individuals. (44 CFR §201.2, *Definitions*.)

- The risk assessment must assess each jurisdiction's risk where they may vary from the risks facing the entire planning area. **(44 CFR §201.6(c)(2)(iii))**
- There must be identifiable action items specific to the jurisdiction requesting FEMA approval or credit of the plan. **(44 CFR §201.6(c)(3)(iv))**
- Each jurisdiction requesting approval of the plan must document that is has been formally adopted. **(44 CFR §201.6(c)(5))**

The mitigation plan must clearly list the jurisdictions that participated in the plan and are seeking plan approval. It is also helpful to include a map showing the jurisdictional boundaries of the planning area.

Leading the Planning Process

Whether your community is developing a single jurisdiction plan or is participating in a multi-jurisdictional planning process, strong leadership is needed throughout the planning process. Assigning the agency or individual that will lead the mitigation planning effort is an important initial decision.

Many local agencies have interest and responsibility in mitigation and should be included in the planning process. For example, both the emergency management and community planning and development staff in local government have unique knowledge and experience to make them natural leaders for a mitigation planning process. Local emergency management staff has an understanding of local threats and hazards, risks, and consequences and may have more experience working with State and Federal agencies on mitigation projects and activities. Community planning staff is familiar with zoning and subdivision regulations, land use plans, economic development initiatives, and long-term funding and planning mechanisms to implement mitigation strategies, and they may be trained to facilitate public outreach, conduct meetings, and develop a plan document.

Both community development and emergency management departments, among others, are capable of providing leadership in the development of a local hazard mitigation plan. When determining leadership, consider who has the time and resources to commit to the entire planning process. In addition, in multi-jurisdictional plans, each participating jurisdiction identifies a lead representative to coordinate their community's planning process.

Technical Assistance

Mitigation planning takes time and effort. Be aware of the available resources—human, technical, and financial—that your jurisdiction has to complete this planning effort. Combining resources with other jurisdictions through a multi-jurisdictional planning effort as described previously may save time and money, or may leverage subject matter expertise. Alternatively, specific parts of the planning process or plan preparation may require technical assistance. If outside technical assistance is needed to help develop the plan, consider how to leverage this assistance to build long-term community capabilities.

Although developing a hazard mitigation plan does not require formal training in community planning, engineering, or science, it may be helpful to get outside expertise in some areas. For instance, you could seek assistance with:

- Identifying hazards, assessing vulnerabilities, and understanding significant risks.
- Facilitating planning team meetings, public involvement, and decision making activities.
- Creating an organized and functional plan document, including maps or other graphics.

There are several different options when considering outside assistance for plan development. Consider contracting with your regional planning agency or working with a local university with planning or emergency management degree programs. You may also contact another community that has already completed the planning process for suggestions. Before enlisting outside assistance from any of these sources, consider the scope of work, the extent of

assistance required, and the level of interaction between the consulting service providers and other members of the planning team.

Private consultants are an additional resource available to assist in the coordination, facilitation, and execution of the mitigation planning process. If your community decides to hire a consultant, consider looking for a professional community planner who:

- Recognizes the unique demographic, geographic, technical, and political considerations of each participating community.
- Demonstrates knowledge or experience with land use and community development.
- Understands all the applicable policies and regulations as they apply to the mitigation plan, including Federal law, FEMA guidance, and state and local ordinances.
- Recognizes that community input and public participation are integral to any successful mitigation plan.
- Exhibits familiarity with emergency management and multi-hazard mitigation concepts.
- Provides past performance information and references.

Additional information on hiring and working with a planning consultant can be found on the American Planning Association website.[6]

Technical Assistance

In the development of their Multi-Hazard Mitigation Plan, Saline County, Illinois established a planning team that included representatives from various county departments, cities and towns, and public and private utilities. The County partnered with nearby Southern Illinois University at Carbondale for planning assistance, as well as the Polis Center at Indiana University-Purdue University Indianapolis for technical assistance in conducting the risk assessment.

Conclusion

Determining the planning area and overall scope of the planning project is up to your community. Building on existing planning efforts or working with other jurisdictions are common approaches to defining the planning area. Identifying the plan's local lead and the need for outside technical assistance are important first steps in organizing your resources. Whether a single or multi-jurisdictional plan, all jurisdictions share the same commitment to developing a plan to reduce risks from hazards in their communities. *Task 2* describes how to form a planning team to guide the planning process.

6 *Choosing a Consultant*, a revised and edited excerpt from *Selecting and Retaining a Planning Consultant: RFPs, RFQs, Contracts, and Project Management* by Eric Damian Kelly, FAICP, available from the American Planning Association: http://www.planning.org/consultants/choosing/.

Task 2

Build the Planning Team

About the Cover: FEMA representatives meet with Puyallup Tribal representatives to discuss Tribal Mitigation NFIP and floodplain issues as they relate to the Puyallup Indian Reservation.

Task 2 – Build the Planning Team

A second critical task at the beginning of the planning process is to assemble a planning team of representatives from each jurisdiction and partner organization. These planning partners have the expertise to develop the plan, and their organizations have the authority to implement the mitigation strategy developed through the planning process. This is the core group of people responsible for developing and reviewing drafts of the plan, creating the mitigation strategy, and submitting the final plan for local adoption. *Task 2* describes how to identify potential planning team members, communicate the importance of their participation, and kick off the planning process.

Identify Planning Team Members

When building the planning team, start with existing community organizations or committees if possible. For mitigation plan updates, reconvene the team from the previous planning process along with any additional individuals or organizations. A committee that oversees the comprehensive plan or addresses issues related to land use, transportation, or public facilities can be a good foundation for your mitigation planning team. You may consider how threats and hazards impact economic development, housing, health and social services, infrastructure, or natural and cultural resources to determine what agencies and offices to include. You could also build on your community's existing Local Emergency Planning Committee (LEPC).[1] This group deals with hazardous materials safety and may also address other threats and natural hazards issues. In small communities, LEPCs may be comprised of the same people and organizations that are needed for the mitigation planning team.

Representatives from agencies involved in hazard mitigation activities, agencies with the authority to regulate development, and offices responsible for enforcing local ordinances are important members of the planning team. These agencies are likely to be assigned responsibility and have the expertise for implementing mitigation actions. Examples of partner agencies are listed in the sidebar. Appendix A also includes a checklist of potential agencies and organizations to consider when you are building the planning team (see Worksheet 2.1).

It is important to distinguish between those who should serve as members of the planning team and other stakeholders. Stakeholders are individuals or groups that are affected by a mitigation action or policy and include businesses, private organizations, and citizens. Unlike planning team members, stakeholders may not be involved in all stages of the planning process, but they inform the planning team on a specific topic or provide input from different points of view in the community. *Task 3 – Create an Outreach Strategy* provides ideas about how and when to involve stakeholders in the planning process.

Partners Involved in Hazard Mitigation Activities

- Building Code Enforcement
- Emergency Management
- Fire Department/Districts
- Floodplain Administration
- Geographic Information Systems (GIS)
- Parks and Recreation
- Planning/Community Development
- Public Information Office
- Public Works
- Stormwater Management
- Transportation (Roads/Bridges)
- State Emergency Management Office
- Regional Planning Agency

Partners with Authority to Regulate Development

- City Council/Board of Commissioners
- Planning Commission
- Planning/Community Development
- Regional/Metropolitan Planning
- Special Districts

1 For more information on LEPCs, visit the Environmental Protection Agency's Emergency Planning and Community Right-to-Know Act (EPCRA) Local Emergency Planning Requirements: http://www.epa.gov/oem/content/epcra/epcra_plan.htm.

Certain stakeholders must be given the opportunity to be on the planning team or otherwise involved in the planning process, including:

- Local and regional agencies involved in hazard mitigation activities.
- Agencies that have the authority to regulate development.
- Neighboring jurisdictions.
- Businesses, academia, and other private and nonprofit interests.

Engage Local Leadership

Local elected officials and staff must provide strong leadership throughout the planning process. Leadership from elected officials with an interest in improving safety and disaster resiliency ensures the planning process has visibility and encourages stakeholder participation.

Element *A2*

The planning process shall include an opportunity for neighboring communities, local and regional agencies involved in hazard mitigation activities, and agencies that have the authority to regulate development, as well as businesses, academia and other private and non-profit interests to be involved in the planning process.

44 CFR §201.6(b)(2)

Equally important is the role of a strong advocate or local champion for mitigation on the planning team, who helps enlist the support and participation of local officials and community leaders and leads the hazard mitigation planning effort. If one has not already been established, the planning team may select a leader, or chairperson, to oversee and help manage the planning process. This person does not need to be a professional planner or expert in hazard mitigation, but must be able to communicate the purpose and importance of the mitigation plan, convene the planning team, and facilitate the completion of tasks required for the mitigation plan to be finished on schedule.

Promote Participation and Buy-In

Identifying potential planning team members may be fairly straightforward; however, persuading individuals with competing priorities to invest time and energy in the mitigation planning process can be challenging.

It is important to determine what planning team members are expected to contribute, as well as how they will be invited to participate. While updating a plan, you should consider what worked well or did not during the previous planning process. The following are approaches for recruiting potential team members that have worked for communities in the past:

- After sending an email or letter invitation, follow it up with a phone call to emphasize why participation is needed and to answer any questions.
- Send a formal invitation signed by the mayor, elected official, or department head.
- Plan the initial meeting at a convenient time and location for everyone.
- Provide beverages or food at meetings to bolster attendance and attention spans.

The people invited to participate want to know what is expected of their participation and why their presence is important. The purpose and importance of various contributors includes the following:

- **Local community planners** can help the planning team understand past, current, and future community development trends, the policies or activities that affect development, and the relationship between hazards and development.
- **Emergency managers** are first responders to disasters, have information on past occurrences and existing preparedness measures, and have a direct line of communication with the State emergency management agency.

- **GIS specialists** can analyze and map data to support the planning process and communicate complex information, such as the locations of assets at risk in threat- or hazard-prone areas and estimates of damage for a particular disaster scenario.
- **Public works/engineering staff** can help identify current or projected problems for the community's infrastructure that can be addressed through capital improvements supported by the mitigation plan.
- **Elected and executive officials** are mindful of the community as a whole and communicate how the mitigation plan can support other social, economic, or environmental goals for the community.
- **Floodplain administrators** provide information on your community's flood hazard maps, floodplain ordinance, repetitive loss properties, and actions to continue compliance with the National Flood Insurance Program and reduce flood losses.
- **State and Federal partners** provide available data, understand how to identify and leverage resources across agencies, and can identify state and Federal programs with complementary missions.

Planning efforts can be more successful if the team is designated with some official authority to develop the mitigation plan. Therefore, the planning team can obtain official recognition in the form of a council resolution or a Memorandum of Agreement (MOA). This demonstrates community support, increases commitment to the process, and improves the likelihood that mitigation actions identified in the plan will be implemented successfully. An example MOA for a multi-jurisdictional planning team is included in Appendix A (see Worksheet 1.2).

Multi-Jurisdictional Planning Team

If you are developing a multi-jurisdictional plan, creating a planning team structure that allows for coordination and accountability among and within the jurisdictions is important (see Figure 2.1). Each jurisdiction will have at least one representative on the planning team. This representative will need to report back to their community on a regular basis, as well as gather feedback and input for the plan. Another planning team model may include a core group of individuals from each jurisdiction participating on the planning team. The method of representation should be based on each community's size and the level of effort required to assess unique risks and develop specific mitigation actions.

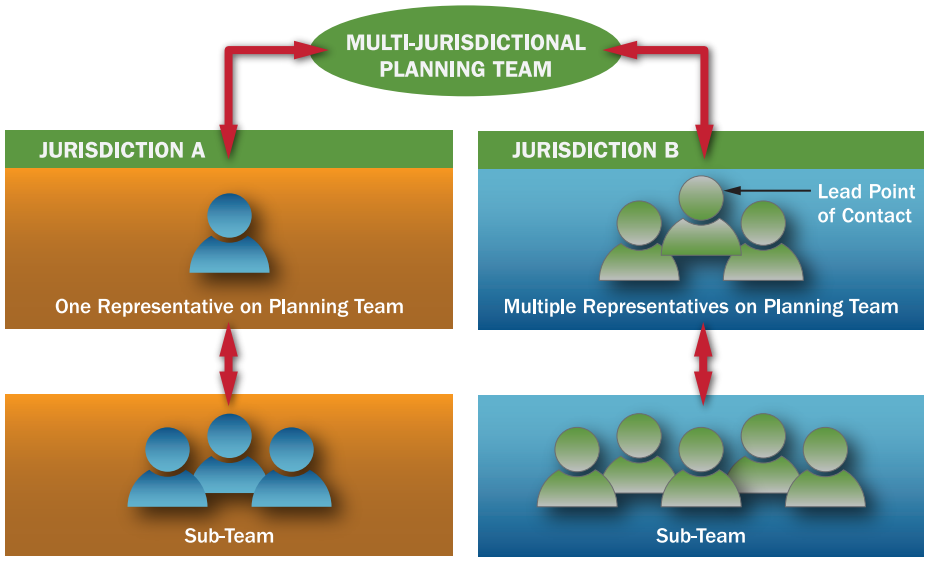

Figure 2.1: Multi-jurisdictional planning team

Example Multi-Jurisdiction Planning Team

The Multi-jurisdictional Natural Hazard Mitigation Plan for Monmouth County, New Jersey included 53 municipalities that required an organizational structure to facilitate inter- and intra-governmental coordination. The overall Planning Committee was divided into one Core Planning Group and 53 separate Jurisdictional Assessment Teams—one for each participating jurisdiction.

Core Planning Group

The Core Planning Group (CPG) was made up of County Steering Committee members and leaders from each Jurisdictional Assessment Team. CPG members were typically representatives of their local emergency management, engineering, planning, GIS, administration, public works, building, or highway departments. The CPG managed the overall plan activities and directly contributed to the decision making process.

Jurisdictional Assessment Teams

The Jurisdictional Assessment Teams (JAT) were headed by a Team Leader who served and represented their interests on the CPG. JATs included broader representation from within the individual jurisdictions, and many chose to align their JAT with an existing Local Emergency Planning Committee (LEPC). The JATs were responsible for local community involvement and were required to:

- Coordinate and facilitate local efforts.
- Attend meetings.
- Provide information and feedback.
- Involve the public and community stakeholders in the planning process.
- Assess mitigation alternatives.
- Select a course of action to be followed for their communities.
- Adopt the plan.
- Implement the plan and monitor its progress.

This organizational structure was successfully implemented for the County's initial plan development and is maintained for plan updates.

Initial Steps for the Planning Team

The mitigation planning process generally includes a series of meetings or work sessions. For example, the first meeting of the planning team, or the plan kickoff meeting, may focus on introducing team members, describing the overall purpose of the plan, defining the team's responsibilities, validating the project scope and schedule, and brainstorming who else should be involved in the planning process. Some suggested outcomes of a planning team kickoff meeting are the following:

1. Confirm plan purpose

The planning team may start by agreeing on the overall purpose of the planning process and the outcome that the community seeks to accomplish as the plan is implemented. Some communities develop a mission statement that drives the process and describes in a short, simple statement the intended outcome. This helps unite the planning team around a common purpose and provides a foundation for the rest of the planning process. This also helps

Example Mission Statements

Create a disaster resilient Marion County (Marion County, Oregon Natural Hazards Mitigation Plan).

Through partnerships and careful planning, identify and reduce the vulnerability to natural hazards in order to protect the health, safety, quality of life, environment, and economy of the communities within Somerset County (Somerset County, New Jersey All Hazards Mitigation Plan).

to communicate the reason for the plan to stakeholders, elected officials, and the public. If you received a mitigation planning grant from FEMA, the grant may include language regarding the overall purpose of the plan that could be incorporated. The plan's scope of work often includes more information on the background and objectives of the planning project, as well.

2. Review the current mitigation plan

If updating your mitigation plan, a general review of your community's previously approved plan can provide a good starting point for identifying ideas for improvement and areas that may require more time and resources. This can impact the plan's scope and schedule.

3. Refine plan scope and schedule

The kickoff meeting is a good time for the planning team to agree upon the overall scope of work and schedule for developing or updating the mitigation plan and review the requirements of a hazard mitigation plan for FEMA approval. If you received a grant to develop the plan, the scope of work and schedule may already be developed, or the grant may serve as the starting point for a more detailed work plan. It is important that everyone walks away from the kickoff meeting with an understanding of the overall project purpose, schedule, and tasks, as well as the agendas and goals for future planning team meetings. The remaining tasks in this *Handbook* can help you to establish a schedule and agenda items for future meetings. A sample schedule is also available in Appendix A (see Worksheet 2.2).

4. Establish responsibilities

The planning team can establish roles and responsibilities at the beginning of the planning process. The planning team members should have a clear understanding of their roles and responsibilities, as well as how much time they may need to dedicate to the project. This can help you to identify any potential gaps or shortfalls in resources needed to complete the mitigation plan early in the planning process.

Example: Planning Team Responsibilities

Wilson County, Kansas Hazard Mitigation Planning Committee (2008)

- Provide facilities for meetings
- Attend meetings
- Collect data
- Manage administrative details
- Make decisions on plan process and content
- Submit mitigation action implementation worksheets
- Review drafts
- Coordinate and assist with public involvement and plan adoptions

5. Develop an outreach strategy

One critical task of the planning team is determining who else needs to be involved in the mitigation planning process and how. An outreach strategy identifies the stakeholder groups that are important to involve in the process and how to engage them. The planning team also develops ideas for how to involve the general public in the planning process. *Task 3 – Create an Outreach Strategy* describes how to develop a comprehensive approach to engaging stakeholders and the public in the mitigation planning process.

Documentation of the Planning Process – Planning Team

The plan document is the written record of the planning process and must describe how the plan was prepared for each jurisdiction including the schedule and activities that made up the plan's development, as well as who was involved in the process. The plan can also document how the planning team members were selected and what each team member contributed to the planning effort.

Element A1

The plan shall document the planning process used to develop the plan, including how it was prepared, who was involved in the process, and how the public was involved.

44 CFR §201.6(c)(1)

Multi-jurisdictional plans must identify who represented each jurisdiction, including the person's position or title and agency, at a minimum. Since the plan is intended to provide a resource for the community, the planning process provides enough detail to allow those updating the plan to identify and coordinate with those agencies that were involved in the process.

Plan updates must include documentation of the current planning process undertaken to update the plan.

Conclusion

Task 2 describes how to identify and engage a planning team, including planning teams that represent multiple jurisdictions. The planning process is as important as the plan itself, and the planning team helps shape and guide that process. *Task 3* describes how the planning team can involve other stakeholders and the public.

Task 3

Create an Outreach Strategy

About the Cover: Members of the Louisiana Family Recovery Corps participate in a “Neighbor Helping Neighbor” workshop.

Task 3 – Create an Outreach Strategy

A key element in the mitigation planning process is the discussion it promotes among community members about creating a safer, more disaster-resilient community. A plan that accurately reflects the community's values and priorities is likely to have greater legitimacy and "buy-in" and greater success in implementing mitigation actions and projects to reduce risk.

Federal regulation for mitigation plan approval requires that stakeholders and the general public are given opportunities to be involved during the planning process and in the plan's maintenance and implementation. Community members can therefore provide input that can affect the content and outcomes of the mitigation plan.

Task 3 builds on the idea of an outreach strategy introduced in *Task* 2 – *Build the Planning Team*. An outreach strategy identifies what you want to accomplish through your outreach efforts, who to involve in the process, and how and when to effectively engage the community.

Outreach Strategy Framework

Think of the outreach strategy for the plan as having three tiers: 1) planning team, 2) stakeholders, and 3) the public, as illustrated in Figure 3.1. The timing, method, and level of engagement or effort are different for each tier. *Task* 2 of the *Handbook* discussed how to engage the planning team. *Task* 3 focuses on involving stakeholders and the public.

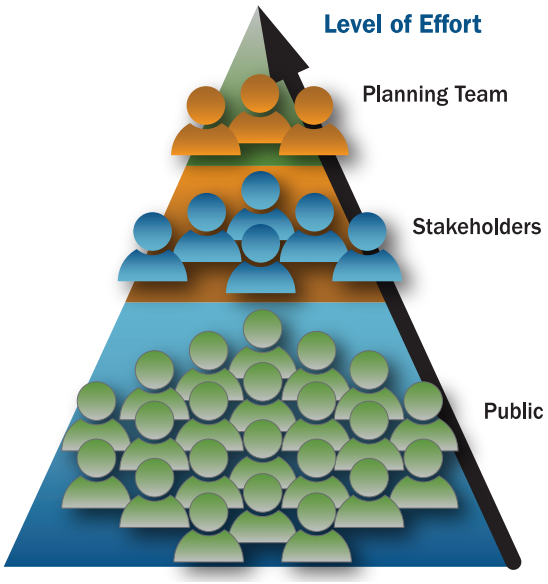

Figure 3.1: Outreach strategy framework

Stakeholders

A stakeholder is any person, group, or institution that can affect or be affected by a course of action. Involving stakeholders in the planning process helps to develop support for the plan and identify barriers to implementation. In addition, mitigation planning incorporates information from scientific and technical sources and subject matter experts.

At a minimum, the stakeholders that must be included in the planning process are neighboring communities, local and regional agencies involved in hazard mitigation activities, and agencies that have the authority to regulate development, as well as businesses, academia, and other private and nonprofit interests. *Task* 2 discussed the importance of involving local and regional agencies involved in hazard mitigation activities and agencies that have the authority to regulate development on the planning team. Unlike planning team members, stakeholders need not be involved in all stages of the planning process, but may inform the planning team on a specific topic or provide input from different points of view in the community.

Element A2

The planning process shall include an opportunity for neighboring communities, local and regional agencies involved in hazard mitigation activities, and agencies that have the authority to regulate development, as well as businesses, academia and other private and non-profit interests to be involved in the planning process.

44 CFR §201.6(b)(2)

You must also invite stakeholder participation from neighboring communities that are not part of the planning area and participating jurisdictions. These may be adjacent counties and municipalities, such as those that are affected by similar threat or hazard events or may be partners in mitigation and response activities. For example, you could involve neighboring communities in the planning process by issuing an invitational email or letter to the emergency managers or local officials of the adjacent counties inviting their participation in outreach activities and their input on the draft mitigation plan.

Successful Outreach

- Informs and educates about hazards and risks
- Invites interested parties to contribute their views and ideas for mitigation
- Identifies conflicts and incorporates different perspectives and priorities early in the process
- Provides data and information that improves overall quality and accuracy of the plan
- Ensures transparency and builds trust
- Maximizes opportunities for implementation through greater consensus and acceptance

Other interested stakeholders may be defined by each jurisdiction depending on the unique characteristics and resources of the community. The following stakeholders are important in mitigation planning:

- **Elected officials and planning commission members.** Elected officials have the responsibility to protect the health, safety, and welfare of their constituents and typically are the governing bodies that adopt the plan prior to FEMA approval. The level of support that the elected officials provide to the mitigation plan's goals and actions largely determines the plan's progress and implementation, and ultimately, the resilience of the community.

Professional designers, urban planners, architects, and community members participate in an outreach and information meeting.

- **Business leaders and large employers.** Economic resiliency drives a community's recovery after a disaster. A key component of mitigation planning is identifying those economic assets and drivers whose losses and inability to operate would severely impact the community and its ability to recover from a disaster. Involving economic development officials, the local chamber of commerce, and business leaders in the planning process and educating them about local risks and vulnerabilities can make them partners in future mitigation initiatives. More information on determining your community's economic assets is included in *Task 5 – Conduct a Risk Assessment*.
- **Regional, State, and Federal agencies.** Public agencies, such as regional planning agencies, geological surveys, forestry divisions, emergency management offices, dam safety agencies, and weather service offices, at the regional, State, and Federal government levels are key resources for data and technical information, as well as financial assistance. These agencies may have programs that complement your mitigation planning goals.
- **Cultural institutions.** Cultural institutions, such as museums, libraries, and theatres, often have unique mitigation needs. For example, they may be located in a historic building or house collections that require special protection from natural hazards. These institutions also may keep records and collections of historic information on natural disasters in your community, particularly floods, fires, and earthquakes. For more information, see *Integrating Historic Property and Cultural Resource Considerations into Hazard Mitigation Planning* (FEMA 386-6).[1]
- **Colleges and universities.** Like public agencies, academic institutions have valuable resources to assist with the planning efforts, such as natural hazards data, GIS mapping and analysis, or research on successful methods to reduce risk. The planning team may be able to collaborate with a local college or university to engage students in

1 http://www.fema.gov/library/viewRecord.do?id=1892

the planning process or to complete research and analysis needed for the mitigation plan. Consider partnering with the urban planning, geology, emergency management, geography, or environmental studies departments. Participating in the mitigation planning process can also help local colleges and universities understand and reduce threat and hazard risks on their campuses.

- **Nonprofit organizations.** These groups often act as advocates for citizens and can be important in public outreach, information sharing, and getting support for the mitigation actions developed in the plan. Nonprofit organizations might include disaster preparedness and response organizations, such as the local Red Cross; parks, recreation, or conservation organizations; historic preservation groups; church organizations; and parent-teacher organizations.
- **Neighborhood groups.** Many communities have existing neighborhood associations and homeowners' associations that are active and engaged in community activities. These groups can provide valuable information about local risks and possible mitigation solutions in specific areas. They can also help with dissemination of information via newsletters and periodic meetings. Also, consider contacting people involved in Community Emergency Response Teams (CERT), since they are knowledgeable about threats and hazards, and they are interested in making the community more disaster resilient.

Group exercise designed to help citizens express needs for reducing hazard risks in their community.

In any of these categories, consider how organizations that serve persons with access and functional needs should be included to ensure equal access and meaningful participation of all individuals with disabilities, without discrimination.

Because many possible stakeholders could be involved in the planning process, an outreach strategy helps to identify the appropriate contacts and desired contributions for each stakeholder or group. Depending on the needs of your community and timeline for plan development, you may prioritize which stakeholders you contact directly and which you include in the outreach to the general public.

Public

The general public must also be given an opportunity to be involved in the planning process. More than just informing the public of the plan's development, a good public outreach effort educates the public and motivates them to take action. Many mitigation actions affect private property; therefore, the public should be engaged early to understand community priorities. In addition, although members of the public may not be technical experts, they can help identify community assets and problem areas, describe issues of concern, narrate threat and hazard history, prioritize proposed mitigation alternatives, and provide ideas for continuing public involvement after plan adoption.

Element A3

The planning process shall include an opportunity for the public to comment on the plan during the drafting stage and prior to plan approval.

44 CFR §201.6(b)(1)

How to Develop Your Outreach Strategy

The public relations or public information official (PIO), if available in your community, provides valuable services by helping to generate messages, work with the media, and coordinate public information sharing throughout the

mitigation planning process. With or without a designated PIO, the planning team can develop an effective outreach strategy through the following steps:

1. Brainstorm outreach activities

The planning team can conduct a brainstorming session to identify stakeholders during the project kickoff meeting, as well as to determine when and how to conduct outreach activities. If completing a plan update, the planning team should evaluate the stakeholders and the outreach activities involved in the previous planning process and identify any necessary changes.

2. Determine public outreach objectives and schedule

What input do you need from stakeholders? What input do you want from the public? How can stakeholders and the public contribute to the development of the capability review, risk assessment, and mitigation strategy? These questions can help determine the objectives of your outreach strategy. As the project kicked off, the planning team confirmed a schedule of tasks and meetings for completing the plan or plan update. Revisit this schedule and identify the times when it is important to inform and seek input from stakeholders and the public. For example, a good time to invite public involvement is after the risk assessment is complete and the planning team begins to create the mitigation strategy. Involving the public at this stage provides the opportunity to educate them on the risk assessment findings, collect input on any data inaccuracies, and understand their ideas and priorities for various mitigation actions.

3. Identify appropriate outreach methods

What are the best methods for reaching out to stakeholders and the public? This may be driven by planning needs, schedule, and budget as defined by the planning team. Stakeholders should be engaged using targeted methods for specific input. Online surveys, one-on-one briefings, phone interviews, roundtable discussions, presentations to specific groups, and personal invitations to public outreach activities are all potential methods to involve stakeholders.

If your community has recently been affected by a disaster event, the public may have a heightened interest in hazards and mitigation. Use this interest to get community members engaged in finding ways to avoid the impacts of future events. A public meeting that primarily focuses on hazard mitigation may not be well attended, if the community has not recently been affected by hazard events. Use the planning team to help identify what methods of public involvement have previously worked well in your community. It helps to reach out to people instead of asking them to come to you. For example, setting up a booth at a popular community event or getting on the agenda of a scheduled meeting could reach a greater number of people than a meeting that solely discusses hazard mitigation.

A variety of informational materials and methods, such as news media, social media, fliers, surveys, and websites, are useful for reaching out to the public during the planning process. Consider messages for Twitter and content for sharing on Facebook. Public involvement activities should include methods designed to improve public awareness by presenting information (one-way communication), as well as to solicit input to inform the plan's content (two-way communication).

As with all public outreach materials and activities, ensure equal access and meaningful participation of all individuals with access and functional needs, including individuals from racially and ethnically diverse backgrounds, with and without limited English proficiency, seniors, children, and members of underserved populations.

Table 3.1 provides examples of how communities have successfully used different types of outreach methods in mitigation planning.

Table 3.1: Example Outreach Methods in Mitigation Planning

Outreach Method	Community Example
Community Events	At the annual fair in Howard County, Maryland, the Office of Emergency Management has a booth to educate residents on preparing for natural hazards. Brochures and fliers on related topics are distributed to visitors.
Interviews	The focus of the hazard mitigation planning process for Oakland County, Michigan was a series of structured discussions with County officials, municipal officials, affected stakeholders, and the general public. This broad outreach effort included telephone and face-to-face interviews with leaders and representatives from each of the County's 62 communities, 28 public schools districts, and 2 public universities to identify hazards of concern and potential mitigation measures.
News Media	The mitigation planning process in Mecklenburg County, North Carolina included extensive outreach to local media outlets. In response, the local television, radio and print media partners prepared stories to help promote widespread public involvement. Through the City of Charlotte's Corporate Communications & Marketing Office, "e-blasts" soliciting input on draft plan documents as well as public meeting attendance were sent out using distribution lists that included government agencies, businesses, and civic organizations. Public meeting information was sent to all City and County employees, posted to the community's online public events calendar, added to live tickers that scrolled across the bottom of the local government access television channel, and shared through C-Mail (bi-weekly e-newsletter for City of Charlotte news and events). In addition, live television coverage of public input meetings was provided with the ability for citizens to submit their questions or comments by e-mail.
Presentations to Governing Bodies	During the development of a Multi-jurisdictional Natural Hazards Mitigation Plan for Garfield County, Colorado the Steering Committee made several presentations to the Board of County Commissioners about the status of the plan. These meetings were public and announcement of the plan agenda item was included along with the announcement of the public meeting.
Questionnaires/ Surveys	In completing its first hazard mitigation plan, Catawba County, North Carolina used a survey to capture information from people who might not have been able to attend the public meetings or participate through other means in the mitigation planning process. Copies of the survey were distributed by local officials and made available for residents to complete at local county and municipal offices, and an electronic version was posted on their websites. Nearly 250 respondents to the survey provided input for the County's planning team to consider in developing their mitigation strategy.
Roundtables/ Forums	In order to solicit ideas from citizens on how to reduce the risk of natural hazards, the City of Everett, Washington sponsored a public forum titled the "Safe and Sound Summit: Help Everett Master Disaster." Attended by more than 80 residents of the community, this was the primary public event designed to both educate the public and to empower citizens to contribute to the hazard mitigation plan's action items. The meeting format was adapted from The World Café method, a conversational process designed to bring people together to discuss "questions that matter" through small group discussions that rotated between tables on different topics. The resulting ideas helped the City's planning team to identify risks, strengths, weaknesses, and opportunities in Everett.
Social Media	Clark County, Kansas (population 1,950) used computer technology to obtain public input by creating the Clark County, Kansas Hazard Mitigation Plan Facebook page. They included small video clips with community leaders talking about the importance of mitigation planning. Additionally, the Facebook page was used to hold a drawing for an Apple iPod Shuffle 2GB MP3 Player posting that "all those that participate and provide feedback via this Facebook page will be entered in the drawing."
Area-specific Meetings	The City of Tulsa, Oklahoma holds small, area-specific meetings on a semi-annual basis at public libraries and other public venues. These meetings are used to distribute literature and educate citizens on actions they can take to mitigate natural hazards, save lives, and prevent property damage. Input also is solicited about how the mitigation process can be more effective.
Website	Pinal County, Arizona used their website to promote the mitigation plan by providing a definition of hazard mitigation planning, a list of who is involved in the local planning process, a description of how the plan update process works, and information about upcoming stakeholder meetings and opportunities for public involvement. Point of contact information was also provided for questions or comments. Downloads available from the site include copies of the existing plan, the plan update, public notices, and press releases.

4. Develop clear and consistent messages that align with community values

Consider the overarching goals and values of the community and how they align with reducing the impacts of future hazards and disasters. Then, personalize talking points for discussions with different audiences and develop messages that appeal to them. For example, if a gold-medal trout stream or historic downtown is important to a community's identity and economy, then frame mitigation messages to emphasize these assets and the need for their long-term protection.

5. Evaluate and incorporate feedback from outreach activities

The feedback you receive through outreach activities, such as completed questionnaires and surveys, comments at meetings, and comments on plan drafts, should be evaluated and incorporated into the planning team's decision making process and the final plan. During the outreach process, clearly communicate to stakeholders and the public how the planning team uses their feedback to inform the plan. Develop a process for organizing and evaluating the comments received, as well as documenting them in the final plan.

6. Provide an opportunity for public review of the final draft plan

Element *A3*

The planning process shall include an opportunity for the public to comment on the plan during the drafting stage and prior to plan approval.

44 CFR §201.6(b)(1)

The public must be given the opportunity to review and comment on the final draft plan prior to its adoption. This may be done by providing copies of the draft plan in the local library, city hall, or community center, as well as posting it on the community's website. Consider allowing at least four weeks for review and comment and providing some guidance on the type of comments and feedback that you are seeking. For instance, it is helpful to get feedback from the public on the identification of community assets and the prioritization of the mitigation actions in the plan. Inform the public through a press release in the local newspaper and on the community's website when a draft is available for review and how they may provide comment. Some jurisdictions have policies in place for the public review of documents prior to adoption, which should be followed for the final comment period for the mitigation plan.

News Release

NEWS RELEASE

Jones County Emergency Management Agency
22 Mason Street
Laurel, MS

Don McKinnon, Director
Marda Tullos, Deputy Director
(601) 649-3535

PUBLIC MEETING SCHEDULED FOR REVIEW OF THE DRAFT JONES COUNTY HAZARD MITIGATION PLAN

Contact: Donna Lum, (601) 948-3071 donna.lum@neel-schaffer.com

LAUREL, MISSISSIPPI, Monday, March 2, 2009 ------ A public meeting to review the Jones County Hazard Mitigation Plan (Plan) is scheduled for Thursday, March 12 from 6 – 8 p.m. in the Laurel Train Depot located at 230 Maple Street, in Laurel, Miss., according to the Jones County Emergency Management Council.

During the meeting, the public is invited to make comments or suggestions. City, County, and emergency management officials will be on hand to answer any questions. All comments received from the public will be documented and considered for inclusion in the Plan.

According to Don McKinnon, Jones County Emergency Management Agency, the Hazard Mitigation Plan is a process designed to reduce the loss of life and property during times of hazardous events.

"This plan is being completed through a cooperative effort of officials from Jones County and the cities of Laurel, Ellisville, Sandersville, and Soso," McKinnon said. "Once it meets with the approval of all of the Council participants and the public, it will be submitted to the Mississippi Emergency Management Agency (MEMA) for review and comment then will be given to the Federal Emergency Management Agency (FEMA) for final review."

McKinnon says the Jones County plan is designed to mesh with and support MEMA's statewide Hazard Mitigation Plan. This will help increase coordination between local, state, and federal agencies during times of disaster. In addition, by completing a hazard mitigation plan, Jones County is entitled to apply for future federal relief dollars to fund specific mitigation projects, designed to reduce and/or eliminate vulnerabilities resulting from disaster events throughout the County.

Continuing Public Outreach over Time

The outreach strategy should address both the planning process and how to keep people engaged after the plan's adoption. Ongoing outreach continues the discussion with the community about hazards and risks, builds support for implementation of mitigation activities, and informs the outreach strategy for the next plan update process.

The plan must describe how the jurisdictions will continue public participation during the plan's implementation and maintenance.

Element A5

The plan maintenance process shall include a discussion on how the community will continue public participation in the plan maintenance process.

44 CFR §201.6(c)(4)(iii)

The outreach activities conducted during the planning process, as described above, are a good source of ideas for how to continue to involve stakeholders and the public during plan maintenance and implementation. Consider repeating successful outreach events annually. Other examples of activities for continued public participation include periodic presentations on the plan's progress to elected officials, schools, or other community groups; annual questionnaires or surveys; postings on social media and email lists; and interactive websites. You may help build capabilities throughout the planning area by assigning the responsibility for coordinating these activities to a staff member in each jurisdiction.

Coordinating a Multi-Jurisdictional Outreach Strategy

If you are developing a multi-jurisdictional plan, the outreach strategy creates a mechanism for coordination and accountability among the jurisdictions. For each jurisdiction seeking plan approval, the plan must document how they were involved in the planning process, including how they provided opportunities for the involvement of their stakeholders and the public.

Task 2 describes ways that the representatives on multi-jurisdictional planning teams can share information with their respective community stakeholders and citizens. Specific stakeholders may be identified for each participating jurisdiction, and public involvement activities should be designed to reach citizens throughout the planning area. The planning team may develop one set of outreach materials, which each jurisdiction is responsible for distributing or hosting to reach their stakeholders and citizens. Another good approach is to develop one presentation, or a series of presentations on the plan's progress, that jurisdictional representatives can deliver at a regularly scheduled open meeting of their city council or governing body. This is a good method to keep elected officials informed of the planning project and to give the public an opportunity to be informed and provide comments.

Example: Multi-Jurisdictional Coordination

The Luzerne and Lackawanna Counties, Pennsylvania Hazard Mitigation Plan provides a good example of a multi-jurisdictional outreach strategy. The bi-county planning process included 40 municipalities in Lackawanna County and 76 municipalities in Luzerne County. In addition to steering committee meetings, input was solicited through municipal workshops and open houses held throughout the planning area. Municipalities were required to fill out the 'Intent to Participate' form, attend workshops, provide data/maps, complete questionnaires, and review the draft plan. The open houses provided an avenue for public to comment on the plan during the drafting stage.

Documentation of the Planning Process – Stakeholder and Public Involvement

It is important to document the planning process to: 1) inform the public and other readers about the overall approach to the plan's development and 2) serve as a permanent record of who was involved and how decisions were made. This record is also useful for the next plan update.

There are several requirements related to documentation of stakeholder and public involvement opportunities during the planning process:

- The plan must document how it was prepared and who was involved in the planning process for each jurisdiction. This includes the schedule or timeframe and activities that made up the plan's development.

Element A1

The plan shall document the planning process used to develop the plan, including how it was prepared, who was involved in the process, and how the public was involved.

44 CFR §201.6(c)(1)

- The plan must identify all planning team members and stakeholders who were involved or given an opportunity to be involved in the planning process, including the agency/organization and the person's position or title within the agency.

Element A2

The planning process shall include an opportunity for neighboring communities, local and regional agencies involved in hazard mitigation activities, and agencies that have the authority to regulate development, as well as businesses, academia and other private and non-profit interests to be involved in the planning process.

44 CFR §201.6(b)(2)

- The plan must document how the public was given the opportunity to be involved in the planning process and how their feedback was incorporated into the plan. The opportunity for participation must occur during the plan's development, which is prior to the comment period on the final plan and prior to plan adoption and approval.

Element A3

The planning process shall include an opportunity for the public to comment on the plan during the drafting stage and prior to plan approval.

44 CFR §201.6(b)(1)

- The plan must describe how the jurisdiction(s) will continue public participation in the plan maintenance process.

Element A5

The plan maintenance process shall include a discussion on how the community will continue public participation in the plan maintenance process.

44 CFR §201.6(c)(4)(iii)

Plan updates must include documentation of the current planning process undertaken to update the plan.

A simple narrative of the planning process can meet these requirements. It is also helpful to provide other forms of documentation, such as copies of meeting minutes, agendas, sign-in sheets, and newspaper articles, to help inform the reader. This type of documentation could be included as an appendix to the plan.

The mitigation plan should include a description of the planning process that answers the questions "who, what, when, where, and how" of the plan's development. A good description could easily be developed by integrating the outreach strategy into the scope of work and schedule confirmed by the planning team and incorporating this information into the plan. Overall, the plan document should provide enough information to tell the story of how the community developed the plan.

Conclusion

Task 3 describes how the planning team can involve stakeholders and the public. An open public involvement process is essential to the development of an effective plan. The documentation of these efforts ensures that the whole community understands how decisions were reached. *Task* 4 guides the planning team on how to assess existing authorities, policies, programs, and resources.

Task 4

Review Community Capabilities

About the Cover: At the Douglas County Dog River Reservoir, FEMA and County staff confer during inspection of the dam which failed during the September 2009 severe storms and flooding. FEMA Public Assistance funds have been requested to pay a share of repair costs.

Task 4 – Review Community Capabilities

The previous three tasks in the *Handbook* focused on the process of mitigation planning, including who must be involved and how to involve them. Beginning with *Task* 4, the remaining tasks describe what is accomplished during the planning process. *Task* 4 describes the critical step of assessing your community's existing authorities, policies, programs, and resources available to accomplish mitigation.

Capability Assessment

Each community has a unique set of capabilities, including authorities, policies, programs, staff, funding, and other resources available to accomplish mitigation and reduce long-term vulnerability. By reviewing the existing capabilities in each jurisdiction, the planning team can identify capabilities that currently reduce disaster losses or could be used to reduce losses in the future, as well as capabilities that inadvertently increase risks in the community. This is especially useful for multi-jurisdictional plans where local capability varies widely. *Task* 6 describes how to leverage capabilities for long-term vulnerability reduction in your mitigation strategy.

Element C1

The plan shall include a mitigation strategy that provides the jurisdiction's blueprint for reducing the potential losses identified in the risk assessment, based on existing authorities, policies, programs, and resources, and its ability to expand on and improve these existing tools.

44 CFR §201.6(c)(3)

The planning team collects and reviews information on community capabilities. The plan must describe each jurisdiction's existing authorities, policies, programs, and resources available to accomplish hazard mitigation. To review capabilities, begin by reviewing existing plans, reports, and information and interviewing local departments and agencies to gain a better understanding of relevant programs, regulations, resources, and practices. One approach is to distribute a capabilities worksheet for each planning team member's community or agency to complete. Appendix A includes an example capabilities worksheet (see Worksheet 4.1).

Types of Capabilities

The primary types of capabilities for reducing long-term vulnerability through mitigation planning are the following:

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

The planning team also may identify additional types of capabilities relevant to mitigation planning.

Safe Growth Audit

One way to assess the impact of planning and regulatory capabilities is to complete a safe growth audit.* The purpose of the safe growth audit is to analyze the impacts of current policies, ordinances, and plans on community safety from hazard risks due to growth. Basic safe growth audit questions are included in Appendix A (see Worksheet 4.2).

* Godschalk, David R., Practice Safe Growth Audits; Zoning Practice, Issue Number 10, October 2009; American Planning Association. http://www.planning.org/zoningpractice/open/pdf/oct09.pdf

Planning and Regulatory

Planning and regulatory capabilities are based on the implementation of ordinances, policies, local laws and State statutes, and plans and programs that relate to guiding and managing growth and development. Examples of planning capabilities that can either enable or inhibit mitigation include comprehensive land use plans, capital improvements programs, transportation plans, small area development plans, disaster recovery and reconstruction plans, and emergency preparedness and response plans. Plans describe specific actions or policies that support community goals and drive decisions. Likewise, examples of

regulatory capabilities include the enforcement of zoning ordinances, subdivision regulations, and building codes that regulate how and where land is developed and structures are built. Planning and regulatory capabilities refer not only to the current plans and regulations, but also to the community's ability to change and improve those plans and regulations as needed.

Plan and Policy Summaries

Example

The Multi-Jurisdictional Natural Hazards Mitigation Plan for Klamath County, Oregon includes a section on "Existing Plans and Policies" and states that implementing the natural hazards mitigation plan's action items through existing plans and policies increases their likelihood of being supported and getting updated, and maximizes the county's resources. The following excerpt from the Plan summarizes two of the existing documents in place for one of its participating jurisdictions:

City of Klamath Falls Comprehensive Plan

- Date of Last Revision: 1981
- Author/Owner: City of Klamath Falls
- Description: The Comprehensive Plan is the overall policy guide for future growth and development.
- Relationship to Natural Hazard Mitigation Planning: The Land, Water, Climate, Storm Drainage, and Safety and Health elements of the Klamath Falls Comprehensive Plan include specific goals and policies related to natural hazards. The comprehensive plan is implemented through city ordinances. Notably, the City of Klamath Falls comprehensive plan does not contain a section specifically addressing statewide planning Goal 7.

City of Klamath Falls Development Ordinance

- Date of Last Revision: 2000 (update process currently underway)
- Author/Owner: City of Klamath Falls
- Description: The Development Ordinance implements comprehensive plan policy through specific development standards and criteria.
- Relationship to Natural Hazard Mitigation Planning: The City of Klamath Falls development ordinance contains a Flood Hazard Zone and a Hazard Overlay Zone. The Flood Hazard Zone contains regulations that apply to properties within special flood hazard areas. In addition, the ordinance contains a Hazard Overlay Zone that addresses areas of steep slope, slumping and landslide.

Administrative and Technical

Administrative and technical capability refers to the community's staff and their skills and tools that can be used for mitigation planning and to implement specific mitigation actions. It also refers to the ability to access and coordinate these resources effectively. Think about the types of personnel employed by each jurisdiction, the public and private sector resources that may be accessed to implement mitigation activities in your community, and the level of knowledge and technical expertise from all of these sources. These include engineers, planners, emergency managers, GIS analysts, building inspectors, grant writers, floodplain managers, and more. For jurisdictions with limited staff resources, capacity should also be considered; while staff members may have specific skills, they may not have the time to devote to additional work tasks.

The planning team can identify resources available through other government entities, such as counties or special districts, which may be able to provide technical assistance to communities with limited resources. For example, a small town may turn to county planners, engineers, or a regional planning agency to support its mitigation planning efforts and provide assistance. For large jurisdictions, reviewing administrative and technical capabilities may involve targeting specific staff in various departments who have the expertise and are available to support mitigation initiatives. The degree of intergovernmental coordination among departments also affects administrative capability.

Financial

Financial capabilities are the resources that a jurisdiction has access to or is eligible to use to fund mitigation actions. The costs associated with implementing mitigation activities vary. Some mitigation actions such as building assessment or outreach efforts require little to no costs other than staff time and existing operating budgets. Other actions, such as the acquisition of flood-prone properties, could require a substantial monetary commitment from local, State, and Federal funding sources.

Some local governments may have access to a recurring source of revenue beyond property, sales, and income taxes, such as stormwater utility or development impact fees. These communities may be able to use the funds to support local mitigation efforts independently or as the local match or cost-share often required for grant funding.

Education and Outreach

This type of capability refers to education and outreach programs and methods already in place that could be used to implement mitigation activities and communicate hazard-related information. Examples include fire safety programs that fire departments deliver to students at local schools; participation in community programs, such as Firewise[1] or StormReady;[2] and activities conducted as part of hazard awareness campaigns, such as Tornado or Flood Awareness Month. Some communities have their own public information or communications office to handle outreach initiatives.

Mitigation Core Capabilities

Capabilities can be grouped or described in many different ways. Mitigation requires capabilities necessary to reduce loss of life and property by lessening the impacts of disasters. Your organization has already demonstrated a set of capabilities by initiating the mitigation planning process. The National Preparedness Goal, First Edition* groups core capabilities for mitigation another way, and the Mitigation Planning process described at 44 CFR §201.6 incorporates and enables local communities to build each of these core capabilities as follows:

- **Planning** through the Mitigation Planning process at 44 CFR §201.6
- **Public information and warning** through education and outreach and public participation (see *Task 3, Create an Outreach Strategy*)
- **Operational coordination** through the mitigation strategy and integration into other planning efforts (see *Task 6, Develop a Mitigation Strategy*); maintenance plan (see *Task 7, Keep the Plan Current*); and plan implementation (see *Task 9, Create a Safe and Resilient Community*)
- **Community resilience** through leadership, partnerships, and public involvement (see *Tasks 1-3* and *Task 9, Create a Safe and Resilient Community*)
- **Long-term vulnerability reduction** through identified mitigation actions to reduce or eliminate risks to threats and hazards (see *Task 6, Develop a Mitigation Strategy* and *Task 9, Create a Safe and Resilient Community*)
- **Risk and disaster resilience assessment** through threat and hazard risk assessments (see *Task 5, Conduct a Risk Assessment*)
- **Threats and hazard identification** through threat and hazard risk assessments (See *Task 5, Conduct a Risk Assessment*)

* National Preparedness Goal, First Edition, September, 2011, FEMA, http://www.fema.gov/pdf/prepared/npg.pdf.

1 The Firewise Communities program encourages local solutions for wildfire safety by involving homeowners, community leaders, planners, developers, firefighters, and others in the effort to protect people and property from wildfire risks. The program is co-sponsored by the USDA Forest Service, the U.S. Department of the Interior, and the National Association of State Foresters. Information is available here: http://www.firewise.org/.

2 The National Weather Service's StormReady is a nationwide community preparedness program that uses a grassroots approach to help communities develop plans to handle all types of severe weather. Information is available here: http://www.stormready.noaa.gov/.

National Flood Insurance Program

As a participant in the National Flood Insurance Program (NFIP),[3] a community develops capabilities for conducting flood mitigation activities. The local mitigation plan must describe each jurisdiction's participation in the NFIP. Participating communities must describe their continued compliance with NFIP requirements. The mitigation plan must do more than state that the community will continue to comply with the NFIP. Each jurisdiction must describe their floodplain management program and address how they will continue to comply with the NFIP requirements. The local floodplain administrator is often the primary source for this information.

Jurisdictions where FEMA has issued a floodplain map but are currently not participating in the NFIP may meet this requirement by describing the reasons why the community does not participate.

Element C2

The hazard mitigation strategy shall address each jurisdiction's participation in the NFIP and continued compliance with NFIP requirements, as appropriate.

44 CFR §201.6(c)(3)(ii)

Plan updates must meet the same requirements and document any change in floodplain management programs.

Planning and regulatory. The plan may describe the community's adoption and enforcement of floodplain management regulations, including when the community joined the NFIP, when the Flood Insurance Rate Maps (FIRM) became effective, and whether the floodplain ordinance meets or exceeds minimum requirements. You can provide a summary of the community's compliance history, including the results from the most recent Community Assistance Visit (CAV).[4] If applicable, you may include activities that contributed to the communities' class rankings in the Community Rating System (CRS).[5]

National Flood Insurance Program

Participation in the NFIP is based on an agreement between communities and FEMA. The NFIP has three basic components:

1. **Floodplain mapping.** NFIP participation requires community adoption of flood hazard maps to provide the data needed to administer floodplain management programs and to actuarially rate new construction for flood insurance.

2. **Floodplain management.** The NFIP requires communities to adopt and enforce minimum Federal floodplain management regulations that help mitigate the effects of flooding on new and improved structures. States and communities may have more restrictive elements in their floodplain ordinances to provide additional safety measures.

3. **Flood insurance.** Community participation in the NFIP enables property owners to purchase insurance as a protection against flood losses in exchange for community floodplain management regulations that reduce future flood damages.

Administrative and technical. The planning team may identify the staff dedicated to managing the NFIP in the community, such as a dedicated floodplain administrator or staff for which the NFIP is a secondary duty. Also, the plan may describe the tasks completed by staff in support of the NFIP, such as permit reviews and building inspections.

3 For more information on the NFIP, see http://www.fema.gov/national-flood-insurance-program.

4 For more information on CAVs, see http://www.fema.gov/national-flood-insurance-program-2/community-assistance-visit.

5 For more information on activities under the CRS, see http://www.fema.gov/national-flood-insurance-program/community-rating-system.

Financial. The plan may include a summary of your community's flood insurance coverage, number of policies, and claims history, including repetitive loss properties. Repetitive loss properties are NFIP insured structures that have been repetitively damaged by flooding. A good approach is to include the types and numbers of repetitive loss properties in the community and maps showing concentrations of repetitive loss properties.[6] The planning team may contact the State NFIP Coordinator or the State Hazard Mitigation Officer (SHMO) for this information.

Education and outreach. Participation in the NFIP could also be described through any education or outreach activities that relate to the NFIP, such as flood safe building initiatives or outreach on the availability of flood insurance.

Appendix A includes a worksheet that lists important considerations when describing authorities and policies related to the NFIP and identifying actions to improve the existing program (see Worksheet 4.3). The plan does not need to include specific actions in the mitigation strategy for NFIP compliance, although areas of improvement, if identified, can become future mitigation actions. Communities are encouraged to complete additional activities that go above and beyond the minimum requirements of NFIP participation, as described in the CRS Coordinator's Manual (FIA-15/2007).

Documentation of Community Capabilities

The plan must document what existing plans, studies, reports, and technical information were reviewed and how relevant information was incorporated into the mitigation plan. To document means to provide the factual evidence for how the jurisdictions developed the plan. Documentation can be met with a narrative description, but may also be shown in other formats. For example, a table or list format may provide the relevant sources and explain how information was incorporated, or citations or footnotes throughout the document may demonstrate incorporation of other plans.

Element A4

The planning process shall include the review and incorporation, if appropriate, of existing plans, studies, reports, and technical information.

44 CFR §201.6(b)(3)

For multi-jurisdictional plans, the capabilities of each participating jurisdiction must be individually reviewed and documented. In a plan update, the planning team ensures capabilities are documented sufficiently and highlights any capability changes from the previous plan.

Conclusion

Task 4 describes how an assessment of existing plans, policies, studies, and programs can be completed to further inform the mitigation actions that will be identified through the planning process. Local capability for mitigation can vary significantly from community to community. In the development of multi-jurisdictional hazard mitigation plans, local governments with limited capacity or capability may use the planning process as a means to develop cooperative agreements, mutual aid agreements, or service agreements that enhance their capacity to undertake mitigation activities.

As part of the risk assessment in *Task* 5, the planning team evaluates how existing capabilities contribute to vulnerability by reducing or exacerbating disaster impacts. Understanding what capabilities need to be changed or enhanced to reduce disaster losses allows the planning team to address those shortfalls in the mitigation strategy.

6 Use of flood insurance claim information is subject to The Privacy Act of 1974, as amended, which prohibits public release of the names of policy holders and the amount of the claim payment. However, maps showing general areas where claims have been paid can be made public. If a plan includes the names of policy holders and the amount of the claim payment, the plan cannot be approved until this Privacy Act covered information is removed from the plan.

The CRS is a voluntary incentive program that recognizes and encourages community floodplain management activities that exceed the minimum NFIP requirements. For more information visit http://www.fema.gov/business/nfip/crs.shtm. The Mitigation Best Practice Portfolio is a collection of ideas, activities, projects, and funding sources that can help reduce or prevent the impacts of disasters. Find more information here: http://www.fema.gov/plan/prevent/bestpractices/index.shtm.

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Task 5

Conduct a Risk Assessment

About the Cover: FEMA Long-Term Community Recovery specialists, professional designers, urban planners, architects, ESF-14 recovery specialists, and community members participate in an outreach and information meeting at First Baptist Church in Hackleburg, Alabama. FEMA supports and coordinates the involvement and participation of all stakeholders in the recovery and rebuilding of a community following a disaster, such as the tornado that struck Hackleburg on April 27, 2011.

Task 5 – Conduct a Risk Assessment

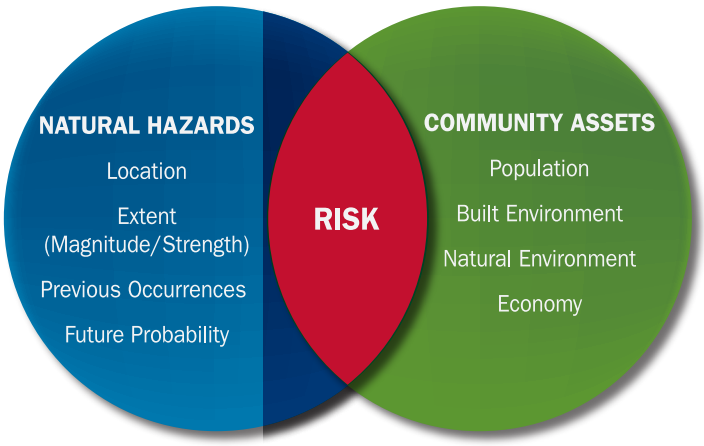
The planning team conducts a risk assessment to determine the potential impacts of hazards to the people, economy, and built and natural environments of the community. The risk assessment provides the foundation for the rest of the mitigation planning process, which is focused on identifying and prioritizing actions to reduce risk to hazards. In addition to informing the mitigation strategy, the risk assessment also can be used to establish emergency preparedness and response priorities, for land use and comprehensive planning, and for decision making by elected officials, city and county departments, businesses, and organizations in the community.

Task 5 presents a framework for conducting a local risk assessment. Many approaches to developing a risk assessment are possible, depending on available data, technology, and resources. Local risk assessments do not require sophisticated technology but do need to be accurate, current, and relevant. Some communities may choose to address a broader range of threats and hazards, or to tie their hazard identification and risk assessment to other planning initiatives.

Defining Risk Assessment

Risk, for the purpose of hazard mitigation planning, is the potential for damage, loss, or other impacts created by the interaction of natural hazards with community assets. Hazards are natural processes, such as tornados and earthquakes. The exposure of people, property, and other community assets to natural hazards can result in disasters depending on the impacts. Impacts are the consequences or effects of the hazard on the community and its assets. The type and severity of impacts are based on the extent of the hazard and the vulnerability of the asset, as well as the community's capabilities to mitigate, prepare for, respond to, and recover from events.

Figure 5.1 illustrates the concept of risk as the relationship, or overlap, between hazards and community assets. The smaller the overlap, the lower the risk.



Note: Modified from U.S. Geological Survey and Oregon Partnership for Disaster Resilience Models.

Figure 5.1: Community risk from natural hazards

*Risk Assessment Terminology**

Natural hazard – source of harm or difficulty created by a meteorological, environmental, or geological event

Community assets – the people, structures, facilities, and systems that have value to the community

Vulnerability – characteristics of community assets that make them susceptible to damage from a given hazard

Impact – the consequences or effects of a hazard on the community and its assets

Risk – the potential for damage, loss, or other impacts created by the interaction of natural hazards with community assets

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

Threat or human-caused incident – intentional actions of an adversary, such as a threatened or actual chemical or biological attack or cyber event.

* Definitions from FEMA *Local Mitigation Plan Review Guide*, October, 2011, *Threat and Hazard Identification and Risk Assessment Guide: Comprehensive Preparedness Guide* (CPG) 201, First Edition, April 2012, and adapted from the Department of Homeland Security Risk Lexicon, 2008.

Steps to Conduct a Risk Assessment

Figure 5.2 shows the four recommended steps for conducting a risk assessment. The desired outcomes of these steps are 1) an evaluation of each hazard's potential impacts on the people, economy, and built and natural environments in the planning area and 2) an understanding of each community's overall vulnerability and most significant risks. These potential impacts and the overall vulnerability can be used to create problem statements and identify mitigation actions to reduce risk.

Figure 5.2: Steps to conduct a risk assessment

For multi-jurisdictional planning efforts, the risk assessment must result in an evaluation of potential impacts and overall vulnerability that each participating jurisdiction will use to development specific mitigation actions. Assets, vulnerabilities, and overall risk are unique to each community and must be addressed in a multi-jurisdictional plan. Although hazards may be described for the entire planning area, the plan also must explain any hazards that are unique or varied within communities.

Element B1

For multi-jurisdictional plans, the risk assessment section must assess each jurisdiction's risks where they vary from the risks facing the entire planning area.

44 CFR §201.6(c)(2)(iii)

A mitigation plan update focuses on how risk has changed since the previous plan was completed, particularly changes related to land use development and new hazard information. New development in hazard-prone areas, areas affected by recent disasters, and new data and reports are examples of information that should be incorporated into the plan to analyze the current risk and update problem statements.

Because the best available data is constantly changing, this *Handbook* does not include a comprehensive list of resources. The local community is the best source for specific information on community assets and past impacts. Your State Hazard Mitigation Officer and the State Hazard Mitigation Plan are also key resources for best available hazard data and risk assessment information.

1. Describe Hazards

The plan must include a description of the natural hazards that affect the jurisdiction(s) in the planning area. The following provides suggestions for identifying hazards in the planning area:

- Review your State Hazard Mitigation Plan for information on hazards affecting the planning area.
- Document the disaster declaration history.[1]
- Download weather-related events from online resources, such as the National Climatic Data Center.[2]
- Review existing studies, reports, and plans related to hazards in the planning area. State and Federal agencies are also good sources for hazard-related information.

Element B1

The risk assessment shall include a description of the type, location and extent of all natural hazards that can affect the jurisdiction.

44 CFR §201.6(c)(2)(i)

1 For recent disaster declaration information, visit FEMA's Federal Disaster Declarations webpage, http://www.fema.gov/news/disasters.fema. PERI Presidential Disaster Declarations are available at http://www.peripresdecusa.org/mainframe.htm. The Farm Services Agency Disaster Assistance provides assistance for natural disaster losses, resulting from drought, flood, fire, freeze, tornadoes, pest infestation, and other calamities. For more information, visit: http://www.fsa.usda.gov/FSA/webapp?area=home&subject=diap&topic=landing.

2 Websites of the National Climatic Data Center, http://www.ncdc.noaa.gov/, and the Spatial Hazard Events and Losses Database for the United States (SHELDUS), http://webra.cas.sc.edu/hvri/products/sheldus.aspx, compile county-level hazard data sets.

- Use flood insurance rate maps (FIRM) and non-regulatory flood risk assessment products developed for your community by FEMA as part of the National Flood Insurance Program (NFIP) and the RiskMAP program.[3]
- Contact colleges or universities that have hazard-related academic programs or extension services.
- Interview your planning team and stakeholders about which hazards affect the planning area and should be described in the mitigation plan.
- Consult local resources such as the newspaper, chamber of commerce, local historical society, or other resources with records of past occurrences.
- For plan updates, reference hazards previously identified and determine if they are still relevant.

If your plan omits a natural hazard that is commonly recognized to affect the planning area, it must include the planning team's rationale for the omission. For example, a hazard may be possible, but the likelihood and magnitude are so minimal that the planning team decides not to provide a detailed description or risk assessment.

Hazard Descriptions

For each hazard affecting the planning area, the risk assessment must include a description of location, extent, previous occurrences, and probability of future events. Plan updates will incorporate any additional hazards that have been identified and any new data that has become available, such as new flood studies. Plan updates must include hazard events that have occurred since the last plan was completed.

Location. Location is the geographic areas within the planning area that are affected by the hazard, such as a floodplain. Hazard areas may be further defined, such as high wildfire hazard areas versus low wildfire hazard areas. The entire planning area may be uniformly affected by some hazards, such as drought or winter storm. Although maps are usually the best way to illustrate location for many hazards, location may be described in other formats, such as a narrative.

Extent. Extent is the strength or magnitude of the hazard. Extent can be described in a combination of ways depending on the hazard, such as:

- The value on an established scientific scale or measurement system, such as EF2 on the Enhanced Fujita Scale for tornadoes or 5.5 on the Richter Scale for earthquakes.
- Other measures of magnitude, such as water depth or wind speed.
- The speed of onset. For example, hurricanes have longer warning times, giving people and governments more time to prepare and evacuate, while earthquakes occur without warning.
- The duration of hazard events. For most hazards, the longer the duration of an event, the greater the extent. Flooding that peaks and retreats in a matter of hours is typically less damaging than flooding of the same depth that remains in place for days.

Extent can be described using a map and/or narrative. Describing the extent of a hazard is not the same as describing its potential impacts on a community. *Extent* defines the characteristics of the hazard regardless of the people and property it affects, while *impact* refers to the effect of a hazard on the people and property in the community and will be addressed later in *Task 5*.

3 More information on the Risk MAP program is available at http://www.fema.gov/rm-main.

Previous occurrences. The plan must include the history of previous hazard events for each hazard. This information helps estimate the likelihood of future events and predict potential impacts. For some hazards, it may be helpful to compile past events in tables. When data is available, describe the extent of the event and impacts, such as fatalities and injuries, building and infrastructure damages, and loss of services. Understanding the extent and impacts of past hazard events will help you anticipate potential damage from future events.

Element B2

The risk assessment shall include information on previous occurrences of hazard events and on the probability of future hazard events.

44 CFR §201.6(c)(2)(i)

Previous Occurrences

Dale County, Alabama obtained historical data from the National Weather Service for previous damaging tornado occurrences in their planning area dating as far back as 1907.

Past Occurrences of Tornadoes

Year	Month	Day	Time (CST)	County	Damage Scale	Path Length (Miles)	Fatalities	Injuries	Location
1972	1	13	100	Coffee-Dale	F2	6	4	88	**3 E Enterprise - Fort Rucker - Lake Tholocco** The tornado struck two trailer parks destroying at least 68 mobile homes and 15 vehicles. Several other trailers and cars were damaged. All the deaths were army dependents. At Fort Rucker, 2 buildings were damaged and 15 helicopters were damaged.
1968	1	23	1630	Barbour Dale	F1	10	0	0	**Near New Hope** Approximately 12 homes damaged. 1 house and numerous barns and utility sheds damaged or destroyed. Timber damaged in several spots.
1955	10	16	1815	Coffee-Dale	F2	20	0	0	**Elba - New Brocton - NE Enterprise - S Ozark** 2 barns were destroyed and 2 homes were unroofed.
1954	4	16	800	Coffee-Dale	F2	17	0	1	**2 E Enterprise - 3 E Ozark** 4 barns were destroyed.
1937	3	24	1045	Dale	F2	0.1	2	0	**Ozark** One small home was leveled. Both fatalities occurred in the home.
1936	1	18	1800	Dale	F2	2	1	7	**Skipperville** One person died as 5 homes were destroyed.
1935	5	20	1030	Dale	F2	5	3	0	**2 E Midland City** One home and several barns were destroyed. 3 members of one family were killed when their home was demolished.
1907	4	5	1600	Coffee-Dale	F2	15	1	20	**Central City - N Clayhatchee** Most of the village of Central City was destroyed.

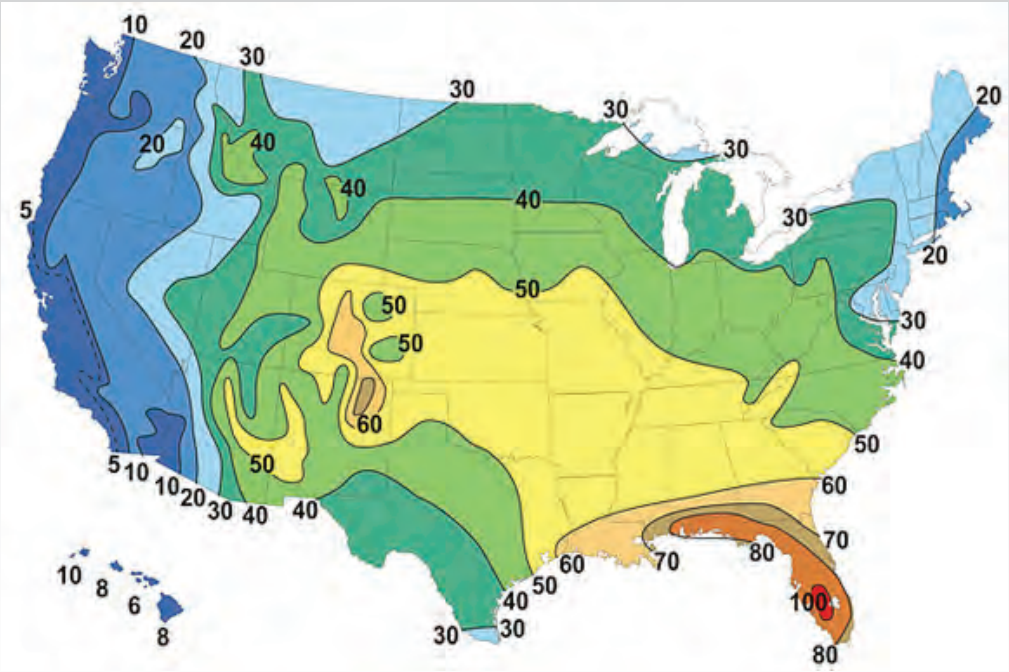
Source: National Weather Service

Probability of future events. Probability is the likelihood of the hazard occurring in the future and can be described in a variety of ways. Probability may be defined using historical frequencies or statistical probabilities. Statistical probabilities often refer to events of a specific size or strength. For example, the likelihood of a flood event of a given size is defined by the percent chance in a single year, such as the one-percent annual chance of flood, also known as a 100-year flood. Hazard likelihood can also be compared using general descriptions or rankings. If

general descriptors are used, then they must be defined in the plan. For example, "highly likely" could be defined as occurring every 1-10 years, "likely" as occurring every 10-50 years, and "unlikely" as occurring at intervals greater than 50 years. Some hazards are most likely during a specific time of year, but others can occur at any time. For example, flooding might be more frequent in the spring because of snow melt or during late summer or fall because of the hurricane season.

Example: Using Historical Frequency to Determine Probability

The figure below shows the average number of thunderstorm days each year throughout the U.S. (Source: NOAA).

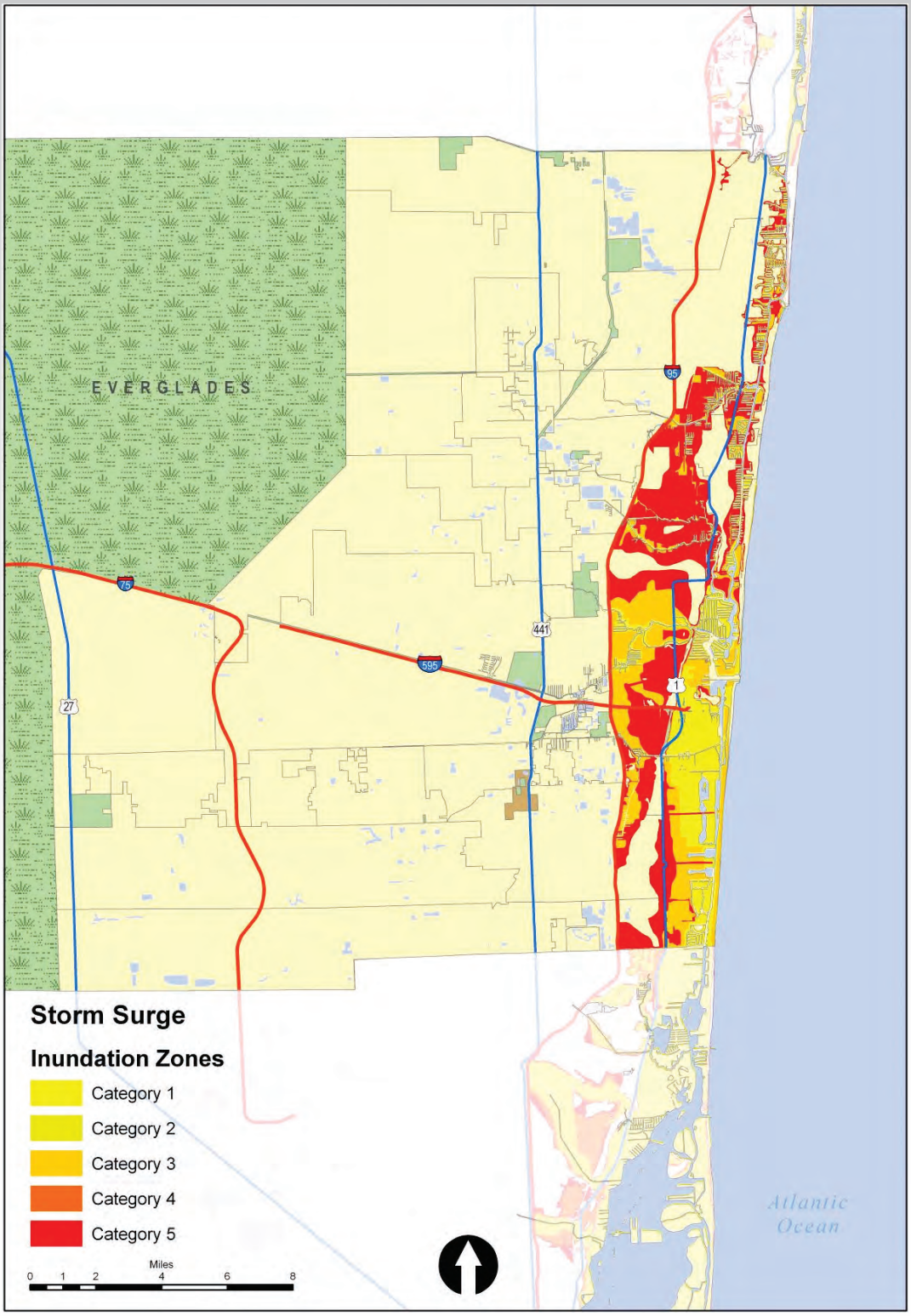


Displaying Hazard Information

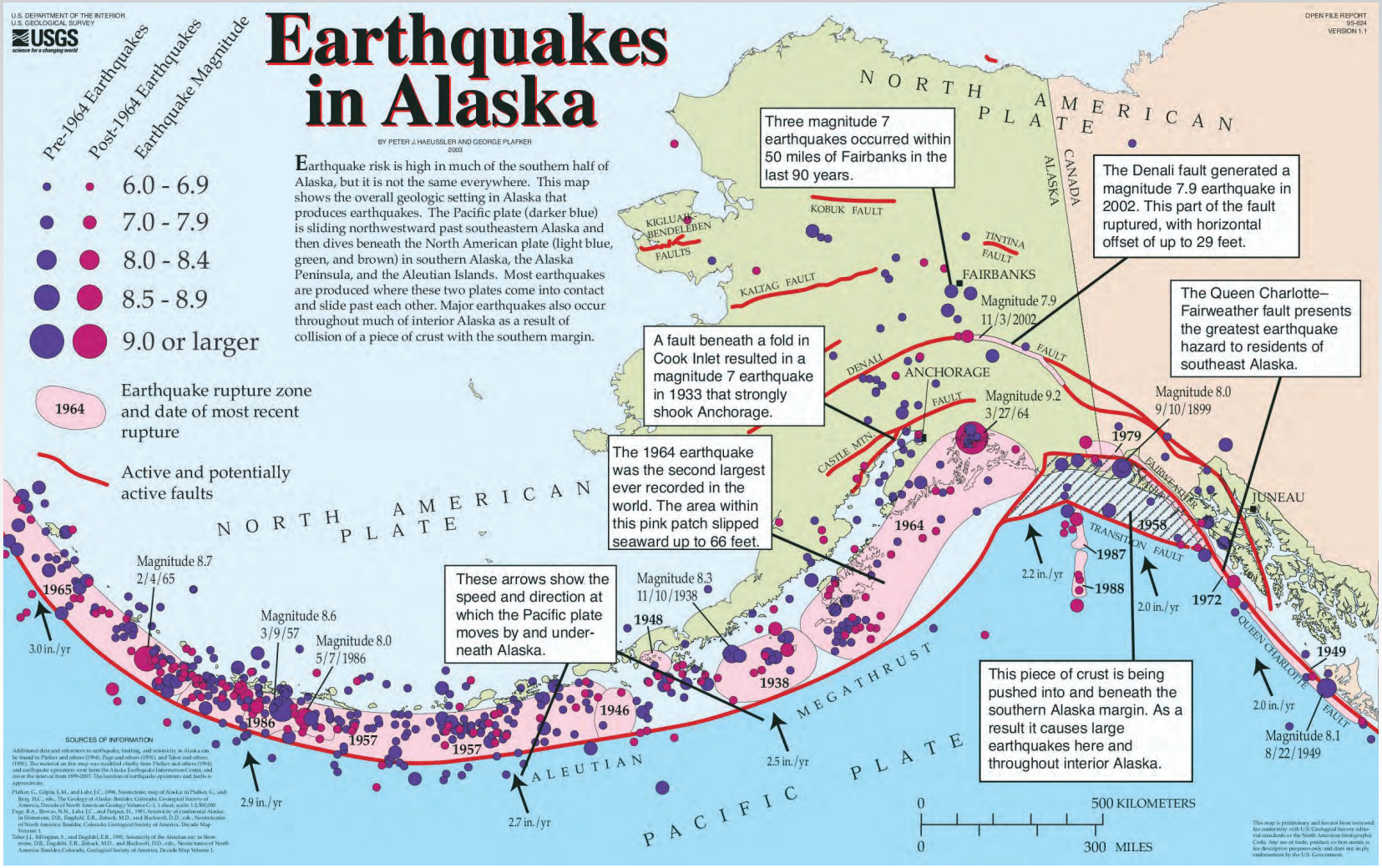
The following figures illustrate how communities have used maps to describe the location, extent, previous occurrences, and/or probability of future events for various hazards. Note that one map can be used to describe several hazard characteristics.

A table or matrix can help summarize information from the hazard descriptions and identify which hazards are most significant to the planning area. Appendix A includes an example hazard description summary worksheet (see Worksheet 5.1).

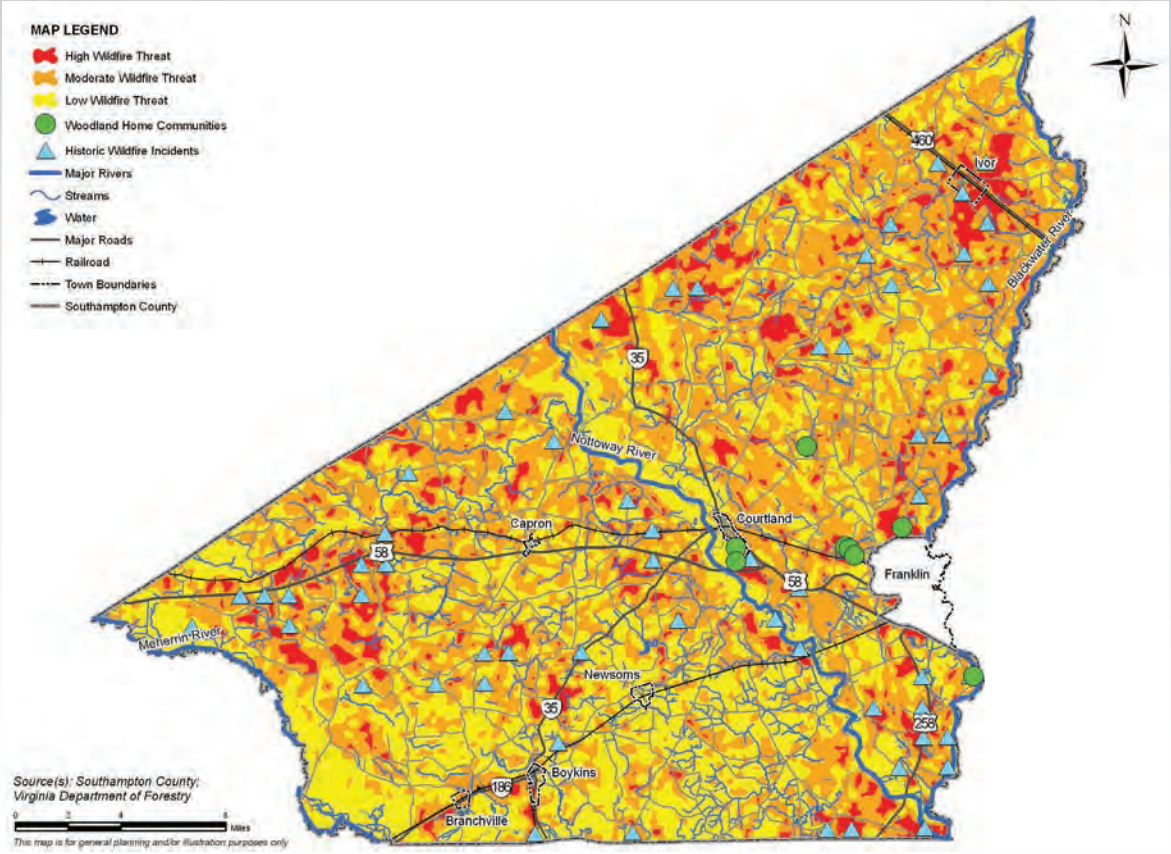
Example: Storm Surge Hazard (location and extent)



Earthquake Hazard (location and previous occurrences)



Example — Wildfire Hazard (location, extent, and previous occurrences)



Climate Change

The planning team may decide to include a discussion of the impacts of climate change in the risk assessment. This is not required by Federal mitigation planning regulation, but can provide a better understanding of how risk may change in the future. Climate change in and of itself may not be a hazard, but it may change the characteristics of the hazards that currently affect the planning area. The planning team can include climate change as a separate section in the plan or within the descriptions of the existing hazards, such as severe storms, flooding, wildfire, and drought. Climate adaptation strategies, which are adjustments in natural or human systems to mitigate the impacts of a changing environment, may complement other hazard mitigation strategies. For an overview of potential changes in your region, consider reviewing the United States Global Change Research Program's Regional Climate Change Impacts reports.[4]

Climate Change and Climate Adaptation

Climate Change: A statistically significant variation in either the mean state of the climate or in its variability, persisting for an extended period (typically decades or longer). Climate change may be due to natural internal processes or external forcing, or to persistent anthropogenic changes in the composition of the atmosphere or in land use.

Climate Change Adaptation: The adjustment in natural or human systems in response to actual or expected climatic stimuli or their effects.

Source: Intergovernmental Panel on Climate Change (IPCC), http://www.ipcc.ch/index.htm.

4 The U.S. Global Change Research Program coordinates and integrates Federal research on changes in the global environment and their implications for society. See http://www.globalchange.gov/publications/reports/scientific-assessments/us-impacts/regional-climate-change-impacts.

Technological Hazards and Human-Caused Threats

The planning team may decide to include technological hazards and human-caused threats in the plan. Technological hazards result from accidents or the failure of systems and structures, such as hazardous materials spills or airplane accidents. Human-caused incidents, also known as threats, result from intentional actions of an adversary, such as a chemical or cyber attack. A Threat and Hazard Identification and Risk Assessment (THIRA) expands on the existing hazard identification and risk assessment of a local mitigation plan; provides a comprehensive approach for assessing risks and associated impacts with all types of threat or hazard; and identifies a methodology for assessing a broader range of capabilities for prevention, protection, response and recovery, and mitigation.[5]

A discussion of technological hazards and human-caused threats is not required by Federal mitigation planning regulation, but may be included in the plan. See *Integrating Manmade Hazards into Mitigation Planning* (FEMA 386-7)[6] for suggestions and information on including these types of hazards and threats in the mitigation plan.

Threat and Hazard Identification and Risk Assessment (THIRA)

A THIRA incorporates technological and human-caused threats in addition to natural hazards. Similar to the risk assessment process described here, a THIRA describes the types of risk and gives them context, such as probability and likelihood. The process for conducting a THIRA results in a set of capability targets for all stages of emergency management, including prevention, protection, mitigation, response and recovery. The THIRA may be completed separately or build on the mitigation plan risk assessment, or HIRA, which further defines a community's vulnerability to hazards, particularly for the built environment.

2. Identify Community Assets

In this next step, each participating jurisdiction identifies assets at risk to hazards. Assets are defined broadly to include anything that is important to the character and function of a community and can be described very generally in the following four categories:

- People
- Economy
- Built environment
- Natural environment

Although all assets may be affected by hazards, some assets are more vulnerable because of their physical characteristics or socioeconomic uses. The purpose of an asset inventory is to identify specific vulnerable assets in your community. When updating a mitigation plan, the planning team will update the asset inventory to reflect current conditions.

5 Threat and Hazard Identification and Risk Assessment Guide: Comprehensive Preparedness Guide (CPG) 201, First Edition, April 2012; http://www.fema.gov/library/viewRecord.do?id=5823.

6 See Integrating Manmade Hazards into Mitigation Planning (FEMA 386-7); http://www.fema.gov/library/viewRecord.do?id=1915.

People

People are your most important asset. The risk assessment can identify areas of greater population density, as well as populations that may have unique vulnerabilities or be less able to respond and recover during a disaster. These include visiting populations and access and functional needs populations. In addition, the risk assessment can identify locations that provide health or social services that are critical to post-disaster response or recovery capabilities.

Visiting populations include students, second home owners, migrant farm workers, and visitors for special events. Special events could include large sporting events and festivals where large numbers of people are concentrated and vulnerable to hazards and threats. Visiting populations may be less familiar with the local environment and hazards and less prepared to protect themselves during an event.

People

- Identify concentrations of residents and employees to help target preparedness, response, and mitigation actions.
- Identify the types of visiting populations and their likely locations to assess potential problems.
- Identify locations and concentrations of access and functional needs populations to develop mitigation actions that will best assist them.
- Consider demographics of projected population growth to predict vulnerability.
- Identify locations that provide health or social services that are critical to disaster recovery.

The term "access and functional needs populations" describes groups that may not comfortably or safely access the standard resources offered in emergencies. These populations may include children, the elderly, the physically or mentally disabled, non-English speakers, or the medically or chemically dependent. Facility locations and support service operations for these populations (e.g., hospitals, dependent care facilities, oxygen delivery, and accessible transportation) also need to be considered.

A variety of data sources are available to help collect information on population, such as the U.S. Census,[7] state population estimates, and the U.S. Bureau of Labor Statistics.[8] Creating maps that show facilities that house dependent populations or venues that host large numbers of people will help illustrate the relationship between population and potential hazards.

Economy

After a disaster, economic resiliency drives recovery. Every community has specific economic drivers that are important to understand when planning to reduce the impacts of hazards and disasters to the local economy. Economic assets can be described in terms of direct or indirect losses; for example, building or inventory damage is direct, but functional downtime and loss of employment wages are indirect losses that can be calculated. In addition to the primary economic sectors in the community, such as manufacturing, agricultural, or service sectors, major employers and commercial centers also support the local economy.

Economy

- Identify major employers, primary economic sectors (e.g., agriculture), and commercial centers whose losses or inoperability would have severe impacts on the community and its ability to recover from a disaster.
- Assess dependencies between economic sectors and businesses and the infrastructure needed to support them.

7 The US Census Bureau's Quick Facts give a summary of the population in the selected community. See http://quickfacts.census.gov/qfd/index.html.

8 The Bureau of Labor Statistics is the principal Federal agency responsible for measuring labor market activity, working conditions, and price changes in the economy. For access to data related to specific communities, visit http://www.bls.gov/data/.

Built Environment

The built environment includes existing structures, infrastructure systems, critical facilities, and cultural resources. Areas of future growth and development are also an important component when assessing the building environment.

Existing Structures. All structures are exposed to risk, but certain buildings or concentrations of buildings may be more vulnerable because of their location, age, construction type, condition, or use. Consult the local tax assessor and planning department for information on land use, zoning, parcel boundaries and ownership, and types and numbers of structures.

Infrastructure. Infrastructure systems are critical for life safety and economic viability and include transportation, power, communication, and water and wastewater systems. Many critical facilities depend on infrastructure to function. For example, hospitals need electricity, water, and sewer to continue helping patients. As with critical facilities, the continued operations of infrastructure systems during and following a disaster are key factors in the severity of impacts and the speed of recovery.

Built Environment

Existing Structures

- Identify types of buildings, which include commercial, industrial, and single and multi-family residential.
- Determine the age and construction type of buildings to understand building codes in effect and quality of construction.

Infrastructure and Critical Facilities

- Develop an inventory of the location, construction standards, age, and life expectancy of specific critical infrastructure and facilities in the planning area.
- Assess dependencies between infrastructure systems, critical facilities, and the people they serve.

Critical facilities. Critical facilities are structures and institutions necessary for a community's response to and recovery from emergencies. Critical facilities must continue to operate during and following a disaster to reduce the severity of impacts and accelerate recovery. When identifying vulnerabilities, consider both the structural integrity and content value of critical facilities and the effects of interrupting their services to the community.

Infrastructure and Critical Facilities

Critical Facilities	High Potential Loss Facilities	Infrastructure Systems
Hospitals and medical facilities	Nuclear power plants	Water and wastewater
Police and fire stations	Dams	Power utilities
Emergency operations centers	Military and civil defense installations	Transportation (roads, railways, waterways)
Evacuation shelters	Locations housing hazardous materials	Communication systems/centers
Schools		Energy pipelines and storage
Airports/heliports		

Cultural resources. This inventory should also include cultural and historic assets that are unique or irreplaceable. Museums, unique geological sites, concert halls, parks, stadiums, or any asset that is important to the community can be considered a cultural resource.

Future development. An effective way to reduce future losses in your community is to avoid development in known hazard areas and to enforce the development of safe structures in other areas. In other words, keep people, businesses, and buildings out of harm's way from the beginning. The plan should provide a general description of community land uses and development trends so that mitigation options can be considered in future land use decisions to ensure safe development. Local comprehensive or master plans may have information on future land use and build-out scenarios.

Built Environment

Cultural Resources

- Review state and national historic registries and identify cultural assets, such as museums, that have significance to the community.

Future Development

- Identify areas planned and zoned for future development and annexation.
- Identify location, numbers, and types of structures of planned new development and redevelopment.
- Review plans for new facilities, infrastructure, and other capital improvements, such as stormwater management infrastructure, to support existing and future development.

Natural Environment

Environmental assets and natural resources are important to community identity and quality of life and support the economy through agriculture, tourism and recreation, and a variety of other ecosystem services, such as clean air and water. The natural environment also provides protective functions that reduce hazard impacts and increase resiliency. For instance, wetlands and riparian areas help absorb flood waters, soils and landscaping contribute to stormwater management, and vegetation provides erosion control and reduces runoff. Conservation of environmental assets may present opportunities to meet mitigation and other community objectives, such as protecting sensitive habitat, developing parks and trails, or contributing to the economy.

Natural Environment

- Identify the most valuable areas that can provide protective functions that reduce the magnitude of hazard events.
- Identify critical habitat areas and other environmental features that are important to protect.

Example: Identify Critical Facilities

In the completion of their hazard mitigation plan, Fannin County, Texas included a series of tables to describe their community assets. The table excerpt below lists some of the information collected for the county's critical facilities.

Critical Facility Name	Location	Facility Type	Structure Type	Value
Arledge Ridge Water Supply (500 customers)	Bailey	Utilities	3 Water Wells	$3M
Bailey City Hall	Bailey	Administration	Wood Frame	$100K
Bailey Fie Department	Bailey	Public Safety	Metal Structure	$300K
Bailey Water Department (100 customers)	Bailey	Utilities	1 Water Well	$100K
Boise D Arc Municipal Utilities (1,100 customers)	NE corner of county	Utilities	Water System	$5M
Bonham City Hall (Police)	301 E 5th, Bonham	Administration	Masonry Structure	$225K
Bonham Fire (Jones Field)	2509 N Center, Bonham	Public Safety	Metal Structure	$150K
Bonham Fire Station (Downtown)	220 E 5th, Bonham	Public Safety	Masonry/Metal	$165K
Bonham Wastewater Facility	2501 Seven Oaks, Bonham	Utilities	Wastewater Treatment	$14M
Bonham Water Department	Bonham	Utilities	Water System	$12M
Buster Cole State Jail (800 inmates)	3801 Silo Road, Bonham	Public Safety	Masonry Structure	$75M
Choice Moore Transfer Facility (1,200 inmates)	1700 FM 87, Bonham	Public Safety	Masonry Structure	$100M
District #1 Barn	Savoy	Administration	Metal Structure	$81K
District #2 Barn	Leonard	Administration	Metal Structure	$465K
District #3 Barn	Honey Grove	Administration	Metal Structure	$152K

3. Analyze Risk

Risk analysis involves evaluating vulnerable assets, describing potential impacts, and estimating losses for each hazard. The purpose of this analysis is to help the community understand the greatest risks facing the planning area. This step occurs after hazards and assets have been identified.

Methods for analyzing risk include exposure analysis, historical analysis, and scenario analysis. These methods can be expressed qualitatively or quantitatively. Qualitative evaluations describe the types of impacts that might occur during a hazard event. The planning team, subject matter experts, stakeholders, and community members can conduct qualitative evaluations by brainstorming and discussing potential impacts. Quantitative evaluations assign values and measure the potential losses to the assets at risk.

Element B3

The risk assessment shall include an overall summary of each hazard and its impact on the community.

44 CFR §201.6(c)(2)(ii)

Exposure Analysis

An exposure analysis identifies the existing and future assets located in identified hazard areas, often by using GIS for analysis and maps for visualization. You also can take into account the magnitude of the hazard, such as assets located in high, medium, or low wildfire hazard areas or assets located in different flood frequency areas (1% annual flood and 0.2% annual flood risk).

Exposure analysis can quantify the number, type, and value of structures, critical facilities, and infrastructure located in identified hazard areas, as well as assets exposed to multiple hazards. It can also be used to quantify the number of future structures and infrastructure possible in hazard prone areas based on current zoning and building codes.

Exposure of Existing Structures in Flood Hazard Areas

Sacramento County, California used its digital parcel and tax assessor records in combination with FEMA Digital Flood Insurance Rate Maps (DFIRM) to determine the count and value of improved parcels in floodplain areas for each jurisdiction in its planning area.

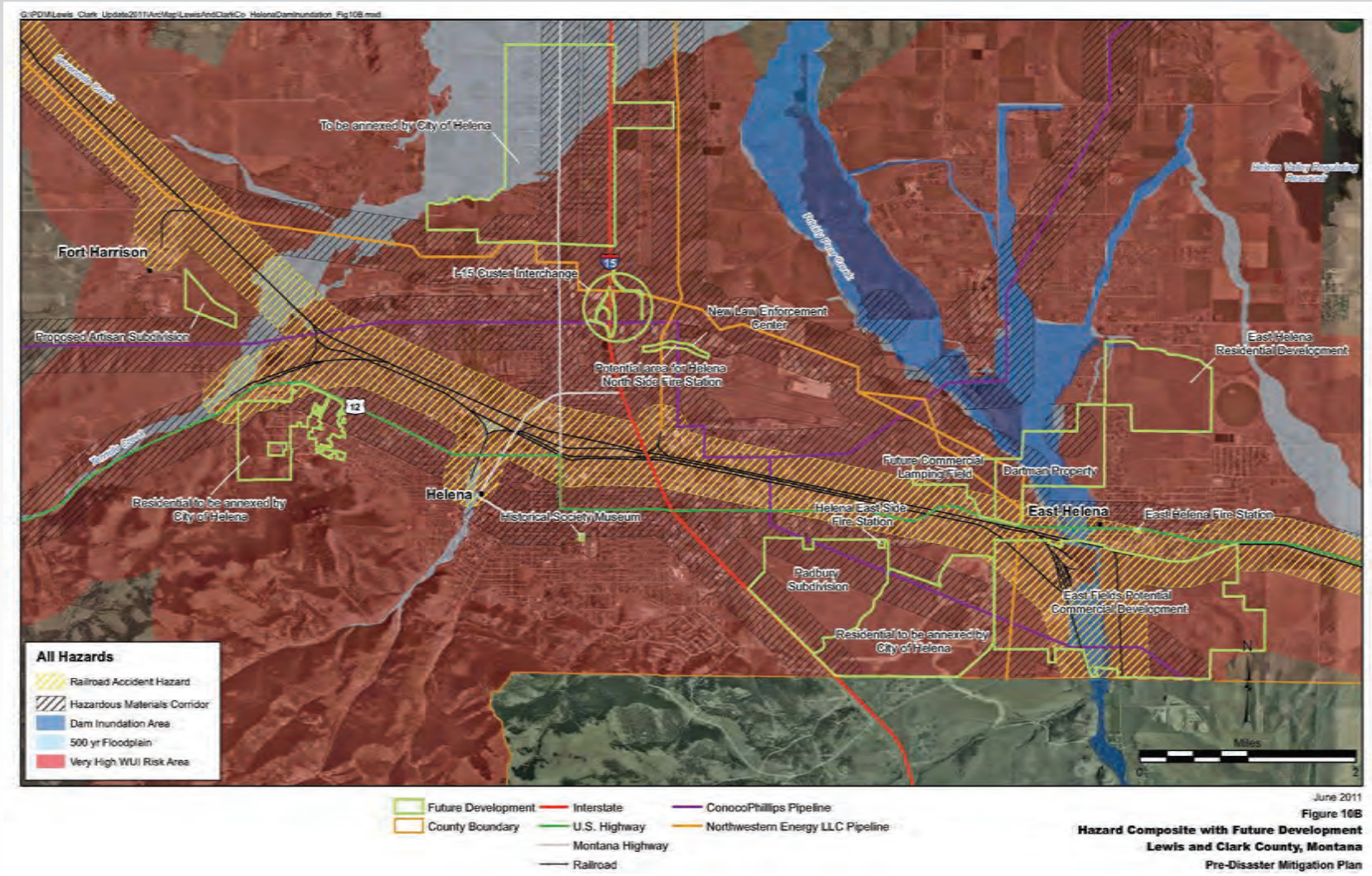
	1% Annual Chance		0.2% Annual Chance*		X Zone (no flood)	
Jurisdiction	Parcel Count	Structure Value	Parcel Count	Structure Value	Parcel Count	Structure
Citrus Heights	157	$30,238,980	276	$50,562,943	23,170	$3,718,817,361
Elk Grove	525	$206,224,864	3,967	$812,840,315	41,437	$9,429,151,072
Folsom	8	$2,519,665	124	$168,740,000	19,787	$6,912,827,854
Galt	1	$315,000	-	-	6,712	$4,262,908,025
Isleton	324	$29,743,865	-	-	9	$1,633,479
Rancho Cordova	21	$9,394,521	976	$153,705,651	16,207	$4,262,908,025
Sacramento	28,192	$6,781,945,735	8,420	$1,736,860,331	94,263	$18,389,505,445
Unincorporated County	4,483	$1,444,981,125	21,415	$3,583,079,793	131,159	$24,219,438,215
Total	**33,711**	**$8,505,363,755**	**35,178**	**$6,505,789,033**	**332,744**	**$67,955,877,183**

Source: Sacramento County 2010 secured roll assessor and parcel date; Sacramento County DFIRM, January 2011.

* This parcel count only includes those parcels in the 0.2% annual chance floodplain. The 0.2% annual chance flood also includes all parcels in the 1% annual chance floodplain.

Exposure of Future Development to Multiple Hazards

This map includes location information for various hazards (flood, wildfire, dam failure, railroad accident, and hazardous materials incident) along with the locations of anticipated future development (new subdivisions, public facilities, and areas of potential commercial redevelopment) and future annexation areas.



June 2011
Figure 10B
Hazard Composite with Future Development
Lewis and Clark County, Montana
Pre-Disaster Mitigation Plan

Historical Analysis

Historical analysis uses information on impacts and losses from previous hazard events to predict potential impacts and losses during a similar future event. This can be especially useful for weather-related hazards, such as severe winter storms, hail, and drought. Because of the frequency of these events, communities are more likely to have experience with and data on impacts and losses. For recent events, consider not only what was damaged, but what might have been damaged if the event had been of greater magnitude. For hazard events that have not occurred recently, consider new development and infrastructure that would now be vulnerable in a similar event.

The plan must address NFIP-insured structures that have been repetitively damaged by floods. The definitions for repetitive loss are below. Information on repetitive loss properties in your community can be obtained from your State NFIP coordinator or local floodplain administrator.

Element B4

All plans must address NFIP insured structures that have been repetitively damaged by floods.

44 CFR §201.6(c)(2)(ii)

Repetitive and Severe Repetitive Loss Properties

A *repetitive loss property:* an NFIP insured structure that has had at least two paid flood losses of more than $1,000 each in any 10-year period since 1978. (Source: *NFIP Flood Insurance Manual*, FEMA. Revised October, 2012. http://nfipiservice.com/pdf/October%202012/splashscreen.pdf).

Severe repetitive loss properties single or multifamily residential properties that are covered under an NFIP flood insurance policy and:

1. That have incurred flood-related damage for which 4 or more separate claims payments have been made, with the amount of each claim (including building and contents payments) exceeding $5,000, and with the cumulative amount of such claims payments exceeding $20,000; or

2. For which at least 2 separate claims payments (building payments only) have been made under such coverage, with cumulative amount of such claims exceeding the market value of the building.

3. In both instances, at least 2 of the claims must be within 10 years of each other, and claims made within 10 days of each other will be counted as 1 claim.

Source: 44 CFR §79.2(g), *Definitions*

Scenario Analysis

Scenario analysis predicts the impacts of a particular event. Scenarios can be an especially helpful tool for low frequency, high consequence events, such as earthquakes, for which historical information is not available. Scenario analysis asks "what if" a particular event occurred and predicts potential impacts and losses in terms of monetary costs, casualties, infrastructure downtime, and other risk elements. This type of analysis can also be used to describe possible impacts for different growth and development scenarios.

Hazus, a FEMA loss estimation software, is one tool that can estimate losses for flood, earthquake, and wind hazards. Loss estimations can quantify potential fatalities, injuries, direct property loss and damage, and indirect economic loss for a certain event scenario or over time (annualized loss).

Combine Available Data and Methods

The planning team will likely use a combination of methods for analyzing risk and express impacts both qualitatively and quantitatively, depending on the hazard and the available time, data, staff, and technical resources. For instance, analyzing flood risk could include the following:

- A description of the types of impacts that affected community assets as a result of previous flood events, including public assistance costs and insured and uninsured losses.
- Identification of the number and value of community assets located in flood hazard areas and any specific vulnerability due to physical characteristics or socioeconomic uses.
- Estimates of the physical, economic, and social impacts of a one-percent annual flood event based on a Hazus model.
- A description of future development that may be at risk to flooding based on current zoning maps.

The results of these analyses could be incorporated into a risk index or matrix. The purpose of a risk index is to compare hazards and rank which pose the greatest risk. Each hazard is given a rank based on probability, magnitude, impacts, and other characteristics of risk. A risk index can be a helpful way to compare multiple hazards, but it is not a complete risk assessment. The plan must include the process for analysis and the data underlying the values calculated in the index.

Regardless of how the results are expressed or the methods of analysis used, this step must result in a description of the potential impacts of each hazard on the assets of each participating jurisdiction.

HAZUS MH

Hazus is a nationally applicable methodology for estimating potential losses from earthquakes, hurricane winds and floods. Hazus uses GIS technology to estimate physical, economic, and social impacts of disasters.

Applications for Mitigation Planning

- Develop earthquake, hurricane, or flood models to describe location, extent, and probability of the hazard across the planning area and potential impacts to critical facilities
- Conduct a cost benefit or losses avoided analysis to support a mitigation strategy
- Use Hazus GIS data inventories to model losses from other hazards such as landslide, wildfire, dam/levee failure, etc.

Techniques to Improve Model Accuracy

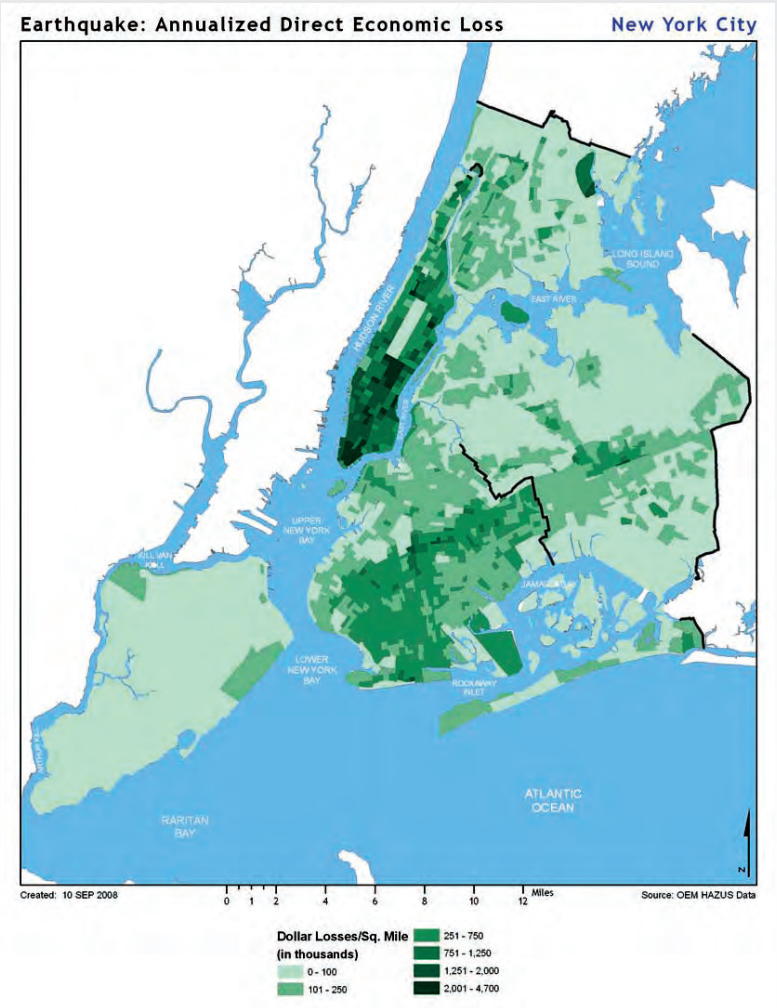
- Update hazard data with flood boundary, flood depth grid, earthquake shake maps, and hurricane wind data
- Update asset inventory data with population, building stock, or utility data
- Edit flood depth damage functions and stream discharges

http://www.fema.gov/protecting-our-communities/hazus

Scenario Analysis

Although the probability of a significant earthquake occurring in New York City is low, the density and high value of the structures and infrastructure result in significant estimates of potential losses. The New York City Hazard Mitigation Planning Team estimated significant annualized potential losses for the City using Hazus-MH. Annualized losses are an estimated long-term value of earthquake losses to the general building stock in any single year. The table and figure, excerpts from the New York City Hazard Mitigation Plan (New York City Office of Emergency Management, 2008) below display these estimates.

Annualized Capital Stock Losses for Earthquakes ($1,000s)				
Borough	Structural Damage	Non-Structural Damage	Contents Damage	Total
Brooklyn	2,883	9,002	2,932	14,817
Bronx	825	2,594	851	4,270
Manhattan	3,056	9,893	3,593	16,542
Queens	1,542	4,881	1,776	8,200
Staten Island	217	837	363	1,417
Total	**8,524**	**27,207**	**9,516**	**45,247**



Updating to Reflect Changes in Development

Plan updates must describe changes in development that have occurred since the last plan was approved. The planning team will need to gather information from planning and building departments on recent and planned development to evaluate how vulnerability may have increased or decreased. Development in identified hazard areas and construction not built to updated building codes increase your community's vulnerability to future hazards and disasters.

The planning team may also consider other conditions that affect vulnerability, such as climate variability, declining or increasing populations, infrastructure expansion, or economic shifts. If no changes in development occurred or did not affect the jurisdiction's overall vulnerability, plan updates can validate the information in the previously approved plan.

Element D1

A local jurisdiction must review and revise its plan to reflect changes in development.

44 CFR §201.6(d)(3)

4. Summarize Vulnerability

The previous three steps in the risk assessment process generate large amounts of information regarding hazards, vulnerable assets, and potential impacts and losses. This information needs to be summarized so that the community can understand the most significant risks and vulnerabilities, not only to inform the mitigation strategy, but also to communicate findings to elected officials and other stakeholders to support their decision making. The plan must provide an overall summary of each jurisdiction's vulnerability to the identified hazards.

Element B3

The risk assessment shall include an overall summary of each hazard and its impact on the community.

44 CFR §201.6(c)(2)(ii)

One recommended approach is to develop problem statements. For instance, your analysis of impacts and losses helps you to identify which critical facilities are located in identified hazard areas, the neighborhood that has experienced the most flood damage in the past, or which hazard-prone areas are zoned for future development. This information on the issues of greatest concern can be summarized into problem statements, such as in the following examples. The planning team may evaluate the impacts and develop problem statements for each hazard, as well as identify the problems or issues that apply to all hazards.

Plan updates will need to revise the problems statements to reflect the current risk assessment. This may include developing new statements and removing or revising ones that are no longer valid because mitigation projects have addressed the risk or other conditions have changed.

Problem Statements

- The North Creek Sewage Treatment Plant is located in the 100-year floodplain and has been damaged by past flood events. It serves 10,000 residential and commercial properties.
- Newberg City recently annexed the South Woods area located in the wildland-urban interface. The City's land use and building codes do not address wildfire hazard areas. Future development in South Woods will increase vulnerability to wildfires.
- The City of Greenville is located in a seismic hazard area subject to severe ground shaking and soil liquefaction. Hazus predicts a 6.0 magnitude event would result in $10.5 million in structural losses and $40 million in non-structural losses. Damage will be greatest to the 100 unreinforced masonry buildings (pre- building code) located in the downtown business district.
- The schools are a central focus of the community and offer opportunities to educate the public about hazards, risk, and mitigation. In addition, many school facilities are vulnerable to one or more hazards, including flooding, earthquake, tornado, and severe winter storms.

Documentation of the Risk Assessment

The quantity of information produced as part of a risk assessment varies dramatically depending on the size of communities, number of participating jurisdictions, number of hazards, available data, technical expertise, and other factors. While the process for conducting the risk assessment needs to be described as part of the planning process, some data inputs and outputs will likely not need to be included in the main body of the plan document. Some of this information may be included in appendices, and some may be integrated and updated as part of your community's GIS program, record keeping, and other systems. Information in the plan document should focus on communicating the analysis and findings to a non-scientific audience of planners, policy makers, and community members.

Conclusion

Task 5 describes how to complete a local risk assessment by describing the hazards, identifying community assets, analyzing the risks or impacts of the hazards to those assets, and summarizing the results and overall vulnerability of your community. This information forms the factual basis for developing a comprehensive strategy to reduce vulnerability and risk, which is described in *Task 6 – Develop a Mitigation Strategy.*

Task 6

Develop a Mitigation Strategy

About the Cover: The St. George, Utah trail system was started with Hazard Mitigation Grant Program funds and was the result of property acquisition (Source: http://www.fema.gov/mitigationbp/bestPracticeDetail.do?mitssId=8111).

Task 6 – Develop a Mitigation Strategy

The heart of the mitigation plan is the mitigation strategy, which serves as the long-term blueprint for reducing the potential losses identified in the risk assessment. The mitigation strategy describes how the community will accomplish the overall purpose, or mission, of the planning process. *Task 6* provides suggestions for developing a new or updating an existing mitigation strategy.

The Mitigation Strategy: Goals, Actions, Action Plan

The mitigation strategy is made up of three main required components: mitigation goals, mitigation actions, and an action plan for implementation. These provide the framework to identify, prioritize, and implement actions to reduce risk to hazards.

Mitigation goals are general guidelines that explain what the community wants to achieve with the plan (see Figure 6.1). They are usually broad policy-type statements that are long-term, and they represent visions for reducing or avoiding losses from the identified hazards.

- Example goal: Minimize new development in hazard-prone areas.

Mitigation actions are specific projects and activities that help achieve the goals.

- Example action: Amend zoning ordinance to permit only open space land uses within floodplains.

The **action plan** describes how the mitigation actions will be implemented, including how those actions will be prioritized, administered, and incorporated into the community's existing planning mechanisms. In a multi-jurisdictional plan, each jurisdiction must have an action plan specific to that jurisdiction and its vulnerabilities.

Although not required, some communities choose to develop objectives to help define or organize mitigation actions (see Figure 6.2). Objectives are broader than specific actions, but are measurable, unlike goals. Objectives connect goals with the actual mitigation actions, as shown in the example.

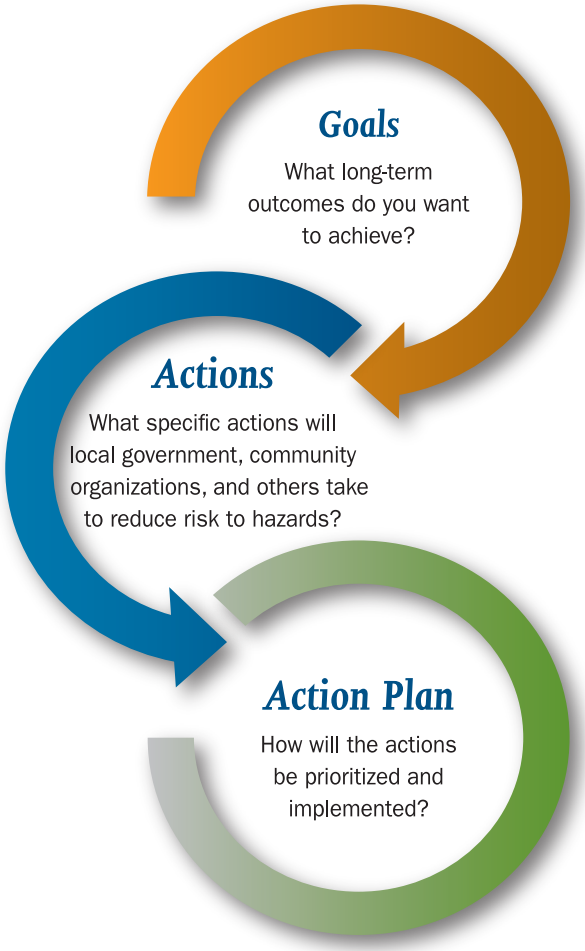


Figure 6.1: Mitigation strategy

Figure 6.2: Objective linking goal and action

Mitigation Goals

The plan must include hazard mitigation goals that represent what the community seeks to achieve through mitigation plan implementation. Clear goals that are agreed upon by the planning team, elected officials, and the public provide the basis for prioritizing mitigation actions. Mitigation goals, such as the examples from local plans shown below, are required to be in the plan and must be consistent with the hazards identified in the risk assessment.

Element C3

The hazard mitigation strategy shall include a description of mitigation goals to reduce or avoid long-term vulnerabilities to the identified hazards.

44 CFR §201.6(c)(3)(i)

Example: Pass Christian (MS) Hazard Mitigation Plan Goals

Goal 1 – Minimize loss of life, injury, and damage to property, the economy, and the environment from natural hazards

Goal 2 – Build and enhance local mitigation capabilities to ensure individual safety, reduce damage to public buildings and ensure continuity of emergency services

Goal 3 – Maintain Pass Christian's natural and man-made systems that protect the community from natural hazards

Example: Curry County (OR) Natural Hazards Mitigation Plan Goals

- Minimize and prevent damage to public and private buildings and infrastructure
- Reduce economic losses
- Increase cooperation and coordination among private entities, local agencies, State agencies, and Federal agencies
- Increase education, outreach, and awareness
- Protect natural and cultural resources

Whether you are updating goals or developing new ones, here are some considerations:

- **Risk assessment findings.** Review the findings of the risk assessment, especially the problem statements. Group the problem statements by themes, such as hazards, assets at risk, or location. Several problem statements or groups may lead to a single mitigation goal.
- **Outreach findings.** Consider themes that stood out during planning team meetings and outreach activities. For instance, the need for improved education and awareness about hazards may be a common theme.
- **Community goals.** Review existing plans and other policy documents to ensure hazard mitigation goals are consistent with the goals of other community plans, such as the comprehensive plan, and other objectives established by the governing body. Mitigation goals that complement other plans and policies may garner more support for hazard mitigation.
- **State hazard mitigation goals.** Because the State Hazard Mitigation Plan documents the State's goals for reducing risk and allocating resources, it may be strategic to align your plan's goals to the State's plan.

Update

If you are updating a plan, the planning team should evaluate the previous goals and reaffirm or change them based on current conditions and priorities.

Mitigation Actions

A mitigation action is a specific action, project, activity, or process taken to reduce or eliminate long-term risk to people and property from hazards and their impacts. Implementing mitigation actions helps achieve the plan's mission and goals. The actions to reduce vulnerability to threats and hazards form the core of the plan and are a key outcome of the planning process.

Infrastructure Project and Natural Systems Protection: This reconstructed culvert in Moosalamoo National Recreation Area in Arlington, Vermont uses rocks and sand to simulate a natural fish passage.

Types of Mitigation Actions

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

- local plans and regulations,
- structure and infrastructure projects,
- natural systems protection, and
- education and awareness programs.

Table 6.1 on the following page provides definitions and examples for these types of mitigation actions.

Preparedness and Response Actions

Mitigation actions reduce or eliminate long-term risk and are different from actions taken to prepare for or respond to hazard events. Mitigation activities lessen or eliminate the need for preparedness or response resources in the future. When analyzing risks and identifying mitigation actions, the planning team may also identify emergency response or operational preparedness actions. Examples include:

- Creating mutual aid agreements with neighboring communities to meet emergency response needs.
- Purchasing radio communications equipment for the Fire Department.
- Developing procedures for notifying citizens of available shelter locations during and following an event.

For some hazards, such as tornados, including preparedness actions in the mitigation plan may be necessary and practical. The mitigation plan may be the best place for your community to capture and justify the need for these actions. However, these will not take the place of or meet the Federal mitigation planning requirements for identifying mitigation actions. It is important that the planning team understands the difference and can distinguish between mitigation and other emergency management activities.

Identifying Mitigation Actions

The mitigation planning regulation requires that each participating jurisdiction identify and analyze a comprehensive range of specific mitigation actions and projects to reduce the *impacts* of the hazards identified in the risk assessment. The emphasis is on the impacts or vulnerabilities identified in the risk assessment, not on the hazards themselves. As described in *Task* 5, these impacts and vulnerabilities may be summarized in problem statements. Some hazards may not have many impacts, or the impacts may already be mitigated. In this case, fewer mitigation actions may be identified than for a hazard causing more frequent or severe impacts.

Element C4

The hazard mitigation strategy shall include a section that identifies and analyzes a comprehensive range of specific mitigation actions and projects being considered to reduce the effects of each hazard, with particular emphasis on new and existing buildings and infrastructure.

44 CFR §201.6(c)(3)(ii)

Table 6.1: Types of Mitigation Actions

Mitigation Type	Description	Examples
Local Plans and Regulations	These actions include government authorities, policies, or codes that influence the way land and buildings are developed and built.	• Comprehensive plans • Land use ordinances • Subdivision regulations • Development review • Building codes and enforcement • NFIP Community Rating System • Capital improvement programs • Open space preservation • Stormwater management regulations and master plans
Structure and Infrastructure Projects	These actions involve modifying existing structures and infrastructure to protect them from a hazard or remove them from a hazard area. This could apply to public or private structures as well as critical facilities and infrastructure. This type of action also involves projects to construct manmade structures to reduce the impact of hazards. Many of these types of actions are projects eligible for funding through the FEMA Hazard Mitigation Assistance program. *Task 9 – Create a Safe and Resilient Community* provides more information on these programs.	• Acquisitions and elevations of structures in flood prone areas • Utility undergrounding • Structural retrofits. • Floodwalls and retaining walls • Detention and retention structures • Culverts • Safe rooms
Natural Systems Protection	These are actions that minimize damage and losses and also preserve or restore the functions of natural systems.	• Sediment and erosion control • Stream corridor restoration • Forest management • Conservation easements • Wetland restoration and preservation
Education and Awareness Programs	These are actions to inform and educate citizens, elected officials, and property owners about hazards and potential ways to mitigate them. These actions may also include participation in national programs, such as StormReady[1] or Firewise[2] Communities. Although this type of mitigation reduces risk less directly than structural projects or regulation, it is an important foundation. A greater understanding and awareness of hazards and risk among local officials, stakeholders, and the public is more likely to lead to direct actions.	• Radio or television spots • Websites with maps and information • Real estate disclosure • Presentations to school groups or neighborhood organizations • Mailings to residents in hazard-prone areas. • StormReady • Firewise Communities

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

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

Mitigation Ideas

To find effective solutions, innovative ideas, and best practices for mitigating risks, consult the following resources:

Ask subject matter experts. Experts on the planning team and among stakeholders can help evaluate actions that provide long-term solutions. For example, if the problem is repetitive flood damage in a specific location, but you are unsure if the flooding is caused by undersized culverts, inadequate storm drainage, or debris, you could ask an engineer to evaluate the flooding and recommend potential solutions.

Collect ideas from stakeholders and public. The outreach strategy developed as part of *Task 3* provides opportunities for gathering ideas and input from the public. Surveys and questionnaires are effective tools for gathering information on alternative mitigation actions that would be preferred by community members.

Research existing guides and resources. Many publications and web-based resources are available for identifying mitigation actions. Some states have prepared technical guides to assist local communities. The State Hazard Mitigation Plan describes state funding sources and priorities for mitigation. FEMA's website includes a Mitigation Best Practices Portfolio* that provides mitigation success stories and case studies from communities across the country and Mitigation Ideas: A Resource for Reducing Risk to Natural Hazards** that lists potential mitigation actions by hazard type.

Review FEMA Hazard Mitigation Assistance (HMA)* **eligible activities.** HMA grant programs provide funding for eligible mitigation activities that reduce disaster losses and protect life and property from future disaster damages. The most recent Hazard Mitigation Assistance Unified Guidance provides information on eligible project activities.

* http://www.fema.gov/mitigation-best-practices-portfolio
** http://www.fema.gov/hazard-mitigation-planning-resources
*** http://www.fema.gov/hazard-mitigation-assistance

A comprehensive range means that communities analyze, or evaluate, different types of mitigation actions. For example, building retrofits, infrastructure protection, and changes in local ordinances represent a mix of structural and non-structural approaches. In addition, each jurisdiction must consider actions that reduce risk to existing buildings and infrastructure, as well as limit risk to new development and redevelopment.

The planning team may identify low-cost mitigation actions that can be readily implemented, such as developing an outreach program to encourage homeowners to secure furnishings and utilities to prevent injuries and damage during an earthquake. Other actions may depend on available funding, such as retrofitting critical infrastructure. Though funding and support may not be immediately available for every action, including the actions in the plan may lead to future opportunities for implementation. For example, some actions can be implemented following a disaster when additional funding and political and public support are available, such as acquiring homes in a flood hazard area. Additionally, if actions are not included in the plan, securing funding may be more difficult once it becomes available.

To identify potential mitigation actions, the planning team needs to review the risk assessment and assess capabilities.

1. Review Risk Assessment

The planning team should start with the problem statements developed from the risk assessment. For each problem statement, consider different types of mitigation actions for addressing the problem. See the example on the page 6-6.

You may have multiple ideas that are categorized under one type (e.g., education and awareness or local plans and regulations) and no ideas under another type. However, the intent is to think comprehensively when identifying potential actions and to consider future development.

Example: Identify Actions to Address Problem Statements

Problem Statement

In wildland-urban interface areas, two critical facilities (school and county maintenance shop) and $500 million in property value are at risk, and there is increasing development pressure.

Potential Actions

Local Planning and Regulations: Adopt a wildfire mitigation ordinance to specify conditions for the use and development of wildfire hazard areas to mitigate risk to life and property.

Structure and Infrastructure Projects: Retrofit the school and the county maintenance shop with fire-resistant construction materials and create a defensible space around the perimeters of the buildings.

Natural Systems Protection: Identify large tracts of vacant land in high hazard areas for acquisition by the Department of Parks to develop trails and preserve open space.

Education and Awareness Programs: Implement a program using Firewise Communities materials to educate property owners in the wildland-urban interface on actions they can take to reduce risk.

For certain problems, you may not have enough information about a particular situation to recommend a specific mitigation action. In these cases, the mitigation action can be to recommend further study. For example, if your community has 20 critical facilities that are threatened, further technical study may be needed to determine which facilities should be addressed first. Your recommendation could be "Conduct an assessment of the 20 critical facilities over the next 3 years to determine the most appropriate mitigation actions."

2. Assess Capabilities

The mitigation strategy is based on existing local authorities, policies, programs, and resources, as well as the ability to expand on and improve these existing tools. As part of *Task 4*, the planning team reviewed existing capabilities for reducing long-term vulnerability to hazards. Those capabilities can be assessed to identify gaps to be addressed and strengths to enhance through new mitigation actions. For instance, can gaps in design or enforcement of existing regulations be addressed through additional personnel or a change in procedure or policy? Could an existing education program be improved to cover the most significant hazards and better target non-English speakers? Are additional studies, reports, or plans needed to understand risk?

Jurisdictions participating in the National Flood Insurance Program (NFIP) can consider actions to enhance their floodplain management program, such as addressing repetitive loss properties and improving standards beyond the minimum requirements for NFIP participation.

Communities also must consider actions that reduce risk to future development. The planning team can evaluate the effects of current growth plans and regulations (i.e., comprehensive plans, zoning and subdivisions ordinances, building codes, and capital improvement programs) on community safety and consider how these could be updated to reduce the community's vulnerability. For instance, development review procedures may be revised to include a hazard assessment for new development. The types of questions that the community can ask include:

- Will population growth and future land use plans put more people in hazardous areas?
- Will current redevelopment policies increase the population and property vulnerable to hazards?
- Will planned infrastructure extensions encourage unsafe development by facilitating access to hazardous areas?

Evaluating and Prioritizing Mitigation Actions

Not all of the identified actions may be included in the final action plan because of technical feasibility, political acceptance, lack of funding, and other constraints. The planning team will evaluate and prioritize the most suitable mitigation actions for the community to implement. The plan must include a mitigation strategy that 1) analyzes actions and/or projects considered to reduce the impacts of hazards identified in the risk assessment and 2) identifies the actions and/or projects that each jurisdiction intends to implement.

Benefit-Cost Review

The one criterion that must be part of the evaluation and prioritization process is benefit-cost review. That is, the planning team must consider the benefits that would result from a mitigation action versus the cost. This does not mean a full benefit-cost analysis, such as the FEMA BCA Module,[1] but a planning level assessment of whether the costs are reasonable compared to the probable benefits. Cost estimates do not have to be exact but can be based on experience and judgment.

Benefits include losses avoided, such as the number and value of structures and infrastructure protected by the action and the population protected from injury and loss of life. Qualitative benefits, such as quality of life and natural and beneficial functions of ecosystems, can also be included in the review.

Evaluation Criteria

The planning team needs to agree upon the other criteria that will be used to analyze the mitigation actions. Suggested criteria and sample planning team questions to evaluate each mitigation action alternative include:

- **Life safety.** How effectively will the action protect lives and prevent injuries?
- **Property protection.** How significant will the action be at eliminating or reducing damage to structures and infrastructure?
- **Technical.** Is the mitigation action technically feasible? Is it a long-term solution? Eliminate actions that, from a technical standpoint, will not meet the goals.
- **Political.** Does the public support the mitigation action? Is there the political will to support it?

Element C5

The hazard mitigation strategy shall include an action plan, describing how the actions identified will be prioritized, implemented, and administered by each local jurisdiction. Prioritization shall include a special emphasis on the extent to which benefits are maximized according to a cost benefit review of the proposed projects and their associated costs.

44 CFR §201.6(c)(3)(iii)

For multi-jurisdictional plans, there must be identifiable action items specific to the jurisdiction requesting FEMA approval or credit of the plan.

44 CFR §201.6(c)(3)(iv)

Balancing Mitigation with Private Property Rights

While evaluating and prioritizing mitigation actions, and particularly regulatory activities, it is important to consider any potential impact to the rights or interests of private property owners. Generally, states delegate the authority to enact regulations designed to protect the public health, safety, and welfare to local governments through local police power. While regulations have been enacted in many places to mitigate natural disasters, these powers are not without limitation and may need to strike a balance with private property rights. If your evaluation of a mitigation action raises any such concerns, it is recommended that you consult with your appropriate legal counsel.

1 The FEMA BCA program consists of guidelines, methodologies, and software modules for a range of major natural hazards. More information can be found here: http://www.fema.gov/government/grant/bca.shtm.

- **Legal.** Does the community have the authority to implement the action?
- **Environmental.** What are the potential environmental impacts of the action? Will it comply with environmental regulations?
- **Social.** Will the proposed action adversely affect one segment of the population? Will the action disrupt established neighborhoods, break up voting districts, or cause the relocation of lower income people?
- **Administrative.** Does the community have the personnel and administrative capabilities to implement the action and maintain it, or will outside help be necessary?
- **Local champion.** Is there a strong advocate for the action or project among local departments and agencies who will support the action's implementation?
- **Other community objectives.** Does the action advance other community objectives, such as capital improvements, economic development, environmental quality, or open space preservation? Does it support the policies of the comprehensive plan?

Action Prioritization

After careful evaluation, the planning team will have a list of actions that are acceptable and practical for addressing the problems identified in the risk assessment. The planning team can prioritize actions for implementation by assessing the importance of each item relative to the plan's goals and the risks and capabilities. Actions could be prioritized by numerical ranking; high, medium, or low designation; chronological ranking by date of implementation; or other methods. Prioritization may change over time in response to changes in community characteristics and risks and to take advantage of available resources.

The evaluation and prioritization process helps the planning team weigh the pros and cons of different action alternatives. However, the decision-making process is not necessarily straightforward; it is highly specific to each jurisdiction. The example that follows describes one approach for identifying and prioritizing mitigation actions. Your process should be appropriate for the size, number, and capabilities of the communities involved. Each participating jurisdiction may have different priorities for implementing actions. Appendix A includes an example of a worksheet that could be used to facilitate the evaluation and prioritization process (see Worksheet 6.1).

Action Identification and Prioritization

1. Form workgroups of planning team members and/or stakeholders to identify actions to address a set of problems statements from the risk assessment, which could be grouped by hazard or action type.
2. Ask the planning team to agree upon the criteria and process for evaluating and prioritizing the actions.
3. Present mitigation action alternatives and criteria to the public, elected officials, and other stakeholders for feedback and acceptance.
4. Develop a worksheet and/or conduct a facilitated process to evaluate the list of alternatives based on the identified criteria and plan goals.
5. Ask the planning team to vote on or rank their highest priority actions for implementation.

Action Plan for Implementation

A common failure of some mitigation plans is that they are never implemented. The action plan lays the groundwork for implementation by describing how the mitigation plan will be incorporated into existing planning mechanisms and how the mitigation actions will be prioritized, implemented, and administered by each jurisdiction.

Incorporation into Existing Plans and Procedures

Element C6

The plan shall include a process by which local governments incorporate the requirements of the mitigation plan into other planning mechanisms such as comprehensive or capital improvements, when appropriate.

44 CFR §201.6(c)(4)(ii)

For a community to succeed in reducing risks in the long term, the information and recommendations of the mitigation plan should be integrated throughout government operations. Through the planning process, partnerships are formed, and sustained action can increase the community's resilience to disasters. Many other local plans, such as comprehensive, stormwater management, sustainability, economic development, and area plans present opportunities to address hazard mitigation in a way that can support multiple community objectives. Mitigation plans must describe the community's process to integrate the data, analysis, and mitigation goals and actions into other planning mechanisms. First, the plan must identify the existing planning mechanisms where hazard mitigation information and actions may be incorporated. In this context, planning mechanisms mean governance structures used to manage local land use development and community decision making. The review of community capabilities described in *Task 4* identifies this information. Multi-jurisdictional plans must describe each participating jurisdiction's individual process for integrating the plan into their local planning mechanisms.

In some cases, a community may choose to develop their hazard mitigation plan wholly within their comprehensive planning process. *Hazard Mitigation: Integrating Best Practices into Planning*[2] provides technical advice and examples of communities that have successfully integrated mitigation into local comprehensive plans and other types of local planning processes. Some existing processes may not allow for integration due to timing, budgets, or other constraints. For example, a community may determine that the goals and actions of the hazard mitigation plan will be considered in the next 5-year capital improvements planning process, which may be updated annually.

To identify how the plan can be incorporated into other plans, programs, and procedures, consider the following:

Integrate Plan Goals with other Community Objectives

The overall mission and goals for risk reduction and community safety may be incorporated into the objectives and policies of other plans. Goals for disaster resiliency can also complement the sustainability programs being developed by many communities. The following are examples of policies that can be included in the comprehensive plan and are implemented through zoning and building codes, capital improvements programs, and permitting processes:

- Protect life and property in high hazard areas by limiting densities of new development
- Limit the extension of public infrastructure in high hazard areas
- Reduce the vulnerability of future development in high hazard areas by reviewing development regulations

Education and Awareness Program: First grade students learn about natural disasters during a FEMA For Kids workshop.

2 Schwab, James, ed. 2010. Hazard Mitigation: Integrating Best Practices into Planning. Planning Advisory Service Report No. 560. Chicago: American Planning Association. This report is available through the FEMA Library at http://www.fema.gov/library/viewRecord.do?id=4267.

Use the Risk Assessment to Inform Plans and Policies

The risk assessment provides data, analysis, and maps that can be integrated into other plans to inform policies and decision-making. For instance, the risk assessment can form the basis for other emergency management program activities, including the emergency operations and evacuation planning. Incorporation of hazard information and mapping into land use plans, zoning and subdivision codes, and the development review process can guide growth and redevelopment away from high-risk locations. This information can also be used to design and site future public facilities to minimize exposure to hazards.

Implement Mitigation Actions through Existing Mechanisms

Where possible, the community should implement the identified mitigation actions through existing plans and policies, which already have support from the community and policy makers. For instance, a Community Wildfire Protection Plan[3] identifies a community's priorities for wildfire fuel reduction projects. A capital improvements program outlines a jurisdiction's spending plan for capital projects that support existing and future developments, such as roads, water, and sewer systems, usually over a 5-year period. Mitigation projects that could be included in the capital improvements plan include strengthening at-risk critical facilities or acquiring open space in identified hazard areas. Other implementation tools for mitigation actions could include staff work plans, permitting procedures, job descriptions, and training.

Think Mitigation Pre- and Post-Disaster

Some communities have recovery or post-disaster redevelopment plans that identify the operations and strategies the community will take post-disaster to recover more effectively and to become more resilient in future disasters. Mitigation actions to reduce long-term vulnerability, such as effective building code adoption and enforcement, are applied in both the pre-disaster mitigation planning and post-disaster recovery activities of a community. Effective recovery planning builds on existing community goals and plans and incorporates the mitigation strategy into long-term recovery and reinvestment decisions.

Implementation of Mitigation Actions

The action plan also identifies how specific mitigation actions will be implemented, including who is responsible for which actions, what funding mechanisms and other resources are available or will be pursued, when the actions will be completed, and how they are prioritized. The capability assessment developed in *Task 4* can be helpful in determining the agencies responsible for certain functions in the community and the available financial resources.

Assign Responsible Agency

The planning team needs to determine which department or agency is most appropriate to lead each action. In order to clearly describe how actions will be implemented and administered, at a minimum, a specific agency, department, or position must be assigned to the action, not the jurisdiction as a whole. If coordinating with other agencies will be necessary, this is a good time for them to provide input on the steps and timeframes necessary to carry out the actions.

Element C5

The hazard mitigation strategy shall include an action plan, describing how the actions identified will be prioritized, implemented, and administered by each local jurisdiction. Prioritization shall include a special emphasis on the extent to which benefits are maximized according to a cost benefit review of the proposed projects and their associated costs.

44 CFR §201.6(c)(3)(iii)

For multi-jurisdictional plans, there must be identifiable action items specific to the jurisdiction requesting FEMA approval or credit of the plan.

44 CFR §201.6(c)(3)(iv)

3 The Healthy Forest Restoration Act incentivizes and defines the development of Community Wildfire Protection Plans by at-risk communities. See http://www.forestsandrangelands.gov/communities/cwpp.shtml.

Identify Potential Resources

Resources include funding, technical assistance, and materials. Estimating the cost of an action will help the planning team target the most appropriate resources. Sources of local funding may include the general operating budget, capital improvement budgets, staff time, impact fees, special assessment districts, and more. Your State Hazard Mitigation Officer and the FEMA mitigation planning webpage can help you identify potential State and Federal resources. The planning team should also consider opportunities for private sector funding and partnerships, as well as resources that may be provided by academic institutions.

Estimate the Timeframe

The planning team and responsible agencies must develop a timeframe for implementing each mitigation action. Funding cycles can affect when you can begin implementing an action. The timeframe can detail when the action will be started, interim steps, and when it should be fully implemented. Timeframes can also be general, such as "3 to 5 years," or defined for short, medium, and long term.

Other implementation items that you may consider describing in the action plan are goals addressed, partner agencies, steps for implementation, and estimated budget. An action implementation worksheet can be a good approach for formatting the information collected for each action and its implementation. An example worksheet is provided in Appendix A (see Worksheet 6.2). The planning team may decide to assign the responsible agency for each action first. Each agency can then be responsible for developing the action implementation worksheet with additional information on how the action will be administered and implemented. If appropriate, the community can also begin developing project scopes of work, schedules, and budgets, particularly where Federal funding applications are anticipated. FEMA's approval of the plan does not mean approved funding for projects identified in the plan or an approved application for Federal assistance.

Updating the Mitigation Strategy

One of the most important steps in updating your plan is to refine the community's mitigation strategy, particularly in light of experiences gained from the implementation of the previous plan. To continue to be an effective representation of the jurisdiction's overall strategy for reducing risk to natural hazards, the updated local mitigation plan must reflect current conditions and progress in mitigation efforts. The 5-year plan update is an opportunity for each jurisdiction to assess its previous goals and actions, evaluate progress in implementing the action plan, and adjust its actions to address current realities. The mitigation strategy should also be revised following disasters to determine if the recommended actions are still appropriate given the impacts of the event.

Evaluate Progress in Implementation

Plan updates must reflect progress in local mitigation efforts. Whereas goals may not change significantly over a 5-year timeframe, the integration of the plan into existing planning mechanisms and the implementation of mitigation actions demonstrate progress in risk reduction.

Element D2

A local jurisdiction must review and revise its plan to reflect progress in local mitigation efforts.

44 CFR §201.6(d)(3)

Integration of Hazard Mitigation

The updated plan must explain how the jurisdiction(s) incorporated the previous mitigation plan, when appropriate, into other planning mechanisms over the last 5 years as a demonstration of progress in local mitigation efforts. The updated plan must continue to describe how the current mitigation strategy, including the goals and hazard mitigation actions, will be incorporated into other planning mechanisms over the next 5 years.

Completion of Mitigation Actions

The plan also must describe the status of the mitigation actions identified in the previous plan by describing those that have been completed or not completed. For actions that have not been completed, the plan must either describe whether the action is no longer relevant or indicate whether it is included as part of the updated action plan.

The planning team may ask the local agencies and departments assigned responsibility for the implementation of mitigation actions in the previous plan to provide a status update on each of their actions. For instance, agencies could provide an evaluation of the following:

- If the action was completed, did it have the intended results? Did it achieve the goals outlined in the plan? What factors contributed to success?
- If the action was not completed, what were the barriers to implementation? For instance, was there a lack of political support, funding, staff availability, or other obstacle? Should the action be included in the updated mitigation strategy?

Task 7 describes how to develop a process for monitoring and evaluating the plan that can be used to evaluate progress.

Describe Changes in Priorities

The plan must describe if and how any priorities changed since the plan was previously approved. Your community's mitigation priorities may change over time for a variety of reasons. Addressing changes in priorities allows you to redirect actions to reflect current conditions, including financial and political realities, or changes in conditions or priorities due to disaster events. In addition, now that the community has implemented some actions, you may apply lessons learned about what works and does not.

Element D3

A local jurisdiction must review and revise its plan to reflect changes in priorities.

44 CFR §201.6(d)(3)

New actions can be identified based on the updated risk assessment and capability assessment. New actions are prioritized in combination with the actions carried forward from the previous plan. Factors that may influence changes in priorities include the following:

- Altered conditions due to disaster events and recovery priorities
- Changing local resources, community needs, and capabilities
- New State or Federal policies and funding resources
- New hazard impacts identified in the updated risk assessment
- Changes in development patterns that could influence the effects of hazards
- New partners that have come to the table

If no changes in priorities are necessary, plan updates may validate the information in the previously approved plan.

Communicating the Mitigation Action Plan

You may consider how to present the final action plan in a format that can be easily used and referenced by community members and officials. The mitigation strategy or action plan is the primary tool to obtain funding, assign priorities, guide the decision making process, and track progress in future plan updates. A matrix, such as the example provided on page 6-14, can be a good format for summarizing information on the recommended actions. You also may consider including this information along with the mission and goals in the front of the plan in the form of an executive summary. This allows users to quickly understand how the community plans to reduce risk to hazards and strengthen disaster resiliency.

Conclusion

Task 6 describes how to develop a comprehensive mitigation strategy that is integrated with existing plans and programs in your community. These mitigation goals and actions establish a path forward for creating a safer, more disaster resilient community. *Task 7 – Keep the Plan Current* describes how to develop procedures for continuously monitoring, evaluating, and updating the mitigation plan so that it continues to meet community needs over time.

Example

Summary of Mitigation Actions

The City of Portland, Oregon Natural Hazard Mitigation Plan summarizes 102 specific mitigation actions in one matrix. The example below includes excerpts from this matrix, which identifies short-term (ST) and long-term (LT) actions and multi-hazard (MH) and hazard-specific issues, as well information on how each action will be implemented.

Action Id and Goals	Description	Prioritization (High, Medium, Low) and Timeframe	Responsible and Coordinating Bureaus and Agencies	Potential Funding Agencies	(B/C) Benefit-Costs (TF) Technical Feasibility
ST MH #10 2,3,5,6	Develop educational materials (television and print media) for residents that identify and define their risk to multi hazards: define and offer mitigation measures that residents can take home or share, determine method of distribution of the educational materials and coordinate with the media to reduce conveyance of misinformation. (education, outreach)	High ST – Ongoing	POEM	City of Portland FEMA HMA, FEMA AFG, FP&S, SAFER, EFSP, DHS, NRCS	B/C: Sustained mitigation outreach program has minimal cost and will help build and support area-wide capacity. This type activity enables the public to prepare for, respond to and recover from disasters. TF: This low cost activity can be combined with recurring outreach opportunities at meetings where hazard specific information can be presented in small increments. This activity is ongoing demonstrating its feasibility.
LT MH #1 2,5,6,7	Revise Portland's Comprehensive Plan to address and implement Citywide policies, land use improvements and mapping changes to natural hazards including, but not limited to, earthquakes, erosion, floods, invasive plants, landslides, volcano, severe weather and wildfires. (mapping, planning) (NFIP Compliance)	LT – Ongoing	BPS	City of Portland	B/C: Land use planning that considers hazards as an integral component, policies can be established that will ensure reduction of loss and damage to structures. TF: This activity is feasible and currently being implemented through the background reports of the Portland Plan which will inform the 25 year long range Comprehensive Plan.
ST EQ #8 5	Study the feasibility of mandatory or voluntary installation of seismic shutoff valves on natural gas meters at commercial and residential buildings.	Medium ST	BF&R, BDS, POEM	City of Portland, FEMA HMA, FEMA AFG, FP&S, SAFER, EFSP, DHS, NRCS	B/C: Coordinated legislation ensures consistency, enforcement and protection to the City's population and resource expenditure reduction. TF: This activity is technically feasible and involves effective communication and staff resources; this activity is feasible for the City to complete.
LT FL #5 2,3,5,6	As Waterfront Park remodeling is designed, ensure that Portland's downtown property and critical facilities remain protected from floodwaters. (asset management)	High LT – Ongoing	BP&R, BF&R BPS, BDS	City of Portland	B/C: This project is essential for sustainability and operations continuity ensuring City infrastructure and the population's remain protected from potential flood impacts during reconstruction ensuring their health and safety. TF: This activity is technically feasible within the community through partnership agreements or memoranda to maximize existing utility infrastructure availability.
ER# 2,5	Construct and install bio-engineered slope protective measures to reduce or eliminate erosion.	High LT	BP&R	City of Portland, FEMA HMA, FEMA AFG, FP&S, SAFER, NRCS	B/C: This project would reduce erosion risk to infrastructure and residential properties using effective native vegetation bank stabilization measures to reduce erosion damage to threatened structures. TF: This activity is technically feasible and involves effective communication and staff resources; this activity is feasible for the City to complete.
WF 2,4,5,6	Develop and implement protocol for defining and mapping Wildland Urban Interface Zones and develop recommended policies, regulations and landscape options for incorporation into City plans and programs. (planning)	High ST	BF&R, BP&R, BES, POEM, PBOT, Metro, BDS, BPS	City of Portland, FEMA AFG, FP&S, SAFER	B/C: Coordinated planning ensures effective damage avoidance or reduction and ensures proper attention is assigned to reduce losses and damage to structures and City residents. TF: This activity involves effective communication and staff resources; this activity is feasible for the City to complete. This activity is ongoing demonstrating its feasibility.

Task 7

Keep the Plan Current

About the Cover: A FEMA Voluntary Agency Specialist addresses representatives from the Regional Catastrophic Planning Team, New York City Office of Emergency Management, American Red Cross, and other voluntary organizations active in disaster. FEMA works with local community and faith-based organizations to coordinate future recovery efforts.

Task 7 – Keep the Plan Current

The mitigation plan is a living document that guides action over time. As conditions change, new information becomes available, or actions progress over the life of the plan, plan adjustments may be necessary to maintain its relevance. *Task 7* describes how to develop procedures to monitor, evaluate, and update the mitigation plan over time.

Plan Maintenance Procedures

Plan maintenance is the process the planning team establishes to track the plan's implementation progress and to inform the plan update. The plan must include a description of the method and schedule for monitoring, evaluating, and updating it within a 5-year cycle. These procedures help to:

- Ensure that the mitigation strategy is implemented according to the plan.
- Provide the foundation for an ongoing mitigation program in your community.
- Standardize long-term monitoring of hazard-related activities.
- Integrate mitigation principles into community officials' daily job responsibilities and department roles.
- Maintain momentum through continued engagement and accountability in the plan's progress.

Plan updates provide the opportunity to consider how well the procedures established in the previously approved plan worked and revise them as needed.

Element A6

The plan maintenance process shall include a section describing the method and schedule of monitoring, evaluating, evaluating, and updating the mitigation plan within a five-year cycle.

44 CFR §201.6(c)(4)(i)

Develop Procedures For:

Monitoring. Tracking the implementation of the plan over time.

Evaluating. Assessing the effectiveness of the plan at achieving its stated purpose and goals.

Updating. Reviewing and revising the plan at least once every 5 years.

Monitoring Implementation

Plan monitoring means tracking the implementation of the plan over time. The plan must identify how, when, and by whom the plan will be monitored. For example, the plan may describe a monitoring system for tracking the status of the identified mitigation actions and reporting this information on a quarterly basis. The responsible agency assigned to each mitigation action may be responsible for tracking and reporting on each of their actions. Appendix A includes an example worksheet for reporting progress on a mitigation action (see Worksheet 7.1).

The planning team must identify the lead position or agency, usually the same individual or agency leading the plan's development, for coordinating the monitoring process. A method and schedule for regular monitoring can include reports or other deliverables and expectations for meeting attendance. Monitoring, therefore, becomes part of the regular administrative function of the offices or positions to which it is assigned.

Evaluating Effectiveness

Evaluating means assessing the effectiveness of the plan at achieving its stated purpose and goals. The planning team must identify how, when, and by whom the plan will be evaluated. The planning team may develop a list of metrics to evaluate progress toward goals on an annual basis. For instance, if a goal is to improve public awareness of hazards and risk, then repeat a survey conducted during the planning process on an annual or 5-year basis to gauge

how perception of risk is changing. If a goal is to reduce the number of structures in hazard prone areas, evaluate how these numbers change over time. The planning team could also evaluate the percentage of actions implemented.

Plan evaluation may not occur as frequently as plan monitoring, but it is an important step to ensure that the plan continues to serve a purpose. Many communities commit to, at a minimum, annually reconvening the planning team to evaluate the plan's effectiveness and to prepare a report for their governing bodies that demonstrates progress to date. This information also serves as the basis of the next plan update.

The planning team or, if applicable, a subset of the planning team assigned to evaluate the plan, may develop a schedule for both regular meetings and specific deliverables. To maximize funding opportunities, schedule the meetings to coincide with an existing process or procedure, such as the community budget cycle or FEMA's annual grant cycle. If reports or other deliverables are necessary, determine their frequency and reporting requirements.

Updating the Plan

Updating means reviewing and revising the plan at least once every 5 years to reflect changes in development, progress in local mitigation efforts, and changes in priorities. The planning team must identify how, when, and by whom the plan will be updated. Documenting the procedures for updating the plan requires an explanation of who will be responsible for updating the plan and when and how this process will be initiated. The plan must include the title of the individual or name of the department or agency responsible for leading the updating effort. It may be appropriate to include a schedule of activities that allows sufficient time to obtain funding for and complete the planning process before the plan expires.

The planning team can also establish procedures for updating the plan following a disaster event or concurrent with the development of a recovery or post-disaster redevelopment plan. Your community's vulnerabilities and mitigation priorities often change following a disaster, and additional funding sources may become available, such as FEMA's Hazard Mitigation Grant Program or Public Assistance. Generally, public awareness increases, and the demand and support for mitigation frequently increases following a disaster. You may choose to take advantage of opportunities to incorporate mitigation into recovery strategies and to rebuild wisely and safely to avoid similar losses in the future. This is also an important time to collect data on the hazard and its impacts for future plan updates. If you are considering developing a recovery plan prior to a disaster, coordinating the recovery and mitigation planning efforts promotes messages about building resilience.

Continue Public Involvement

Keeping the plan current also means continuing to provide opportunities for public involvement in the plan and its implementation. *Task 3* describes this requirement and offers suggestions for continuing outreach to the public and other stakeholders during plan maintenance and implementation. You may choose to document how the community will continue public participation during the plan maintenance process, along with the procedures for monitoring, evaluating, and updating the plan.

Element A5

The plan maintenance process shall include a discussion on how the community will continue public participation in the plan maintenance process.

44 CFR §201.6(c)(4)(iii)

The planning team also may identify specific procedures for keeping elected officials involved, either through the monitoring and evaluation procedures and/or through the process for continuing public participation. The local governing body usually adopts the plan, so reporting back to them annually or at other regular intervals can help maintain support and provide accountability for those responsible for the plan's maintenance and implementation.

Conclusion

Task 7 describes the requirements and recommendations for documenting how, when, and by whom the mitigation plan will be maintained over time. Identifying and adhering to monitoring and evaluation procedures will make the 5-year update process easier and more effective. *Task 8* describes the final review and adoption of the plan document and the process for submitting the plan for FEMA approval.

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Task 8

Review and Adopt the Plan

About the Cover: Citizens attend a City Council meeting in the City of Biloxi's newly renovated City Hall. The historic building was damaged by Hurricane Katrina.

Task 8 – Review and Adopt the Plan

The previous tasks described how to engage community participation, assess risks, and develop a mitigation strategy. Now, you are ready to take the plan through the local adoption and the review and approval process. First, you must incorporate feedback from the planning team, stakeholders, and the public on the final plan document. *Task 8* describes the final review and adoption of the plan document by the community and the process for FEMA plan approval.

Local Plan Review

When you have completed a final draft of the plan, the planning team can publicize the mitigation plan and ask stakeholders and the public to review and submit comments for the planning team's final consideration. *Task 3 – Create an Outreach Strategy* describes how the public must be given the opportunity to review and comment on the mitigation plan prior to its adoption. Suggestions for how to meet this requirement are also described in more detail in *Task 3*. A good approach provides the public sufficient time to comment and explains how comments will be used.

You may also directly inform certain stakeholders of the plan's availability for comment, such as through an email or letter. This is a particularly good approach for providing neighboring jurisdictions an opportunity to review the mitigation plan. The plan itself can include information on the types of comments received and how comments were incorporated.

Prior to submitting the plan to the State Hazard Mitigation Officer (SHMO), the planning team may validate that the local mitigation plan meets all requirements of Title 44 Code of Regulations (CFR) 201.6. FEMA uses the *Local Mitigation Plan Review Tool* to ensure that approved local mitigation plans meet these requirements. The planning team may view the Regulation Checklist portion of the *Plan Review Tool* and fill in the page numbers where your plan meets each of the required elements. This can serve as a final internal review to confirm the plan meets Federal requirements prior to submitting it for approval. Appendix B provides a copy of the *Local Mitigation Plan Review Tool*.

State and FEMA Plan Review

Submitting the Plan

Once the planning team is confident the plan meets the required elements and includes all supporting documentation, forward the plan to your SHMO or State Mitigation Planner. It is critical that all supporting documentation related to the planning process and other components of the plan are included in the initial submittal. Incomplete plan submittals can delay plan approval. The State will review the plan and work with you on any required revisions for approval. Don't forget to provide your local contact information where you can be reached for any questions.

Once the State is satisfied that the plan meets the requirements, the SHMO will forward the plan to the FEMA Regional Office for review and approval. FEMA will conduct its review within 45 days, if possible, and provide a completed Local Mitigation Plan Review Tool to the State. The FEMA Regional Office and the State may contact you to discuss additional revisions to the

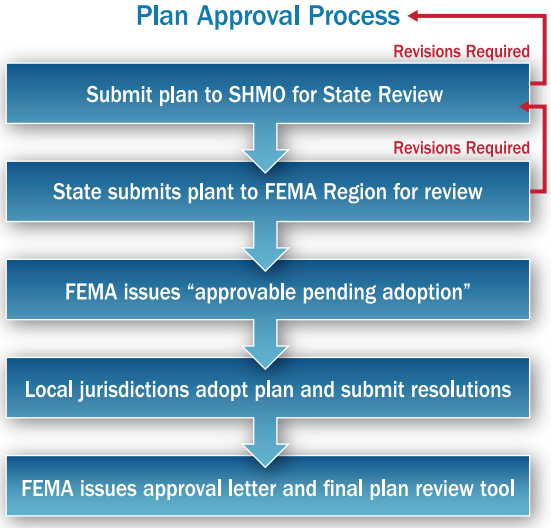

Figure 8.1: Plan approval process

plan to ensure that it meets the Federal regulation. Once FEMA determines the plan meets the regulation, FEMA will notify the SHMO that the plan is approvable pending adoption (APA), or approved if the community has already adopted the mitigation plan.

Approvable Pending Adoption

To avoid repeated attempts to adopt the plan prior to FEMA approval, many communities obtain a notice from FEMA that the plan is APA before adopting the plan. As a time-saving measure, communities are encouraged to submit the final draft of the mitigation plan to the State and FEMA for review prior to formal adoption by the elected officials or other authorized governing body. If FEMA determines the plan is not approvable and requires revisions, the community will be able to make revisions before initiating the plan adoption process, therefore avoiding unnecessary delays in plan approval.

Plan Approval

Upon receiving the record of adoption from the State, FEMA will issue an official approval letter stating which jurisdictions have adopted and are approved and eligible for FEMA Hazard Mitigation Assistance programs. The approval letter will include the expiration date 5 years from the date of the letter. Attached to the approval letter will be a final Local Mitigation Plan Review Tool that provides feedback on the strengths of the plan, recommendations for plan improvements during future plan updates, and suggestions for implementing the mitigation strategy.

Local Adoption of the Plan

Adoption by the local governing body demonstrates the community's commitment to implementing the mitigation strategy and authorizes responsible agencies to execute their actions. The final plan is not approved until the community adopts the plan and FEMA receives documentation of formal adoption by the governing body of the jurisdiction(s) requesting approval. The governing bodies are typically the Town Board, City Council, County Commissioners, and/or Board of Selectmen. While plan adoption usually occurs through a formal resolution, council minutes, consent agendas, or other forms of adoption are acceptable if allowed by local law. Appendix A includes an example of a local adoption resolution (see Worksheet 8.1).

Element E1

The plan shall include documentation that the plan has been formally adopted by the governing body of the jurisdiction requesting approval of the plan (e.g., City Council, County commissioner, Tribal Council).

44 CFR §201.6(c)(5)

Each jurisdiction submits documentation of adoption to the State, who is responsible for forwarding this on to the FEMA Regional Office. If you choose to use the APA process, adoption must take place within 1 year of receipt of FEMA's APA notification.

Multi-Jurisdictional Adoption

Each jurisdiction seeking plan approval must adopt the plan. If you choose to use the APA process, it is important to coordinate the adoptions of all the jurisdictions as soon as the plan receives APA status. The governing bodies may have different meeting schedules, which prevent all the jurisdictions from adopting at the same time. If possible, coordinate the adoptions and submit documentation to the State at the same time.

Element E2

For multi-jurisdictional plans, each jurisdiction requesting approval of the plan must document that it has been formally adopted.

44 CFR §201.6(c)(5)

At least one of the participating jurisdictions must adopt the plan within 1 year of FEMA's APA notice. FEMA will issue an official approval letter stating which jurisdictions have adopted the plan and are eligible for FEMA hazard mitigation assistance programs. The plan will expire 5 years from the date of FEMA's approval letter for the mitigation plan. The approval letter and date are generated with the first jurisdiction adopting the plan. The plan approval date remains the same regardless of when other participating jurisdictions adopt the plan. It is important to coordinate the adoption process to ensure that all participants are covered by the plan for the full 5 years. Plan updates follow the same adoption process.

Additional Considerations

Additional considerations related to the plan review and approval process include:

- **Communicate with your SHMO early and often.** Discuss with your SHMO whether it would be appropriate to share drafts of the plan or portions of the plan prior to a formal review to ensure the plan is complete. Also, you will want to ensure your plan meets any additional State requirements, which are noted in Element F of the *Local Mitigation Plan Review Tool*.
- **Keep stakeholders informed.** The relationships you have already established with stakeholders, elected officials, and government agencies will be important assets during the adoption process. To facilitate adoption of the plan, periodically brief community decision makers throughout the planning process on the progress of the planning team's efforts. When presenting the final draft for adoption, invite the planning team to the meeting and ask supporting agencies to provide testimony regarding their support of the plan.
- A**llow for sufficient time.** Build time into your planning process to meet State and FEMA procedures for review. *Task 2* describes the development of a scope and schedule for the planning process, which may involve a lengthy timeframe for review, approval, and adoption. Your local governing body may meet only once a month and may require agenda items to be submitted well ahead of time.

Celebrate Success

Now that the plan is adopted and approved, the work is just beginning. But first, it's time to celebrate! Publicize the adoption and approval of the plan. Consider getting the word out using multiple methods, such as the following:

- Post a notice on the community's website
- Issue a press release on plan adoption and approval to local media outlets
- Distribute notices of approval to stakeholders
- Announce the first project(s) to be initiated
- Propose a congratulatory resolution or achievement award for the planning team (or specific individuals) for their successful work and commitment to making the community safer

These and similar steps are easy to complete, are inexpensive, and will keep the plan at the forefront of people's minds, helping to build momentum as you move into implementation. *Task 9* provides recommendations for implementing your mitigation strategy to reduce risk and strengthen your community's resilience to future disasters.

Publicize Plan Adoption and Approval

FOR IMMEDIATE RELEASE:

Bonnie Prigge, MRPC, 573-265-2993

Gasconade County Hazard Mitigation Plan approved

The Gasconade County Hazard Mitigation Plan has been approved by both the State Emergency Management Agency and the Federal Emergency Management Agency. The plan approval is pending adoption resolutions from the participating jurisdictions including Gasconade County, its cities and its school districts.

Meramec Regional Planning Commission (MRPC) worked in partnership with Gasconade County to update the plan. Planning meetings were held with city and county officials, school leaders, emergency management agencies and interested individuals.

The county must have an approved hazard mitigation plan in order for Gasconade County schools, cities, agencies and others to access state hazard mitigation grant funds. The plan includes an assessment of natural hazards, showcases past accomplishments and sets goals and action items to reduce the impact of natural hazards in the future.

Persons wishing to review the plan may access it on the MRPC website at www.meramecregion.org.

For more information on the plan, contact Assistant Director and Environmental Programs Manager Tammy Snodgrass at MRPC, 573-265-2993.

Task 9

Create a Safe and Resilient Community

About the Cover: The Longaberger company receives an honorary “Proclamation” at the Longaberger Tree Dedication in Cunningham Park, Joplin, Missouri. The tree dedication was part of Joplin’s Day of Remembrance one year after a deadly tornado struck Joplin on May 22, 2011. The tornado killed 161 residents of Joplin, destroyed 25% of the town, and caused $2.2 billion in property damage. The ceremony recognized the planting of 40 trees donated by the Longaberger Foundation of Newark, Ohio. FEMA supports the recovery efforts of towns and communities like Joplin as they work to rebuild after a disaster.

Task 9 – Create a Safe and Resilient Community

The *Handbook's* Introduction summarizes the benefits of hazard mitigation—sustained action taken to reduce or eliminate the long-term risk to human life and property from hazards. These benefits contribute to a community's disaster resilience and include protecting public safety, preventing damage to infrastructure and homes, encouraging safer and more sustainable development, and reducing the costs of disaster response and recovery.

Through the mitigation planning process, your community has identified and prioritized mitigation policies and actions to reduce risk and future losses. The implementation of proactive mitigation policies and actions, as well as an inclusive, informed planning process, helps create a safer, more resilient community.

However, turning your mitigation plan into action can be difficult. *Task 9* identifies some common challenges communities face in implementing their mitigation strategy. It also provides suggestions for how to overcome mitigation barriers and describes some funding and resources available to help.

Disaster Resilience

Resilience is the ability to adapt to changing conditions and prepare for, withstand, and rapidly recover from disruption.

U.S. Department of Homeland Security Risk Lexicon, 2008.

Challenges to Achieving Mitigation Goals

Community officials make difficult decisions every day to balance competing priorities for local resources, funding, and staff time. Multiple, competing priorities can be a major challenge to implementing the plan and accomplishing your community's mitigation goals. Other common challenges include the following:

- Loss of interest or meeting fatigue after the mitigation planning and adoption process ends on the part of the planning team, stakeholders, and the public
- Lack of funding and other resources and capabilities, including staff time and technical expertise, to accomplish the mitigation actions
- Insufficient political will to address the more complicated problems and controversial solutions
- Apathy created by "disaster amnesia" or the perception that "nothing ever happens here" when time passes without a significant hazard event
- Disconnect between the mitigation strategy and the day-to-day operations, staff work plans and procedures, and the policies and objectives of other local plans and programs

The School Superintendent cuts the ribbon to re-open North Bay Elementary school on November 7, 2005, along with students and teachers. Waveland/Bay St. Louis, Missouri, schools had been closed since the landfall of Hurricane Katrina on August 29, 2005.

Recommendations for Success

Communities all over the country of various sizes and capabilities are successfully implementing mitigation activities and overcoming challenges due to funding, competing priorities, political hardships, and more. The following approaches may be helpful for your community.

Use the Post-Disaster Window of Opportunity

The post-disaster recovery period offers unique opportunities to accomplish mitigation goals. Public support and political will to change policies and invest in long-term risk reduction may be at its highest. In addition, funding sources may become available for mitigation, such as FEMA's Hazard Mitigation Grant Program (HMGP) and Public Assistance (PA) Section 406 funding described in the *Funding and Resources* section that follows. A strong mitigation plan can help your community be prepared to take advantage of the funding and resources. Incorporation of mitigation strategies into either a pre-disaster or post-disaster recovery plan reinforces the linkage of long-term risk reduction and community resilience.

An administrator visits a mitigation project in the Cedar Heights neighborhood of Colorado Springs, Colorado. The project protected homes from the 2012 Waldo Canyon Fire.

In a post-disaster environment, significant reinvestments in infrastructure and development are often made during a relatively short timeframe. The mitigation plan can help guide those efforts to create a community that is more resilient to future disasters. Here are some questions to consider and take full advantage of the post-disaster window of opportunity for mitigation:

- How can disaster funds be used to implement actions in the mitigation strategy?
- How can the planning team take advantage of the public's risk awareness due to the disaster events?
- How can the disaster effects influence future land use decisions to work toward mitigation goals?
- What local mitigation capabilities need to be strengthened based on lessons learned?

Post-disaster implementation also presents challenges. Local priorities may be limited to building back quickly, rather than safely, or communities may face strained capacity or capability as local officials address other post-disaster priorities. Increased mitigation funding and technical assistance from State and Federal sources after a disaster can help offset these challenges. The recovery process should ensure that mitigation priorities, as outlined in the plan, are actively applied to reinvestment decisions.

Focus on Quality over Quantity

As you move forward with transitioning from plan development to plan implementation, it is important to achieve a few "early wins," or successfully complete some initial mitigation actions. These could be low-cost actions that can be implemented quickly or a single high-priority project. Demonstrating progress can go a long way in gaining the support needed to implement more complex actions in the future.

Develop Strong Messaging

Some actions may require greater effort to gain political backing or public support to implement, particularly those that require local financial and/or administrative commitments or those that generate opposition from competing interests. You will need to make a convincing and long-lasting case for mitigation. For each proposed action, you should be prepared to clearly and succinctly explain how well the action can meet additional standards or "selling points," such as:

- The action is economically viable and contributes towards your community's long-term resilience and sustainability.
- The action can be completed efficiently using staff time and coordination among departments, or in the case of required financial commitments, is a wise and cost-effective expenditure.

- The action will reduce the overall community risk.
- The action achieves multiple objectives that go beyond increasing overall safety (such as social, economic, or environmental benefits).
- The action is supported by a broad array of stakeholders, including intergovernmental or public-private partnerships.
- The action has a local champion to ensure its completion and success.

Encourage Local Champions

Successful projects often involve a strong local champion. Champions are leaders who understand the mitigation vision, can clearly communicate it, and can engage others to get buy-in. Spreading out the responsibility for mitigation activities to a variety of champions increases the likelihood of a successful mitigation program. Enlist the support of external partners that can provide additional leverage for promoting projects, including local businesses and other stakeholders.

Identify a Mentor

Community officials can learn from other communities that have successfully implemented mitigation actions. Other communities may be willing to share experience and lessons learned. Consult the FEMA Best Practices Portfolio[1] or your State Hazard Mitigation Officer (SHMO) for contacts in other communities who can provide ideas and advice.

A seismic retrofit of this police station in Seattle, Washington was paid for using capital improvements funds. Structural bracing was added to the building at all levels. The project is highlighted in FEMA's Best Practices Portfolio.

Funding and Assistance

Many mitigation actions require financial assistance—in particular, structural and critical infrastructure projects. Funding can take the form of grants and loans, but assistance can also be provided as technical assistance or in-kind contributions. Some projects may require a combination of your community's financial resources, State and Federal grant programs, and non-governmental funding assistance.

Local Funding and Private Property Owners

You should first seek to identify any initiatives and activities that can be accomplished using existing operations and budgets. For example, small infrastructure projects such as storm water drainage improvements can likely be incorporated into your community's recurring capital improvements program. Other projects may require a specific line-item request as part of the routine planning and budgeting cycle, or possibly require more creative public financing methods such as special purpose assessments, impact fees, or tax increment financing. Some actions may leverage a combination of funding sources with other local departments, particularly those that can result in multiple benefits for the community (for example, acquiring flood prone properties to be maintained as a public park or recreational area).

This sign describing building methods that can withstand 120-mph winds is placed in front of a home in Pratt City. The house that originally stood on this spot was destroyed on April 27, 2011, when a string of deadly tornadoes struck Alabama.

1 To search the FEMA Best Practices Portfolio, see http://www.fema.gov/mitigationbp/.

Private property owners share the responsibility to protect themselves and their property. Many Federal mitigation grants for activities like acquisition or elevation require a minimum of 25 percent of the total project cost to be non-Federal, and local communities often pass that cost on to the individual property owner.

State Funding and Assistance

State government funding for mitigation varies from state to state. Hazard Mitigation Assistance funds may be available following a Federal disaster declaration, as described below, and some states use their own general funds for grant matching. Contact your SHMO to learn about available funds in your state. In addition, other State agencies, such as your State forestry department, geological survey, and water resources agency, may offer programs that fund projects related to specific hazards.

Get to know your SHMO, who is responsible for organizing, developing, and implementing the State's hazard mitigation program as well as reviewing plans and projects submitted for approval by local communities. Your SHMO coordinates with other State agencies, FEMA and other Federal agencies, local governments, and other public and private organizations regularly; monitors the completion of approved projects; and provides technical assistance and grant funding for approved activities and expenses. Your SHMO coordinates most FEMA funding to support mitigation plans and project implementation.[2]

FEMA Mitigation Grant Programs

Hazard Mitigation Assistance Grant Programs

Hazard Mitigation Assistance grant programs provide funding opportunities for pre- and post-disaster mitigation.[3] While the statutory origins of the programs differ, all share the common goal of reducing the risk of loss of life and property due to natural hazards. Brief descriptions of the Hazard Mitigation Assistance grant programs are provided below.

- **Hazard Mitigation Grant Program.** FEMA's Hazard Mitigation Grant Program assists in implementing long-term hazard mitigation measures following Presidential disaster declarations. Funding may be authorized after a declaration to implement projects in accordance with State, Tribal, and local priorities.
- **Pre-Disaster Mitigation.** FEMA's Pre-Disaster Mitigation Grant Program provides funds on an annual basis for hazard mitigation planning and mitigation project implementation prior to a disaster. The goal of the program is to reduce overall risk to the population and structures, while at the same time also reducing reliance on Federal funding from actual disaster declarations.
- **Flood Mitigation Assistance.** FEMA's Flood Mitigation Assistance Program provides funds on an annual basis so that communities can take measures to reduce or eliminate risk of flood damage to buildings insured under the National Flood Insurance Program (NFIP).

Hazard Mitigation Funding Under Public Assistance, Section 406

Section 406 of the Robert T. Stafford Disaster Relief and Emergency Assistance Act (Stafford Act), 42 U.S.C. 5172, provides FEMA with the authority to fund cost-effective mitigation measures under the PA program in conjunction with the repair of disaster-damaged public facilities. These opportunities usually become apparent during the immediate repair phase following disaster events. It is critical that your community is aware and involved in the development of PA projects in close coordination with State and FEMA counterparts to help identify possible mitigation opportunities under the PA program.[4]

2 A list of SHMOs can be found at: http://www.fema.gov/state-hazard-mitigation-officers.

3 For more information on FEMA's Hazard Mitigation Assistance programs, see http://www.fema.gov/hazard-mitigation-assistance.

4 For more information on hazard mitigation funding under Section 406, see http://www.fema.gov/public-assistance-local-state-tribal-and-non-profit/hazard-mitigation-funding-under-section-406-0.

Earthquake Grants

The National Earthquake Hazards Reduction Program Earthquake State Assistance Program was created to increase and enhance the effective implementation of earthquake risk reduction at the local level. Examples of mitigation activities funded through this program include: developing seismic mitigation plans; conducting seismic safety inspections of critical structures and lifelines; updating building codes, zoning codes, and ordinances to enhance seismic safety; or increasing earthquake awareness and education. More information on the availability of funding to assist with local activities supporting earthquake risk reduction can be obtained by contacting your SHMO or State Earthquake Program contact.[5]

Emergency Management Performance Grants Program

The purpose of the Emergency Management Performance Grants Program is to provide grants to states to assist State, local, Tribal, and territorial governments in preparing for threats and hazards. The grant focuses on planning, operations, equipment acquisitions, training, exercises, and construction and renovation in enhancing and sustaining all-hazards emergency management capabilities. Your State emergency management agency is the only entity eligible to apply to FEMA for Emergency Management Performance Grant funds on behalf of State and local emergency management agencies, so your first point of coordination should be through your local emergency management office.[6]

FEMA Technical Assistance

Many types of technical assistance are available from FEMA. Technical assistance may take the form of information resources; publications; training; templates, models, and samples; networking; or onsite workshops.

Risk MAP

FEMA's Risk Mapping, Assessment, and Planning (Risk MAP) program helps communities identify, assess, and reduce flood risk. Through Risk MAP, FEMA provides communities with flood risk data and information to enhance local mitigation plans, improve community outreach, and increase local resilience to floods. The products and guidance provided by Risk MAP can be used to help implement your local mitigation plan.[7]

Building Science

FEMA's Building Science Branch provides technical services and produces mitigation guidance to create disaster-resilient communities. The Building Science Branch provides NFIP technical support for public and private sector stakeholders, the National Earthquake Hazards Reduction Program, the National Windstorm Impact Reduction Program, and outreach strategies for communicating Building Science issues.[8]

National Earthquake Technical Assistance Program

The National Earthquake Technical Assistance Program is designed to help State, Tribal, and local governments obtain the knowledge, tools, and support needed to plan and implement effective earthquake mitigation strategies.[9] FEMA provides the following types of assistance through the program:

5 For more information on the Earthquake State Assistance Program, see http://www.fema.gov/earthquake-grants.

6 For more information on Emergency Management Performance Grants, see http://www.fema.gov/fy-2009-emergency-management-performance-grants.

7 For more information on Risk MAP, see http://www.fema.gov/rm-main.

8 For more information on FEMA's Building Science Branch, see http://www.fema.gov/building-science.

9 For more information on the National Earthquake Technical Assistance Program, see http://www.fema.gov/national-earthquake-hazards-reduction-program/national-earthquake-technical-assistance-program.

- **Training.** Courses and associated materials, available for classroom presentation or independent study, related to a variety of seismic risk reduction activities and stakeholders.
- **Technical assistance.** Technical advice and shared expertise that help recipients design, develop, and implement earthquake mitigation projects.
- **Tools development.** Assistance in developing job aids and other tools that facilitate efficient and effective implementation of earthquake mitigation efforts.
- **Special project support.** Depending on the availability of program funding, support for demonstration projects or other original or replicable mitigation initiatives.

FEMA Best Practices

The FEMA Best Practices Portfolio consists of illustrated stories, ideas, activities, and projects that show how others have worked to reduce or prevent damage from disasters. These best practices are submitted by individuals and communities to describe measures they have taken to reduce the loss of life and property from disasters. The portfolio is meant to provide ideas and concepts about reducing losses and to encourage others to evaluate their own risk and consider mitigation as a long-term solution to reducing that risk. In addition to the portfolio, FEMA also provides more detailed case studies that offer in-depth, analytical information about innovative projects throughout the United States that address all types of hazards.[10]

Other Federal Agencies

In addition to FEMA, other Federal agencies also provide funding or technical assistance programs for activities that complement or support mitigation objectives. For example, many communities have used Community Development Block Grant funds from the U.S. Department of Housing and Urban Development to implement mitigation activities. Many funding programs may be found by searching the Catalog of Federal Domestic Assistance, or by browsing other Federal agency websites.

Conclusion

This *Local Mitigation Planning Handbook* provides guidance on how to develop or update a local hazard mitigation plan to serve as an effective blueprint for reducing future losses from natural hazards and disasters and to meet requirements for FEMA approval. The local mitigation plan is the representation of your whole community's commitment to reducing long-term vulnerability and acts as a guide for decision makers as they commit resources for implementation. *Task 9* describes how to turn your mitigation plan into action. The planning process does not stop at adoption, and funding and resources are available to help implement your plan. Proactively implementing the policies and actions identified in your mitigation plan increases community resilience and is an investment in your community's future safety and sustainability.

10 To search the FEMA Best Practices Portfolio, see http://www.fema.gov/mitigationbp/.

Appendix A

Planning Process Worksheets

List of Planning Process Worksheets

Task 1: Determine the Planning Area and Resources

Worksheet 1.1 – Comparison of Multi-Hazard Mitigation and CRS Planning Requirements

Worksheet 1.2 – Sample Memorandum of Agreement for a Multi-Jurisdictional Planning Team

Task 2: Build the Planning Team

Worksheet 2.1 – Mitigation Planning Team Worksheet

Worksheet 2.2 – Sample Schedule of Tasks

Task 3: Create an Outreach Strategy

Worksheet 3.1 – Sample Public Opinion Survey

Task 4: Review Community Capabilities

Worksheet 4.1 – Capability Assessment Worksheet

Worksheet 4.2 – Safe Growth Audit

Worksheet 4.3 – National Flood Insurance Program Worksheet

Task 5: Conduct a Risk Assessment

Worksheet 5.1 – Hazards Summary Worksheet

Task 6: Develop a Mitigation Strategy

Worksheet 6.1 – Mitigation Action Evaluation Worksheet

Worksheet 6.2 – Mitigation Action Implementation Worksheet

Task 7: Keep the Plan Current

Worksheet 7.1 – Mitigation Action Progress Report Form

Worksheet 7.2 – Plan Update Evaluation Worksheet

Task 8: Review and Adopt the Plan

Worksheet 8.1 – Example Adoption Resolution

Comparison of Multi-Hazard Mitigation and CRS Planning Requirements

One of the activities that communities can take to improve their Community Rating System (CRS) rating (and subsequently lower National Flood Insurance Program [NFIP] premiums) is to develop a CRS plan. The CRS 10-step planning process is consistent with the multi-hazard planning regulations under 44 CFR Part 201. Use this worksheet to compare how the local mitigation planning requirements at 44 CFR Part 201 relate to the CRS planning steps.

More detailed information on CRS plans can be found in Activity 510 of the CRS Coordinator's Manual at http://www.fema.gov/national-flood-insurance-program/community-rating-system.

Check ✓ if You Meet Both CRS & Part 201	Community Rating System (CRS) Planning Steps (Activity 510)	Local Mitigation Planning Handbook Tasks (44 CFR Part 201)
	Step 1. Organize	**Task 1:** Determine the Planning Area and Resources **Task 2:** Build the Planning Team 44 CFR 201.6(c)(1)
	Step 2. Involve the public	**Task 3:** Create an Outreach Strategy 44 CFR 201.6(b)(1)
	Step 3. Coordinate	**Task 4:** Review Community Capabilities 44 CFR 201.6(b)(2) & (3)
	Step 4. Assess the hazard	**Task 5:** Conduct a Risk Assessment 44 CFR 201.6(c)(2)(i) 44 CFR 201.6(c)(2)(ii) & (iii)
	Step 5. Assess the problem	
	Step 6. Set goals	**Task 6:** Develop a Mitigation Strategy 44 CFR 201.6(c)(3)(i) 44 CFR 201.6(c)(3)(ii) 44 CFR 201.6(c)(3)(iii)
	Step 7. Review possible activities	
	Step 8. Draft an action plan	
	Step 9. Adopt the plan	**Task 8:** Review and Adopt the Plan 44 CFR 201.6(c)(5)
	Step 10. Implement, evaluate, revise	**Task 7:** Keep the Plan Current **Task 9:** Create a Safe and Resilient Community 44 CFR 201.6(c)(4)

Worksheet 1.1
Comparison of Multi-Hazard and CRS Planning Requirements

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Sample Memorandum of Agreement for a Multi-Jurisdictional Planning Team[1]

I. Purpose

A Memorandum of Agreement (MOA) is hereby executed between the participating jurisdictions in the [Insert Title of Plan]. "Participating jurisdictions" in this MOA are as follows:

- [insert Lead Community name]
- [insert Community A name]
- [insert Community B name]

The purpose of this MOA is to establish commitment from and a cooperative working relationship between all Participating Jurisdictions in the development and implementation of the [Insert Title of Plan]. In addition, the intent of this MOA is to ensure that the multi-jurisdictional hazard mitigation plan is developed in accordance with Title 44 of the Federal Code of Regulations (CFR) Part 201.6; that the planning process is conducted in an open manner involving community stakeholders; that it is consistent with each participating jurisdiction's policies, programs and authorities; and it is an accurate reflection of the community's values.

This MOA sets out the responsibilities of all parties. The MOA identifies the work to be performed by each participating jurisdiction. Planning tasks, schedules, and finished products are identified in the Work Program and Schedule. The plan created as a result of this MOA will be presented to the governing body (Planning Commission, City Council and or Board of Commissioners) of each participating jurisdiction for adoption.

II. Background

Mitigation plans form the foundation for a community's long-term strategy to reduce disaster losses and break the cycle of disaster damage, reconstruction, and repeated damage. The Participating Jurisdictions in a mitigation planning process would benefit by:

- identifying cost effective actions for risk reduction;
- directing resources on the greatest risks and vulnerabilities;
- building partnerships by involving people, organizations, and businesses;
- increasing education and awareness of hazards and risk;
- aligning risk reduction with other community objectives; and
- providing eligibility to receive federal hazard mitigation grant funding.

The [insert Lead Community name] has received a grant from the Federal Emergency Management Agency to prepare a multi-jurisdictional hazard mitigation plan in accordance with 44 FEMA requirements at 44.C.F.R. 201.6.

III. Planning Team Responsibilities

[Insert Lead Community name] will act as the Lead Community, and will assign a Chairperson of the Planning Team for the [Insert Title of Plan]. The Participating Jurisdictions authorize the Lead Community to manage and facilitate the planning process in accordance with the Work Program and Schedule.

1 The language provided in this Sample Memorandum of Agreement does not impose legally enforceable rights and obligations, but provides information that may be suitable for your community in entering a partnership agreement with other jurisdictions. It is recommended that you consult an attorney prior to executing any legal instruments.

Worksheet 1.2
Sample Memorandum of Agreement for a Multi-Jurisdictional Planning Team

The Participating Jurisdictions understand that representatives must engage in the following planning process, as more fully described in the *Local Mitigation Planning Handbook* (FEMA, 2012), including, but not limited to:

- Develop the Work Program and Schedule with the Planning Team
- Organize and attend regular meetings of the Planning Team.
- Assist the Planning Team with developing and conducting an outreach strategy to involve other planning team members, stakeholders, and the public, as appropriate to represent their Jurisdiction.
- Identify community resources available to support the planning effort, including meeting spaces, facilitators, and media outlets.
- Provide data and feedback to develop the risk assessment and mitigation strategy, including a specific mitigation action plan for their Jurisdiction.
- Submit the draft plan to their Jurisdiction for review.
- Work with the Planning Team to incorporate all their Jurisdiction's comments into the draft plan.
- Submit the draft plan to their respective governing body for consideration and adoption.
- After adoption, coordinate a process to monitor, evaluate, and work toward plan implementation.

IV. Planning Team

The following points of contacts and alternatives are authorized on behalf of the governing bodies to participate as members of the Planning Team for the [Insert Title of Plan]:

[Insert Points of Contact for the Lead Jurisdiction and for each Participating Jurisdiction, and any alternative POCs, including, at a minimum:]

Name

Title

Office/Agency

Name of Participating Jurisdiction

Address

Phone number

Email address

V. MOA Implementation

This MOA will be in effect from the date of signature by all parties, will remain in effect through the duration of the planning process, and will terminate after adoption of the final FEMA-approved mitigation plan by all participating jurisdictions, or 5 years after FEMA approval, whichever is earlier. It may be terminated prior to that time for any Participating Jurisdiction by giving 60 days written notice. This MOA is to be implemented through the attached Work Program and Schedule, and any addendums that describe specific activities, programs, and projects, and if necessary, funding by separate instrument.

[Insert signature block for each Participating Jurisdiction, or attach resolutions]

Signature: _____

Name of Authorized Government Official

Title (City Manager, Mayor, County Emergency Management Director, etc.)

Name of Lead Jurisdiction

Office/Agency

Date: _____

Signature: _____

Name of Authorized Government Official

Title (City Manager, Mayor, County Emergency Management Director, etc.)

Name of Jurisdiction A

Office/Agency

Date: _____

VI. Attachments

Plan Work Program and Schedule

Worksheet 1.2

Sample Memorandum of Agreement for a Multi-Jurisdictional Planning Team

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Mitigation Planning Team Worksheet

Use this worksheet to identify partner organizations to invite to participate on the planning team. Some organizations do not need to be involved in every decision of the planning process but are stakeholders that require outreach and involvement during the planning process. Revise the list of general partners below to reflect the organizations in your community. Mark which organizations will be invited to participate on the planning team and which will be involved through stakeholder outreach activities.

Planning Team – The core group responsible for making decisions, guiding the planning process, and agreeing upon the final contents of the plan

Stakeholders – Individuals or groups that affect or can be affected by a mitigation action or policy

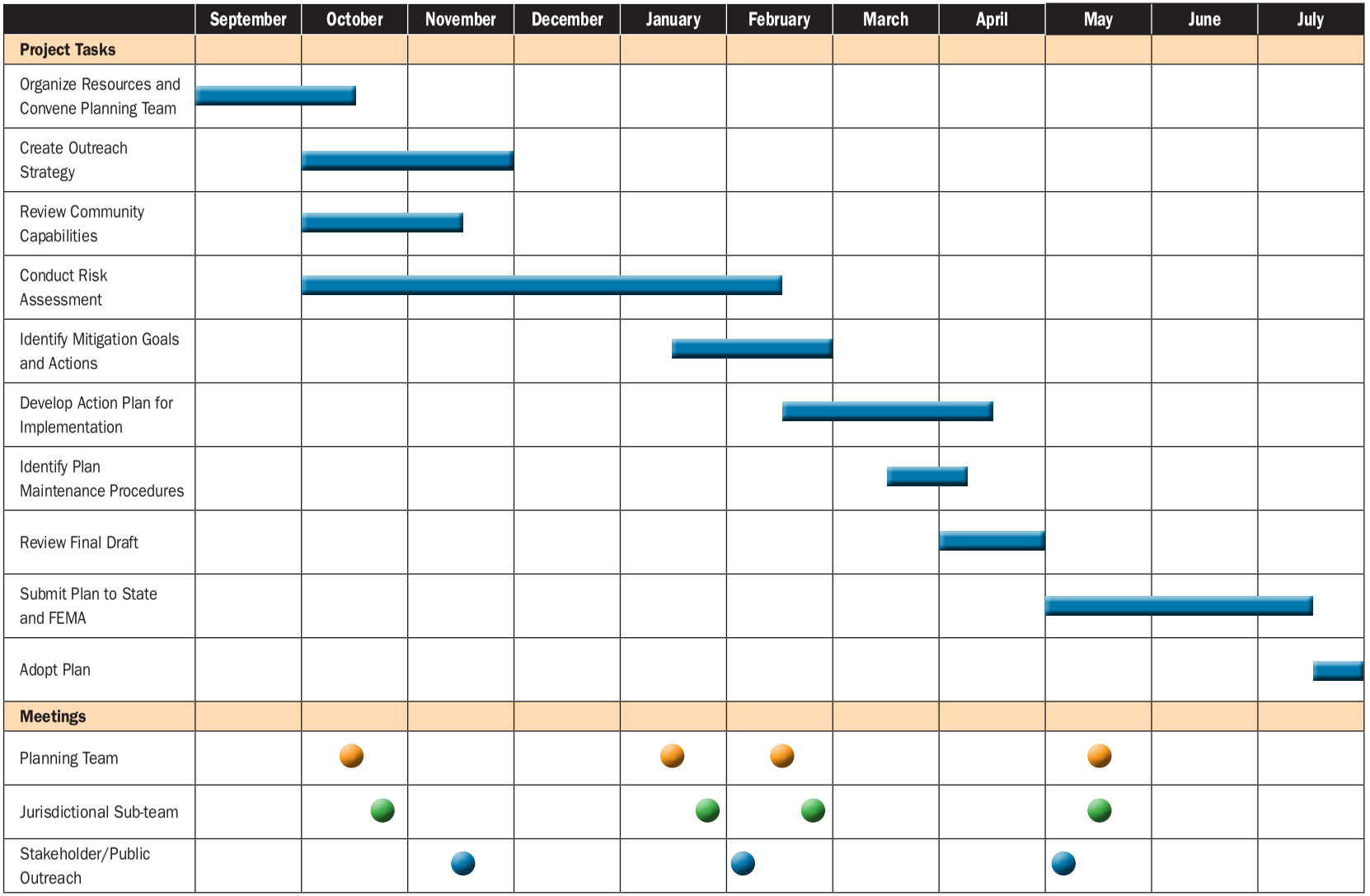
Partner Organization	Planning Team	Stakeholder	Notes
Local Agencies			
Building Code Enforcement			
City Management/County Administration			
Emergency Management			
Fire Department/District			
Floodplain Administration			
Geographic Information Systems			
Parks and Recreation			
Planning/Community Development			
Public Works			
Stormwater Management			
Transportation (Roads and Bridges)			
City Council/Board of Commissioners			
Planning Commission			
Planning/Community Development			
Regional/Metropolitan Planning Organization(s)			
City/County Attorney's Office			
Economic Development Agency			
Local Emergency Planning Committee			
Police/Sheriff's Department			
Sanitation Department			
Tax Assessor's Office			
Special Districts and Authorities			
Airport, Seaport Authorities			
Fire Control District			
Flood Control District			
School District(s)			
Transit Authority			
Utility Districts			

Worksheet 2.1
Mitigation Planning Team Worksheet

Partner Organization	Planning Team	Stakeholder	Notes
Non-Governmental Organizations			
American Red Cross			
Chamber of Commerce			
Community/Faith-Based Organizations			
Environmental Organizations			
Homeowners Associations			
Neighborhood/Community Organizations			
Utility Companies			
State Agencies			
State Emergency Management Agency			
State Dam Safety			
State Department of Transportation			
State Fire and Forestry Agency			
State Geological Survey			
State Water Resources Agency			
State National Flood Insurance Program Coordinator			
State Planning Office			
Federal Agencies			
Federal Emergency Management Agency			
Land Management Agencies (USFS/NPS/BLM)			
National Weather Service			
US Army Corps of Engineers			
US Department of Housing and Urban Development			
US Department of Transportation			
US Environmental Protection Agency			
US Geological Survey			
Other			
Tribal Officials			
Colleges/Universities			
Land Developers and Real Estate Agencies			
Major Employers and Businesses			
Professional Associations			
Neighboring Jurisdictions			

Note: Multi-jurisdictional planning teams require at least one representative for each participating jurisdiction. This worksheet can be used by each jurisdiction to identify their local sub-team.

Sample Schedule of Tasks



	September	October	November	December	January	February	March	April	May	June	July
Project Tasks											
Organize Resources and Convene Planning Team											
Create Outreach Strategy											
Review Community Capabilities											
Conduct Risk Assessment											
Identify Mitigation Goals and Actions											
Develop Action Plan for Implementation											
Identify Plan Maintenance Procedures											
Review Final Draft											
Submit Plan to State and FEMA											
Adopt Plan											
Meetings											
Planning Team											
Jurisdictional Sub-team											
Stakeholder/Public Outreach											

Worksheet 2.2
Sample Schedule of Tasks

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Sample Mitigation Public Opinion Survey

Mid-Columbia Region Natural Hazard Mitigation Public Opinion Survey

Your household has been randomly selected to participate in this survey about public perceptions and opinions regarding natural hazards in your county. In addition, we would like information regarding the methods and techniques you prefer for reducing the risks and losses associated with these hazards. The questionnaire should be completed by an adult, preferably the head of household. The information you provide will be used to help improve public/private coordination, mitigation, and risk reduction efforts in your county. The survey should take less than 30 minutes to complete.

This is a public opinion survey, the results of which will inform local natural hazard mitigation planning in Oregon. Your returned, completed survey indicates your willingness to take part in the study. Participation in this study is voluntary. The survey is not intended to contribute to "generalizable knowledge" and none of the information you provide will be attributed to you directly. If you have questions regarding your rights as a research participant, please contact the Office for Protection of Human Subjects, 1600 Millrace Drive, Suite 105, University of Oregon, Eugene, OR 97403-5219, or call (541) 346-2510.

NATURAL HAZARD INFORMATION

First we would like to know about your experiences involving natural hazards and your exposure to preparedness information.

1. During the past five years in the county you currently reside in, have you or someone in your household directly experienced a natural disaster such as an earthquake, severe windstorm, flood, wildfire, or other type of natural disaster?
   - ☐ Yes
   - ☐ No (***IF NO Skip to Question 2***)

   If "YES", which of these natural disasters have you or someone in your household experienced in the past five years?
   (***Please check all that apply***)
   - ☐ Drought
   - ☐ Dust Storm
   - ☐ Earthquake
   - ☐ Flood
   - ☐ Landslide / Debris Flow
   - ☐ Wildfire
   - ☐ Windstorm
   - ☐ Volcanic Eruption
   - ☐ Severe Winter Storm
   - ☐ Other (specify): _____

2. How concerned are you about the following natural disasters affecting your county?
   (***Check the corresponding box for each hazard)***

Natural Disaster	Very Concerned	Somewhat Concerned	Neutral	Not Very Concerned	Not Concerned
Drought	☐	☐	☐	☐	☐
Dust Storm	☐	☐	☐	☐	☐
Earthquake	☐	☐	☐	☐	☐
Flood	☐	☐	☐	☐	☐
Landslide / Debris Flow	☐	☐	☐	☐	☐
Wildfire	☐	☐	☐	☐	☐
Volcanic Eruption	☐	☐	☐	☐	☐
Wind Storm	☐	☐	☐	☐	☐
Severe Winter Storm	☐	☐	☐	☐	☐
Other: _____	☐	☐	☐	☐	☐

3. Have you ever received information about how to make members of your household and your home safer from natural disasters?
   - ☐ Yes
   - ☐ No (***IF NO Skip to Question 5***)

   If "YES", how recently?
   - ☐ Within the last 6 months
   - ☐ Between 6 and 12 months
   - ☐ Between 1 and 2 years
   - ☐ Between 2 and 5 years
   - ☐ 5 years or more

4. From whom did you **last** receive information about how to make members of your household and your home safer from natural disasters?
   (***Please check only one***)
   - ☐ News media
   - ☐ Government agency
   - ☐ Insurance agent or company
   - ☐ Utility company
   - ☐ University or research institution
   - ☐ Neighbor / friend / family member
   - ☐ Elected official
   - ☐ American Red Cross
   - ☐ Other non-profit organization
   - ☐ Social media (e.g. Facebook)
   - ☐ Not sure
   - ☐ Other:_____

5. Whom would you most trust to provide you with information about how to make your household and home safer from natural disasters?
   (*Please check up to three*)
   - ☐ News media
   - ☐ Government agency
   - ☐ Insurance agent or company
   - ☐ Utility company
   - ☐ University or research institution
   - ☐ Neighbor / friend / family member
   - ☐ Elected official
   - ☐ American Red Cross
   - ☐ Other non-profit organization
   - ☐ Social media (e.g. Facebook)
   - ☐ Not sure
   - ☐ Other:_____

6. What is the most effective way for you to receive information about how to make your household and home safer from natural disasters?
   (*Please check up to three*)

   Newspapers:
   - ☐ Newspaper stories
   - ☐ Newspaper ads

   Television:
   - ☐ Television news
   - ☐ Television ads

   Radio:
   - ☐ Radio news
   - ☐ Radio ads

   Internet:
   - ☐ Email newsletters
   - ☐ Online news outlets
   - ☐ Social media (e.g. Facebook)

   Other methods:
   - ☐ Schools
   - ☐ Outdoor advertisements (billboards, etc.)
   - ☐ Books
   - ☐ Mail
   - ☐ Fire Department/Rescue
   - ☐ Fact sheet/brochure
   - ☐ Chamber of Commerce
   - ☐ Public workshops/meetings
   - ☐ Magazine
   - ☐ University or research institution
   - ☐ Other: _____

7. Prior to receiving this survey, were you aware of your county's Natural Hazard Mitigation Plan (NHMP)?
   - ☐ Yes
   - ☐ No

8. Prior to receiving this survey, were you aware that the Federal Emergency Management Agency (FEMA) requires your county to update the NHMP every five years in order for your county to be eligible for federal pre- and post-disaster hazard mitigation funds?
   - ☐ Yes
   - ☐ No

COMMUNITY VULNERABILITIES AND HAZARD MITIGATION STRATEGIES

In order to assess community risk, we need to understand which community assets may be vulnerable to natural hazards in the region. Vulnerable assets are those community features, characteristics, or resources that may be impacted by natural hazards (e.g. populations with functional needs, economic components, environmental resources, etc.). The next set of questions will focus on vulnerable assets in your community and your preferred strategies to mitigate risk to those assets.

9. Community assets are features, characteristics, or resources that either make a community unique or allow the community to function. In your opinion, which of the following *categories* are most susceptible to the impacts caused by natural hazards in your county?
   (Please rank the community assets in order of vulnerability, 1 being most vulnerable and 6 being least vulnerable)

Community Assets	Potential Natural Hazard Impact	Order of Vulnerability
Human	Loss of life and/or injuries	_____
Economic	Business closures and/or job losses	_____
Infrastructure	Damage or loss of bridges, utilities, schools, etc.	_____
Cultural/Historic	Damage or loss of libraries, museums, fairgrounds, etc.	_____
Environmental	Damage or loss of forests, rangeland, waterways, etc.	_____
Governance	Ability to maintain order and/or provide public amenities and services	_____

10. Next we would like to know what specific types of community assets are most important to you.
    (*Check the corresponding box for each asset)*

Community Assets	Very Important	Somewhat Important	Neutral	Not Very Important	Not Important
Elder-care facilities	☐	☐	☐	☐	☐
Schools (K-12)	☐	☐	☐	☐	☐
Hospitals	☐	☐	☐	☐	☐
Major bridges	☐	☐	☐	☐	☐
Fire/Police Stations	☐	☐	☐	☐	☐
Museums/Historic buildings	☐	☐	☐	☐	☐
Major employers	☐	☐	☐	☐	☐
Small businesses	☐	☐	☐	☐	☐
College / University	☐	☐	☐	☐	☐
City Hall / Courthouse	☐	☐	☐	☐	☐
Parks	☐	☐	☐	☐	☐
Other: _____	☐	☐	☐	☐	☐
Other: _____	☐	☐	☐	☐	☐
Other: _____	☐	☐	☐	☐	☐
Other: _____	☐	☐	☐	☐	☐
Other: _____	☐	☐	☐	☐	☐

11. A number of activities can reduce your community's risk from natural hazards. These activities can be both regulatory and non-regulatory. **Please check the box that best represents your opinion of the following strategies to reduce the risk and loss associated with natural disasters.**

Community-wide Strategies	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree	Not Sure
I support a regulatory approach to reducing risk	☐	☐	☐	☐	☐	☐
I support a non-regulatory approach to reducing risk	☐	☐	☐	☐	☐	☐
I support a mix of both regulatory and non-regulatory approaches to reducing risk	☐	☐	☐	☐	☐	☐
I support policies to prohibit development in areas subject to natural hazards	☐	☐	☐	☐	☐	☐
I support the use of tax dollars (federal and/or local) to compensate land owners for not developing in areas subject to natural hazards	☐	☐	☐	☐	☐	☐
I support the use of local tax dollars to reduce risks and losses from natural disasters	☐	☐	☐	☐	☐	☐
I support protecting historical and cultural structures	☐	☐	☐	☐	☐	☐
I would be willing to make my home more disaster-resistant	☐	☐	☐	☐	☐	☐
I support steps to safeguard the local economy following a disaster event	☐	☐	☐	☐	☐	☐
I support improving the disaster preparedness of local schools	☐	☐	☐	☐	☐	☐
I support a local inventory of at-risk buildings and infrastructure	☐	☐	☐	☐	☐	☐
I support the disclosure of natural hazard risks during real estate transactions	☐	☐	☐	☐	☐	☐

12. Natural hazards can have a significant impact on a community, but planning for these events can help lessen the impacts. The following statements will help determine citizen priorities regarding planning for natural hazards in your county. **Please tell us how important each one is to you.**

Statements	Very Important	Somewhat Important	Neutral	Not Very Important	Not Important
Protecting private property	☐	☐	☐	☐	☐
Protecting critical facilities (e.g. transportation networks, hospitals, fire stations)	☐	☐	☐	☐	☐
Preventing development in hazard areas	☐	☐	☐	☐	☐
Enhancing the function of natural features (e.g. streams, wetlands)	☐	☐	☐	☐	☐
Protecting historical and cultural landmarks	☐	☐	☐	☐	☐
Protecting and reducing damage to utilities	☐	☐	☐	☐	☐
Strengthening emergency services (e.g.- police, fire, ambulance)	☐	☐	☐	☐	☐
Disclosing natural hazard risks during real estate transactions	☐	☐	☐	☐	☐
Promoting cooperation among public agencies, citizens, non-profit organizations, and businesses	☐	☐	☐	☐	☐

MITIGATION AND PREPAREDNESS ACTIVITIES IN YOUR HOUSEHOLD

Households can mitigate and prepare for natural hazards in order to prevent damage to property, injuries, and loss of life. The precautions you take and training you receive can make a big difference in your ability to recover from a natural disaster or emergency. Access to basic services, such as electricity, gas, water, telephones and emergency care may be cut off temporarily, or you may have to evacuate at a moment's notice. The following questions focus on your household's preparedness for disaster events.

13. In the following list, please check those activities that you have done in your household, plan to do in the near future, have not done, or are unable to do.
(*Please check one answer for each preparedness activity*)

In your household, have you or someone in your household:	Have Done	Plan To Do	Not Done	Unable To Do
Attended meetings or received written information on natural disasters or emergency preparedness?	☐	☐	☐	☐
Talked with members in your household about what to do in case of a natural disaster or emergency?	☐	☐	☐	☐
Developed a "Household/Family Emergency Plan" in order to decide what everyone would do in the event of a disaster?	☐	☐	☐	☐
Prepared a "Disaster Supply Kit" (stored extra food, water, batteries, or other emergency supplies)?	☐	☐	☐	☐
In the last year, has anyone in your household been trained in First Aid or Cardio-Pulmonary Resuscitation (CPR)?	☐	☐	☐	☐
Prepared your home by having smoke detectors on each level of the house	☐	☐	☐	☐
Discussed or created a utility shutoff procedure in the event of a natural disaster?	☐	☐	☐	☐

GENERAL HOUSEHOLD INFORMATION

Finally, we would appreciate any information you are willing to share with us about you and your household. This information will remain confidential and is for survey comparison purposes only.

14. Please indicate your age: _____

15. Gender: ☐ Male ☐ Female

16. Please indicate your level of education:
- ☐ High school graduate/GED
- ☐ Some college/trade school
- ☐ College degree
- ☐ Postgraduate degree
- ☐ Other (please specify): _____

17. What is your total household income?
- ☐ Less than $10,000
- ☐ $10,000 - $19,999
- ☐ $20,000 - $29,999
- ☐ $30,000 - $39,999
- ☐ $40,000 - $49,999
- ☐ $50,000 - $59,999
- ☐ $60,000 - $69,999
- ☐ $70,000 - $79,999
- ☐ $80,000 - $89,999
- ☐ $90,000 - $99,999
- ☐ $100,000 - $149,999
- ☐ More than $150,000

18. Zip code *(optional)*: _____

19. County:
- ☐ Clackamas County
- ☐ Hood River County
- ☐ Gilliam County
- ☐ Morrow County
- ☐ Sherman County
- ☐ Umatilla County
- ☐ Wasco County
- ☐ Wheeler County

20. Please specify your race:
- ☐ American Indian or Alaska Native
- ☐ Asian
- ☐ Black or African American
- ☐ Native Hawaiian or Other Pacific Islander
- ☐ White

21. Please specify your ethnicity:
- ☐ Hispanic or Latino
- ☐ Not Hispanic or Latino

22. How long have you lived in Oregon?
- ☐ Less than one year
- ☐ 1-5 years
- ☐ 5-9 years
- ☐ 10-19 years
- ☐ 20 years or more

23. Do you own or rent your home? ☐ Own ☐ Rent

24. Do you own/rent a:
- ☐ Single-family home
- ☐ Duplex
- ☐ Apartment (3-4 units in structure)
- ☐ Apartment (5 or more units in structure)
- ☐ Condominium / townhouse
- ☐ Manufactured home
- ☐ Other: _____

Please feel free to provide any additional comments in the space provided:

THANK YOU VERY MUCH FOR PROVIDING THIS INFORMATION

The Oregon Partnership for Disaster Resilience at the University of Oregon's Community Service Center prepared this survey. Implementation of this survey has been made possible by funding from the Federal Emergency Management Agency and the Oregon Emergency Management.
For more information, please contact the Oregon Partnership for Disaster Resilience at 1209 University of Oregon, Eugene, OR 97403-1209, call (541) 346-3588, or visit ***http://csc.uoregon.edu/opdr/***

Capability Assessment Worksheet

Jurisdiction: _____

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

Planning and Regulatory

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

Plans	Yes/No Year	Does the plan address hazards? Does the plan identify projects to include in the mitigation strategy? Can the plan be used to implement mitigation actions?
Comprehensive/Master Plan		
Capital Improvements Plan		
Economic Development Plan		
Local Emergency Operations Plan		
Continuity of Operations Plan		
Transportation Plan		
Stormwater Management Plan		
Community Wildfire Protection Plan		
Other special plans (e.g., brownfields redevelopment, disaster recovery, coastal zone management, climate change adaptation)		

Worksheet 4.1
Capability Assessment Worksheet

Building Code, Permitting, and Inspections	Yes/No	Are codes adequately enforced?
Building Code		Version/Year:
Building Code Effectiveness Grading Schedule (BCEGS) Score		Score:
Fire department ISO rating		Rating:
Site plan review requirements		

Land Use Planning and Ordinances	Yes/No	Is the ordinance an effective measure for reducing hazard impacts? Is the ordinance adequately administered and enforced?
Zoning ordinance		
Subdivision ordinance		
Floodplain ordinance		
Natural hazard specific ordinance (stormwater, steep slope, wildfire)		
Flood insurance rate maps		
Acquisition of land for open space and public recreation uses		
Other		

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

Administrative and Technical

Identify whether your community has the following administrative and technical capabilities. These include staff and their skills and tools that can be used for mitigation planning and to implement specific mitigation actions. For smaller jurisdictions without local staff resources, if there are public resources at the next higher level government that can provide technical assistance, indicate so in your comments.

Administration	**Yes/No**	**Describe capability** **Is coordination effective?**
Planning Commission		
Mitigation Planning Committee		
Maintenance programs to reduce risk (e.g., tree trimming, clearing drainage systems)		
Mutual aid agreements		
Staff	**Yes/No FT/PT[1]**	**Is staffing adequate to enforce regulations?** **Is staff trained on hazards and mitigation?** **Is coordination between agencies and staff effective?**
Chief Building Official		
Floodplain Administrator		
Emergency Manager		
Community Planner		
Civil Engineer		
GIS Coordinator		
Other		

1 Full-time (FT) or part-time (PT) position

Worksheet 4.1
Capability Assessment Worksheet

Technical	Yes/No	Describe capability Has capability been used to assess/mitigate risk in the past?
Warning systems/services (Reverse 911, outdoor warning signals)		
Hazard data and information		
Grant writing		
Hazus analysis		
Other		
How can these capabilities be expanded and improved to reduce risk?		

Financial

Identify whether your jurisdiction has access to or is eligible to use the following funding resources for hazard mitigation.

Funding Resource	Access/ Eligibility (Yes/No)	Has the funding resource been used in past and for what type of activities? Could the resource be used to fund future mitigation actions?
Capital improvements project funding		
Authority to levy taxes for specific purposes		
Fees for water, sewer, gas, or electric services		
Impact fees for new development		
Storm water utility fee		
Incur debt through general obligation bonds and/or special tax bonds		
Incur debt through private activities		
Community Development Block Grant		
Other federal funding programs		
State funding programs		
Other		

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

Worksheet 4.1
Capability Assessment Worksheet

Education and Outreach

Identify education and outreach programs and methods already in place that could be used to implement mitigation activities and communicate hazard-related information.

Program/Organization	Yes/No	Describe program/organization and how relates to disaster resilience and mitigation. Could the program/organization help implement future mitigation activities?
Local citizen groups or non-profit organizations focused on environmental protection, emergency preparedness, access and functional needs populations, etc.		
Ongoing public education or information program (e.g., responsible water use, fire safety, household preparedness, environmental education)		
Natural disaster or safety related school programs		
StormReady certification		
Firewise Communities certification		
Public-private partnership initiatives addressing disaster-related issues		
Other		

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

Safe Growth Audit

Use this worksheet to identify gaps in your community's growth guidance instruments and improvements that could be made to reduce vulnerability to future development.

Comprehensive Plan	Yes	No
Land Use		
1. Does the future land-use map clearly identify natural hazard areas?		
2. Do the land-use policies discourage development or redevelopment within natural hazard areas?		
3. Does the plan provide adequate space for expected future growth in areas located outside natural hazard areas?		
Transportation		
1. Does the transportation plan limit access to hazard areas?		
2. Is transportation policy used to guide growth to safe locations?		
3. Are movement systems designed to function under disaster conditions (e.g., evacuation)?		

Worksheet 4.2
Safe Growth Audit

Comprehensive Plan (continued)	Yes	No
Environmental Management		
1. Are environmental systems that protect development from hazards identified and mapped?		
2. Do environmental policies maintain and restore protective ecosystems?		
3. Do environmental policies provide incentives to development that is located outside protective ecosystems?		
Public Safety		
1. Are the goals and policies of the comprehensive plan related to those of the FEMA Local Hazard Mitigation Plan?		
2. Is safety explicitly included in the plan's growth and development policies?		
3. Does the monitoring and implementation section of the plan cover safe growth objectives?		

Zoning Ordinance	Yes	No
1. Does the zoning ordinance conform to the comprehensive plan in terms of discouraging development or redevelopment within natural hazard areas?		
2. Does the ordinance contain natural hazard overlay zones that set conditions for land use within such zones?		
3. Do rezoning procedures recognize natural hazard areas as limits on zoning changes that allow greater intensity or density of use?		
4. Does the ordinance prohibit development within, or filling of, wetlands, floodways, and floodplains?		

Subdivision Regulations	Yes	No
1. Do the subdivision regulations restrict the subdivision of land within or adjacent to natural hazard areas?		
2. Do the regulations provide for conservation subdivisions or cluster subdivisions in order to conserve environmental resources?		
3. Do the regulations allow density transfers where hazard areas exist?		

Worksheet 4.2
Safe Growth Audit

Capital Improvement Program and Infrastructure Policies	Yes	No
1. Does the capital improvement program limit expenditures on projects that would encourage development in areas vulnerable to natural hazards?		
2. Do infrastructure policies limit extension of existing facilities and services that would encourage development in areas vulnerable to natural hazards?		
3. Does the capital improvement program provide funding for hazard mitigation projects identified in the FEMA Mitigation Plan?		
Other	**Yes**	**No**
1. Do small area or corridor plans recognize the need to avoid or mitigation natural hazards?		
2. Does the building code contain provisions to strengthen or elevate construction to withstand hazard forces?		
3. Do economic development or redevelopment strategies include provisions for mitigation natural hazards?		
4. Is there an adopted evacuation and shelter plan to deal with emergencies from natural hazards?		

Questions adapted from Godschalk, David R. Practice Safe Growth Audits, *Zoning Practice*, Issue Number 10, October 2009, American Planning Association. http://www.planning.org/zoningpractice/open/pdf/oct09.pdf.

National Flood Insurance Program (NFIP) Worksheet

Use this worksheet to collect information on your community's participation in and continued compliance with the NFIP, as well as identify areas for improvement that could be potential mitigation actions. Indicate the source of information, if different from the one included.

NFIP Topic	Source of Information	Comments
Insurance Summary		
How many NFIP policies are in the community? What is the total premium and coverage?	State NFIP Coordinator or FEMA NFIP Specialist	
How many claims have been paid in the community? What is the total amount of paid claims? How many of the claims were for substantial damage?	FEMA NFIP or Insurance Specialist	
How many structures are exposed to flood risk within the community?	Community Floodplain Administrator (FPA)	
Describe any areas of flood risk with limited NFIP policy coverage	Community FPA and FEMA Insurance Specialist	
Staff Resources		
Is the Community FPA or NFIP Coordinator certified?	Community FPA	
Is floodplain management an auxiliary function?	Community FPA	
Provide an explanation of NFIP administration services (e.g., permit review, GIS, education or outreach, inspections, engineering capability)	Community FPA	
What are the barriers to running an effective NFIP program in the community, if any?	Community FPA	
Compliance History		
Is the community in good standing with the NFIP?	State NFIP Coordinator, FEMA NFIP Specialist, community records	
Are there any outstanding compliance issues (i.e., current violations)?		
When was the most recent Community Assistance Visit (CAV) or Community Assistance Contact (CAC)?		
Is a CAV or CAC scheduled or needed?		

Worksheet 4.3
National Flood Insurance Program (NFIP)

NFIP Topic	Source of Information	Comments
Regulation		
When did the community enter the NFIP?	Community Status Book http://www.fema.gov/national-flood-insurance-program/national-flood-insurance-program-community-status-book	
Are the FIRMs digital or paper?	Community FPA	
Do floodplain development regulations meet or exceed FEMA or State minimum requirements? If so, in what ways?	Community FPA	
Provide an explanation of the permitting process.	Community FPA, State, FEMA NFIP Flood Insurance Manual http://www.fema.gov/flood-insurance-manual Community FPA, FEMA CRS Coordinator, ISO representative CRS manual http://www.fema.gov/library/viewRecord.do?id=2434	
Community Rating System (CRS)		
Does the community participate in CRS?	Community FPA, State, FEMA NFIP	
What is the community's CRS Class Ranking?	Flood Insurance Manual http://www.fema.gov/flood-insurance-manual	
What categories and activities provide CRS points and how can the class be improved?		
Does the plan include CRS planning requirements	Community FPA, FEMA CRS Coordinator, ISO representative CRS manual http://www.fema.gov/library/viewRecord.do?id=2434	

Hazards Summary Worksheet

Use this worksheet to summarize hazard description information and identify which hazards are most significant to the planning area. The definitions provided on the following page can be modified to meet local needs and methods.

Hazard	Location (Geographic Area Affected)	Maximum Probable Extent (Magnitude/Strength)	Probability of Future Events	Overall Significance Ranking
Avalanche				
Dam Failure				
Drought				
Earthquake				
Erosion				
Expansive Soils				
Extreme Cold				
Extreme Heat				
Flood				
Hail				
Hurricane				
Landslide				
Lightning				
Sea Level Rise				
Severe Wind				
Severe Winter Weather				
Storm Surge				
Subsidence				
Tornado				
Tsunami				
Wildfire				

Worksheet 5.1
Hazard Summary Worksheet

Definitions for Classifications

Location (Geographic Area Affected)

- **Negligible:** Less than 10 percent of planning area or isolated single-point occurrences
- **Limited:** 10 to 25 percent of the planning area or limited single-point occurrences
- **Significant:** 25 to 75 percent of planning area or frequent single-point occurrences
- **Extensive:** 75 to 100 percent of planning area or consistent single-point occurrences

Maximum Probable Extent (Magnitude/Strength based on historic events or future probability)

- **Weak:** Limited classification on scientific scale, slow speed of onset or short duration of event, resulting in little to no damage
- **Moderate:** Moderate classification on scientific scale, moderate speed of onset or moderate duration of event, resulting in some damage and loss of services for days
- **Severe:** Severe classification on scientific scale, fast speed of onset or long duration of event, resulting in devastating damage and loss of services for weeks or months
- **Extreme:** Extreme classification on scientific scale, immediate onset or extended duration of event, resulting in catastrophic damage and uninhabitable conditions

Hazard	Scale / Index	Weak	Moderate	Severe	Extreme
Drought	Palmer Drought Severity Index[3]	-1.99 to +1.99	-2.00 to -2.99	-3.00 to -3.99	-4.00 and below
Earthquake	Modified Mercalli Scale[4]	I to IV	V to VII	VII	IX to XII
	Richter Magnitude[5]	2, 3	4, 5	6	7, 8
Hurricane Wind	Saffir-Simpson Hurricane Wind Scale[6]	1	2	3	4, 5
Tornado	Fujita Tornado Damage Scale[7]	F0	F1, F2	F3	F4, F5

Probability of Future Events

- **Unlikely:** Less than 1 percent probability of occurrence in the next year or a recurrence interval of greater than every 100 years.
- **Occasional:** 1 to 10 percent probability of occurrence in the next year or a recurrence interval of 11 to 100 years.
- **Likely:** 10 to 90 percent probability of occurrence in the next year or a recurrence interval of 1 to 10 years
- **Highly Likely:** 90 to 100 percent probability of occurrence in the next year or a recurrence interval of less than 1 year.

Overall Significance

- **Low:** Two or more criteria fall in lower classifications or the event has a minimal impact on the planning area. This rating is sometimes used for hazards with a minimal or unknown record of occurrences or for hazards with minimal mitigation potential.
- **Medium:** The criteria fall mostly in the middle ranges of classifications and the event's impacts on the planning area are noticeable but not devastating. This rating is sometimes used for hazards with a high extent rating but very low probability rating.
- **High:** The criteria consistently fall in the high classifications and the event is likely/highly likely to occur with severe strength over a significant to extensive portion of the planning area.

3 Cumulative meteorological drought and wet conditions: http://ncdc.noaa.gov/

4 Earthquake intensity and effect on population and structures: http://earthquake.usgs.gov

5 Earthquake magnitude as a logarithmic scale, measured by a seismograph: http://earthquake.usgs.gov

6 Hurricane rating based on sustained wind speed: http://nhc.noaa.gov

7 Tornado rating based on wind speed and associated damage: http://spc.noaa.gov

Mitigation Action Evaluation Worksheet

Use this worksheet to help evaluate and prioritize each mitigation action being considered by the planning team. For each action, evaluate the potential benefits and/or likelihood of successful implementation for the criteria defined below.

Rank each of the criteria with a -1, 0 or 1 using the following scale:

- 1 = Highly effective or feasible
- 0 = Neutral
- -1 = Ineffective or not feasible

Example Evaluation Criteria

Life Safety – How effective will the action be at protecting lives and preventing injuries?

Property Protection – How significant will the action be at eliminating or reducing damage to structures and infrastructure?

Technical – Is the mitigation action technically feasible? Is it a long-term solution? Eliminate actions that, from a technical standpoint, will not meet the goals.

Political – Is there overall public support for the mitigation action? Is there the political will to support it?

Legal – Does the community have the authority to implement the action?

Environmental – What are the potential environmental impacts of the action? Will it comply with environmental regulations?

Social – Will the proposed action adversely affect one segment of the population? Will the action disrupt established neighborhoods, break up voting districts, or cause the relocation of lower income people?

Administrative – Does the community have the personnel and administrative capabilities to implement the action and maintain it or will outside help be necessary?

Local Champion – Is there a strong advocate for the action or project among local departments and agencies that will support the action's implementation?

Other Community Objectives – Does the action advance other community objectives, such as capital improvements, economic development, environmental quality, or open space preservation? Does it support the policies of the comprehensive plan?

Worksheet 6.1

Mitigation Action Evaluation Worksheet

Mitigation Action	Life Safety	Property Protection	Technical	Political	Legal	Environmental	Social	Administrative	Local Champion	Other Community Objectives	Total Score
Local Plans and Regulations											
Structure and Infrastructure Projects											
Natural Systems Protection											
Education and Awareness Programs											

Mitigation Action Implementation Worksheet

Complete a mitigation action implementation worksheet for each identified mitigation action.

Jurisdiction:	
Mitigation Action/Project Title:	
Background/Issue:	
Ideas for Integration:	
Responsible Agency:	
Partners:	
Potential Funding:	
Cost Estimate:	
Benefits: (Losses Avoided)	
Timeline:	
Priority:	
Worksheet Completed by:	(Name/Department)

Worksheet 6.2
Mitigation Action Implementation Worksheet

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Mitigation Action Progress Report Form

Progress Report Period	From Date:	To Date:
Action/Project Title		
Responsible Agency		
Contact Name		
Contact Phone/Email		
Project Status	❑ Project completed ❑ Project canceled ❑ Project on schedule ❑ Anticipated completion date:_____ ❑ Project delayed Explain _____	

Summary of Project Progress for this Report Period

1. What was accomplished for this project during this reporting period?

_____

_____

2. What obstacles, problems, or delays did the project encounter?

_____

_____

3. If uncompleted, is the project still relevant? Should the project be changed or revised?

_____

_____

4. Other comments

_____

_____

Worksheet 7.1
Mitigation Action Progress Report Form

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Plan Update Evaluation Worksheet

Plan Section	Considerations	Explanation
Planning Process	Should new jurisdictions and/or districts be invited to participate in future plan updates?	
	Have any internal or external agencies been invaluable to the mitigation strategy?	
	Can any procedures (e.g., meeting announcements, plan updates) be done differently or more efficiently?	
	Has the Planning Team undertaken any public outreach activities?	
	How can public participation be improved?	
	Have there been any changes in public support and/or decision- maker priorities related to hazard mitigation?	
Capability Assessment	Have jurisdictions adopted new policies, plans, regulations, or reports that could be incorporated into this plan?	
	Are there different or additional administrative, human, technical, and financial resources available for mitigation planning?	
	Are there different or new education and outreach programs and resources available for mitigation activities?	
	Has NFIP participation changed in the participating jurisdictions?	
Risk Assessment	Has a natural and/or technical or human-caused disaster occurred?	
	Should the list of hazards addressed in the plan be modified?	
	Are there new data sources and/or additional maps and studies available? If so, what are they and what have they revealed? Should the information be incorporated into future plan updates?	
	Do any new critical facilities or infrastructure need to be added to the asset lists?	
	Have any changes in development trends occurred that could create additional risks?	
	Are there repetitive losses and/or severe repetitive losses to document?	

Worksheet 7.2
Plan Update Evaluation Worksheet

Plan Section	Considerations	Explanation
Mitigation Strategy	Is the mitigation strategy being implemented as anticipated? Were the cost and timeline estimates accurate?	
	Should new mitigation actions be added to the Action Plan? Should existing mitigation actions be revised or eliminated from the plan?	
	Are there new obstacles that were not anticipated in the plan that will need to be considered in the next plan update?	
	Are there new funding sources to consider?	
	Have elements of the plan been incorporated into other planning mechanisms?	
Plan Maintenance Procedures	Was the plan monitored and evaluated as anticipated?	
	What are needed improvements to the procedures?	

Example Adoption Resolution

(LOCAL COMMUNITY)

(STATE)

RESOLUTION NO. _____

A RESOLUTION OF THE (LOCAL COMMUNITY) ADOPTING THE

(TITLE AND DATE OF MITIGATION PLAN)

WHEREAS the (local governing body) recognizes the threat that natural hazards pose to people and property within (local community); and

WHEREAS the (local community) has prepared a multi-hazard mitigation plan, hereby known as (title and date of mitigation plan) in accordance with the Disaster Mitigation Act of 2000; and

WHEREAS (title and date of mitigation plan) identifies mitigation goals and actions to reduce or eliminate long-term risk to people and property in (local community) from the impacts of future hazards and disasters; and

WHEREAS adoption by the (local governing body) demonstrates their commitment to the hazard mitigation and achieving the goals outlined in the (title and date of mitigation plan).

NOW THEREFORE, BE IT RESOLVED BY THE (LOCAL COMMUNITY), (STATE), THAT:

Section 1. In accordance with (local rule for adopting resolutions), the (local governing body) adopts the (title and date of mitigation plan).

ADOPTED by a vote of ____ in favor and ____ against, and ____ abstaining, this _____ day of

_____, _____.

By: _____

(print name)

ATTEST:

By: _____

(print name)

APPROVED AS TO FORM:

By: _____

(print name)

Worksheet 8.1
Example Adoption Resolution

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Appendix B

Local Mitigation Plan Review Tool

LOCAL MITIGATION PLAN REVIEW TOOL

The *Local Mitigation Plan Review Tool* demonstrates how the Local Mitigation Plan meets the regulation in 44 CFR §201.6 and offers States and FEMA Mitigation Planners an opportunity to provide feedback to the community.

- The Regulation Checklist provides a summary of FEMA's evaluation of whether the Plan has addressed all requirements.
- The Plan Assessment identifies the plan's strengths as well as documents areas for future improvement.
- The Multi-jurisdiction Summary Sheet is an optional worksheet that can be used to document how each jurisdiction met the requirements of the each Element of the Plan (Planning Process; Hazard Identification and Risk Assessment; Mitigation Strategy; Plan Review, Evaluation, and Implementation; and Plan Adoption).

The FEMA Mitigation Planner must reference this *Local Mitigation Plan Review Guide* when completing the *Local Mitigation Plan Review Tool.*

Jurisdiction:	Title of Plan:	Date of Plan:
Local Point of Contact:	Address:	
Title:		
Agency:		
Phone Number:	E-Mail:	

State Reviewer:	Title:	Date:

FEMA Reviewer:	Title:	Date:
Date Received in FEMA Region *(insert #)*		
Plan Not Approved		
Plan Approvable Pending Adoption		
Plan Approved		

SECTION 1: REGULATION CHECKLIST

INSTRUCTIONS: The Regulation Checklist must be completed by FEMA. The purpose of the Checklist is to identify the location of relevant or applicable content in the Plan by Element/sub-element and to determine if each requirement has been 'Met' or 'Not Met.' The 'Required Revisions' summary at the bottom of each Element must be completed by FEMA to provide a clear explanation of the revisions that are required for plan approval. Required revisions must be explained for each plan sub-element that is 'Not Met.' Sub-elements should be referenced in each summary by using the appropriate numbers (A1, B3, etc.), where applicable. Requirements for each Element and sub-element are described in detail in this *Plan Review Guide* in Section 4, Regulation Checklist.

1. REGULATION CHECKLIST Regulation (44 CFR 201.6 Local Mitigation Plans)	Location in Plan (section and/or page number)	Met	Not Met
ELEMENT A. PLANNING PROCESS			
A1. Does the Plan document the planning process, including how it was prepared and who was involved in the process for each jurisdiction? (Requirement §201.6(c)(1))			
A2. Does the Plan document an opportunity for neighboring communities, local and regional agencies involved in hazard mitigation activities, agencies that have the authority to regulate development as well as other interests to be involved in the planning process? (Requirement §201.6(b)(2))			
A3. Does the Plan document how the public was involved in the planning process during the drafting stage? (Requirement §201.6(b)(1))			
A4. Does the Plan describe the review and incorporation of existing plans, studies, reports, and technical information? (Requirement §201.6(b)(3))			
A5. Is there discussion of how the community(ies) will continue public participation in the plan maintenance process? (Requirement §201.6(c)(4)(iii))			
A6. Is there a description of the method and schedule for keeping the plan current (monitoring, evaluating and updating the mitigation plan within a 5-year cycle)? (Requirement §201.6(c)(4)(i))			
ELEMENT A: REQUIRED REVISIONS			

1. REGULATION CHECKLIST Regulation (44 CFR 201.6 Local Mitigation Plans)	Location in Plan (section and/or page number)	Met	Not Met
ELEMENT B. HAZARD IDENTIFICATION AND RISK ASSESSMENT			
B1. Does the Plan include a description of the type, location, and extent of all natural hazards that can affect each jurisdiction(s)? (Requirement §201.6(c)(2)(i))			
B2. Does the Plan include information on previous occurrences of hazard events and on the probability of future hazard events for each jurisdiction? (Requirement §201.6(c)(2)(i))			
B3. Is there a description of each identified hazard's impact on the community as well as an overall summary of the community's vulnerability for each jurisdiction? (Requirement §201.6(c)(2)(ii))			
B4. Does the Plan address NFIP insured structures within the jurisdiction that have been repetitively damaged by floods? (Requirement §201.6(c)(2)(ii))			
ELEMENT B: REQUIRED REVISIONS			
ELEMENT C. MITIGATION STRATEGY			
C1. Does the plan document each jurisdiction's existing authorities, policies, programs and resources and its ability to expand on and improve these existing policies and programs? (Requirement §201.6(c)(3))			
C2. Does the Plan address each jurisdiction's participation in the NFIP and continued compliance with NFIP requirements, as appropriate? (Requirement §201.6(c)(3)(ii))			
C3. Does the Plan include goals to reduce/avoid long-term vulnerabilities to the identified hazards? (Requirement §201.6(c)(3)(i))			
C4. Does the Plan identify and analyze a comprehensive range of specific mitigation actions and projects for each jurisdiction being considered to reduce the effects of hazards, with emphasis on new and existing buildings and infrastructure? (Requirement §201.6(c)(3)(ii))			
C5. Does the Plan contain an action plan that describes how the actions identified will be prioritized (including cost benefit review), implemented, and administered by each jurisdiction? (Requirement §201.6(c)(3)(iv)); (Requirement §201.6(c)(3)(iii))			
C6. Does the Plan describe a process by which local governments will integrate the requirements of the mitigation plan into other planning mechanisms, such as comprehensive or capital improvement plans, when appropriate? (Requirement §201.6(c)(4)(ii))			
ELEMENT C: REQUIRED REVISIONS			

1. REGULATION CHECKLIST **Regulation** (44 CFR 201.6 Local Mitigation Plans)	Location in Plan (section and/or page number)	Met	Not Met
ELEMENT D. PLAN REVIEW, EVALUATION, AND IMPLEMENTATION (applicable to plan updates only)			
D1. Was the plan revised to reflect changes in development? (Requirement §201.6(d)(3))			
D2. Was the plan revised to reflect progress in local mitigation efforts? (Requirement §201.6(d)(3))			
D3. Was the plan revised to reflect changes in priorities? (Requirement §201.6(d)(3))			
ELEMENT D: REQUIRED REVISIONS			
ELEMENT E. PLAN ADOPTION			
E1. Does the Plan include documentation that the plan has been formally adopted by the governing body of the jurisdiction requesting approval? (Requirement §201.6(c)(5))			
E2. For multi-jurisdictional plans, has each jurisdiction requesting approval of the plan documented formal plan adoption? (Requirement §201.6(c)(5))			
ELEMENT E: REQUIRED REVISIONS			
ELEMENT F. ADDITIONAL STATE REQUIREMENTS (OPTIONAL FOR STATE REVIEWERS ONLY; NOT TO BE COMPLETED BY FEMA)			
F1.			
F2.			
ELEMENT F: REQUIRED REVISIONS			

SECTION 2: PLAN ASSESSMENT

INSTRUCTIONS: The purpose of the Plan Assessment is to offer the local community more comprehensive feedback to the community on the quality and utility of the plan in a narrative format. The audience for the Plan Assessment is not only the plan developer/local community planner, but also elected officials, local departments and agencies, and others involved in implementing the Local Mitigation Plan. The Plan Assessment must be completed by FEMA. The Assessment is an opportunity for FEMA to provide feedback and information to the community on: 1) suggested improvements to the Plan; 2) specific sections in the Plan where the community has gone above and beyond minimum requirements; 3) recommendations for plan implementation; and 4) ongoing partnership(s) and information on other FEMA programs, specifically RiskMAP and Hazard Mitigation Assistance programs. The Plan Assessment is divided into two sections:

1. Plan Strengths and Opportunities for Improvement
2. Resources for Implementing Your Approved Plan

Plan Strengths and Opportunities for Improvement is organized according to the plan Elements listed in the Regulation Checklist. Each Element includes a series of italicized bulleted items that are suggested topics for consideration while evaluating plans, but it is not intended to be a comprehensive list. FEMA Mitigation Planners are not required to answer each bullet item, and should use them as a guide to paraphrase their own written assessment (2-3 sentences) of each Element.

The Plan Assessment must not reiterate the required revisions from the Regulation Checklist or be regulatory in nature, and should be open-ended and to provide the community with suggestions for improvements or recommended revisions. The recommended revisions are suggestions for improvement and are not required to be made for the Plan to meet Federal regulatory requirements. The italicized text should be deleted once FEMA has added comments regarding strengths of the plan and potential improvements for future plan revisions. It is recommended that the Plan Assessment be a short synopsis of the overall strengths and weaknesses of the Plan (no longer than two pages), rather than a complete recap section by section.

Resources for Implementing Your Approved Plan provides a place for FEMA to offer information, data sources and general suggestions on the overall plan implementation and maintenance process. Information on other possible sources of assistance including, but not limited to, existing publications, grant funding or training opportunities, can be provided. States may add state and local resources, if available.

A. Plan Strengths and Opportunities for Improvement

This section provides a discussion of the strengths of the plan document and identifies areas where these could be improved beyond minimum requirements.

Element A: Planning Process

How does the Plan go above and beyond minimum requirements to document the planning process with respect to:

- *Involvement of stakeholders (elected officials/decision makers, plan implementers, business owners, academic institutions, utility companies, water/sanitation districts, etc.);*
- *Involvement of Planning, Emergency Management, Public Works Departments or other planning agencies (i.e., regional planning councils);*
- *Diverse methods of participation (meetings, surveys, online, etc.); and*
- *Reflective of an open and inclusive public involvement process.*

Element B: Hazard Identification and Risk Assessment

In addition to the requirements listed in the Regulation Checklist, 44 CFR 201.6 Local Mitigation Plans identifies additional elements that should be included as part of a plan's risk assessment. The plan should describe vulnerability in terms of:

1) *A general description of land uses and future development trends within the community so that mitigation options can be considered in future land use decisions;*
2) *The types and numbers of existing and future buildings, infrastructure, and critical facilities located in the identified hazard areas; and*
3) *A description of potential dollar losses to vulnerable structures, and a description of the methodology used to prepare the estimate.*

How does the Plan go above and beyond minimum requirements to document the Hazard Identification and Risk Assessment with respect to:

- *Use of best available data (flood maps, HAZUS, flood studies) to describe significant hazards;*
- *Communication of risk on people, property, and infrastructure to the public (through tables, charts, maps, photos, etc.);*
- *Incorporation of techniques and methodologies to estimate dollar losses to vulnerable structures;*
- *Incorporation of Risk MAP products (i.e., depth grids, Flood Risk Report, Changes Since Last FIRM, Areas of Mitigation Interest, etc.); and*
- *Identification of any data gaps that can be filled as new data became available.*

Element C: Mitigation Strategy

How does the Plan go above and beyond minimum requirements to document the Mitigation Strategy with respect to:

- *Key problems identified in, and linkages to, the vulnerability assessment;*
- *Serving as a blueprint for reducing potential losses identified in the Hazard Identification and Risk Assessment;*
- *Plan content flow from the risk assessment (problem identification) to goal setting to mitigation action development;*
- *An understanding of mitigation principles (diversity of actions that include structural projects, preventative measures, outreach activities, property protection measures, post-disaster actions, etc);*
- *Specific mitigation actions for each participating jurisdictions that reflects their unique risks and capabilities;*
- *Integration of mitigation actions with existing local authorities, policies, programs, and resources; and*
- *Discussion of existing programs (including the NFIP), plans, and policies that could be used to implement mitigation, as well as document past projects.*

Element D: Plan Update, Evaluation, and Implementation (*Plan Updates Only*)

How does the Plan go above and beyond minimum requirements to document the 5-year Evaluation and Implementation measures with respect to:

- *Status of previously recommended mitigation actions;*
- *Identification of barriers or obstacles to successful implementation or completion of mitigation actions, along with possible solutions for overcoming risk;*
- *Documentation of annual reviews and committee involvement;*
- *Identification of a lead person to take ownership of, and champion the Plan;*
- *Reducing risks from natural hazards and serving as a guide for decisions makers as they commit resources to reducing the effects of natural hazards;*
- *An approach to evaluating future conditions (i.e. socio-economic, environmental, demographic, change in built environment etc.);*
- *Discussion of how changing conditions and opportunities could impact community resilience in the long term; and*
- *Discussion of how the mitigation goals and actions support the long-term community vision for increased resilience.*

B. Resources for Implementing Your Approved Plan

Ideas may be offered on moving the mitigation plan forward and continuing the relationship with key mitigation stakeholders such as the following:

- *What FEMA assistance (funding) programs are available (for example, Hazard Mitigation Assistance (HMA)) to the jurisdiction(s) to assist with implementing the mitigation actions?*
- *What other Federal programs (National Flood Insurance Program (NFIP), Community Rating System (CRS), Risk MAP, etc.) may provide assistance for mitigation activities?*
- *What publications, technical guidance or other resources are available to the jurisdiction(s) relevant to the identified mitigation actions?*
- *Are there upcoming trainings/workshops (Benefit-Cost Analysis (BCA), HMA, etc.) to assist the jurisdictions(s)?*
- *What mitigation actions can be funded by other Federal agencies (for example, U.S. Forest Service, National Oceanic and Atmospheric Administration (NOAA), Environmental Protection Agency (EPA) Smart Growth, Housing and Urban Development (HUD) Sustainable Communities, etc.) and/or state and local agencies?*

SECTION 3:
MULTI-JURISDICTION SUMMARY SHEET (OPTIONAL)

INSTRUCTIONS: For multi-jurisdictional plans, a Multi-jurisdiction Summary Spreadsheet may be completed by listing each participating jurisdiction, which required Elements for each jurisdiction were 'Met' or 'Not Met,' and when the adoption resolutions were received. This Summary Sheet does not imply that a mini-plan be developed for each jurisdiction; it should be used as an optional worksheet to ensure that each jurisdiction participating in the Plan has been documented and has met the requirements for those Elements (A through E).

MULTI-JURISDICTION SUMMARY SHEET												
#	Jurisdiction Name	Jurisdiction Type (city/borough/ township/ village, etc.)	Plan POC	Mailing Address	Email	Phone	Requirements Met (Y/N)					
							A. Planning Process	B. Hazard Identification & Risk Assessment	C. Mitigation Strategy	D. Plan Review, Evaluation & Implementation	E. Plan Adoption	F. State Require-ments
1												
2												
3												
4												
5												
6												
7												
8												
9												

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Appendix C

Additional Resources

Appendix C – Additional Resources

American Planning Association (APA). 2010. *Hazard Mitigation: Integrating Best Practices into Planning.* Planning Advisory Service (PAS) Report 560, http://www.fema.gov/library/viewRecord.do?id=4267.

APA. 1998. *Planning for Post-Disaster Recovery and Reconstruction. Planning Advisory Service* (PAS) Report 483/484, http://www.fema.gov/library/viewRecord.do?id=1558 (Chapters 3, 4, and 5). Complete copies may also be ordered through the APA Planners Book Service (http://www.planning.org/apastore/).

"Benefit-Cost Analysis," Federal Emergency Management Agency (FEMA), December 2011, http://www.fema.gov/government/grant/bca.shtm.

"Choosing a Consultant," a revised and edited excerpt from *Selecting and Retaining a Planning Consultant: RFPs, RFQs, Contracts, and Project Management* by Eric Damian Kelly, FAICP. APA, 1993, http://www.planning.org/consultants/choosing/.

"Community Rating System," FEMA, April 2012, http://www.fema.gov/business/nfip/crs.shtm.

FEMA. 2003. *Bringing the Plan to Life: Implementing the Hazard Mitigation Plan:* State and Local Mitigation Planning How-To Guide. FEMA 386-4. August 2003, http://www.fema.gov/library/viewRecord.do?id=1887.

FEMA. 2003. *Building a Disaster-Resistant University.* FEMA 443. August 2003, http://www.fema.gov/library/viewRecord.do?id=1565.

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FEMA. 2003. *Integrating Manmade Hazards into Mitigation Planning:* State and Local Mitigation Planning How-To Guide. FEMA 386-7. September 2003, http://www.fema.gov/library/viewRecord.do?id=1915.

FEMA. 2011. *Local Mitigation Plan Review Guide.* October 2011. http://www.fema.gov/library/viewRecord.do?id=4988.

FEMA. 2010. *Mitigation Planning Fact Sheet.* March 2010, http://www.fema.gov/library/viewRecord.do?id=2066.

FEMA. 2006. *Multi-Jurisdictional Mitigation Planning:* State and Local Mitigation Planning How-To Guide. FEMA 386-8. August 2006, http://www.fema.gov/library/viewRecord.do?id=1905.

FEMA. 2007. *National Flood Insurance Program (NFIP) Community Rating System (CRS) Coordinator's Manual.* FIA-15/2007, http://www.fema.gov/library/viewRecord.do?id=2434 (also see draft copy of the new *CRS Coordinator's Manual* at http://www.crs2012.org).

Appendix C
Additional Resources

FEMA. 2000. *Planning for a Sustainable Future: The Link Between Hazard Mitigation and Livability*. FEMA 364. September 2000, http://www.fema.gov/library/viewRecord.do?id=1541.

FEMA. 2000. *Rebuilding for a More Sustainable Future: An Operational Framework*. FEMA 365. November 2000, http://www.fema.gov/library/viewRecord.do?id=1429.

FEMA. 2001. *Understanding Your Risks: Identifying Hazards and Estimating Losses:* State and Local Mitigation Planning How-To Guide. FEMA 386-2. August 2001, http://www.fema.gov/library/viewRecord.do?id=1880.

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"Mitigation Best Practices Portfolio," FEMA, August 2010, http://www.fema.gov/mitigation-best-practices-portfolio.

"Mitigation Planning Laws, Regulations, and Guidance," FEMA, October 2011, http://www.fema.gov/preparedness.

"Mitigation Planning for Local and Tribal Communities," FEMA IS-318 (Interactive Web-based Course), December 2011, http://training.fema.gov/EMIWeb/IS/is318.asp.

"StormReady," National Weather Service, 2012, http://www.stormready.noaa.gov/.

FEMA

FEMA P-736
Catalog No. 08319-1