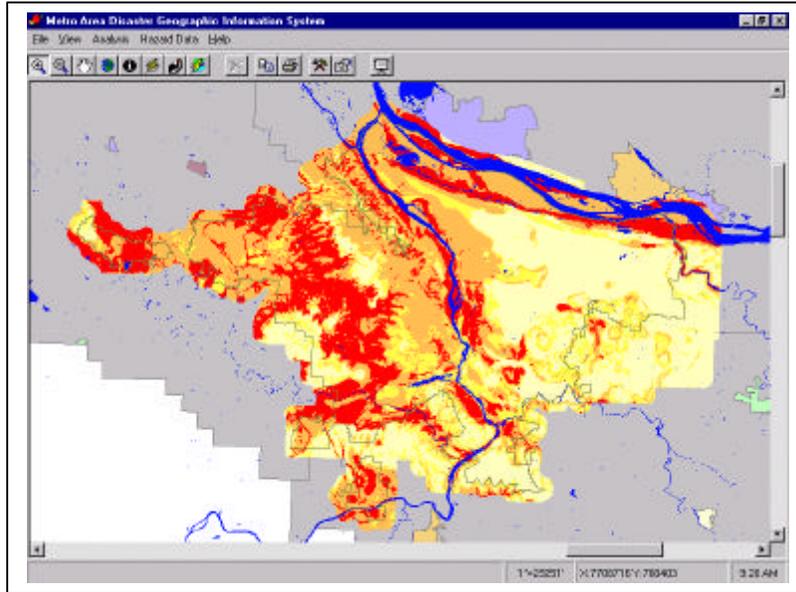


Appendix One:
**A Community Planning Handbook for Natural Hazards
Mitigation Planning in the Metro Region**

A COMMUNITY PLANNING HANDBOOK FOR NATURAL HAZARDS MITIGATION PLANNING IN THE METRO REGION



METRO

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Natural Hazards Mitigation Planning in the Portland, Oregon Metro Region

Preface

This hazard mitigation planning handbook has been prepared primarily for use by local government officials in the Metro region, including elected, appointed and administrative staff members of Multnomah, Clackamas and Washington counties and the many cities, special districts and other public entities. Metro also hopes the handbook will be used by individuals in the private sector and to reduce their exposure to future losses from natural hazards.

The handbook reviews a ten-step process for preparing a local hazard mitigation plan. It is based on the process developed for FEMA's Community Rating System and has been recommended by FEMA and the U.S. Army Corps of Engineers for other programs. While developed for flood mitigation planning, it is useful for all hazards. It was followed when the Oregon City multi-hazard plan was developed.

The basic regional policy guidance related to natural hazards is provided in Metro's *Regional Framework Plan* (Chapter Five, *Natural Hazards*). Three primary subjects are addressed in Chapter Five: (1) understanding the region's hazards and risks, (2) organizing a mitigation planning process and (3) implementing, maintaining and revising a mitigation plan.

The Regional Framework Plan provides the policy basis for two other documents, both of which have been prepared to support Metro's natural hazards and emergency management programs.

The *Regional Natural Hazards Mitigation Policy and Planning Guide* and the *Model Local Hazards Mitigation Plan* were funded through the Federal Emergency Management Agency as part of the regional earthquake hazard mitigation project. The model local plan was developed in cooperation with Oregon City and is titled *Hazard Mitigation Plan, Oregon City, Oregon*.

The *Regional Natural Hazards Mitigation Policy and Planning Guide* provides alternatives for mitigating multiple hazards: (1) earthquakes, (2) floods, (3) landslides and mudflows, (4) severe weather events, (5) wildland-urban interface fires and (6) volcanic activity. Although more hazards might have been discussed in the guide and the exposure of each community to one or more of these natural hazards will almost certainly vary, the identified hazards are common to many communities in the region.

Six classes of loss reduction activities (i.e., the most appropriate measures that might be taken to reduce the impacts of these hazards) are described in the guide: (1) prevention, (2) property protection, (3) emergency services, (4) protecting critical facilities, (5) structural projects and (6) public education.

Briefly, the *Regional Natural Hazards Mitigation Policy and Planning Guide* describes *what* hazard mitigation options may be available for use by communities and individuals. This publication, *A Community Planning Handbook for Natural Hazards Mitigation Planning in the Metro Region*, describes *how* a community can launch a hazard mitigation planning process.

The term "community" is used throughout this handbook. In this context, a community is any county, city, township, village, special district, or other public entity with the desire, foresight and authority to design and implement measures to reduce the effects of hazards that threaten its businesses, residents and visitors. Fundamental to an effective community hazard mitigation planning process are coordination with the many organizations that can help reduce future losses and providing opportunities for public input. A community can truly succeed in mitigating the hazards it faces only when individuals, neighborhoods, groups and agencies work together. This handbook will make that process easier.

Understanding Natural Hazards and Risks

You need information about the location, history and occurrence of natural hazards to develop a plan for reducing the risk of future losses from disaster. "Hazard" describes the nature of the event-causing agent, such as the presence of active faults that can create earthquakes or rivers that may flood. "Risk" describes exposure of human settlements and systems to damage from hazards. "Community vulnerability" to natural disaster may be described as locations where hazard and risk meet.

The Metro Regional Natural Hazards Mitigation Planning and Policy Guide summarizes hazards common to the Metro area, such as earthquakes, floods, landslides, severe weather, wildland-urban interface fire, volcanic activity and other hazards. The guide provides information about the source of hazard (e.g., major rivers, local streams), area likely to be affected (e.g., steep slopes), threat to life and safety (e.g., volcanic lava flows), property damage (e.g., earthquake hazardous buildings) and its history (e.g., major floods from 1894 to 1996).

Community Mitigation Planning Process

A plan is a written statement of the facts, a review of alternatives and recommendations on how to meet community goals and objectives. Many organizations prepare different kinds of plans — a report with recommendations on what should be done. But only by following a proper planning process can you determine what is best for your community and get others to agree on what to do.

The planning process is key to success. You may not produce a fancy document or follow every step in detail. However, keep in mind the overall process as you read each section, including:

- A. Organize to prepare the plan
- B. Involve the public
- C. Coordinate with other agencies
- D. Assess the hazards
- E. Assess the problems
- F. Set goals
- G. Review possible activities
- H. Draft an action plan
- I. Adopt the plan
- J. Implement, evaluate and revise

***"Plans are worthless.
Planning is essential."***

-- Dwight D. Eisenhower

While the main objective to preparing a plan is formalizing your work, there are other benefits, too. It is educational as participants learn more about their own and others' concerns and learn about the techniques and measures that can improve your community.

Planning brings people together. The act of working together to produce the document gives the participants "ownership" in the product. Those "owners" will help implement the plan.

Finally, many state and federal programs require a plan as a prerequisite to providing hazard mitigation assistance. Organizations need to know how the funds they provide will match stated

community goals and how their support might "leverage" additional activities. The written plan explains to others what you are doing and describes how much more you could do with additional resources.

A. Organize to prepare the plan

The planning process will succeed only if the right people and agencies are involved at the right time. This section discusses organizing technical staff.

Staff resources

The person in charge of the planning process is called "the planner." Selecting that person is the crucial first step in the planning process. The appointed planner must have official authority to develop the plan. He or she will be responsible for completing the plan in a reasonable amount of time, ensuring its adoption by appropriate governing bodies and monitoring its implementation over time.

In many communities, this role could be filled by someone in the planning department. In smaller communities, it could be an elected official, the emergency manager, or the chair of the citizens' planning committee. While an outside consultant may provide valuable guidance, the person in charge should be a local employee or resident.

The planner must have an open mind about the variety of possible mitigation measures. Different professionals will bring their own preferences to the process. For example, mitigation plans developed by engineers might favor structural measures, while plans prepared by emergency managers emphasize preparedness activities. Similarly, land use planners may orient a mitigation plan toward regulatory or land use measures.

The staff who will likely be responsible for helping to implement the plan after its adoption must be involved in the planning process for them to understand their roles in mitigation. Also, the planner will need technical support from engineers and other staff professionals who may be more competent to discuss some of the mitigation measures.

Therefore, key staff from all affected departments should participate in the planning process. Defining which staff to involve depends on the community's organization and the mitigation measures that will likely be reviewed during the planning process.

The planning committee

It is strongly recommended that the mitigation planning process be conducted by a planning committee of 10 to 15 people representing community staff and the public. This structure has proven to be very helpful in providing information on the needs and concerns of various constituencies and in providing the community updates on the plan's progress.

A planning committee can:

- Be an effective forum for matching the technical requirements of a program to the community's situation,
- Give the participants a feeling of "ownership" of the plan and its recommendations, thereby building public support and
- Form a constituency that will have a stake in ensuring that the plan is implemented after adoption.

Meetings

The head of the planning committee should be chosen for his or her ability to get people to work together and get things done. The planner or other staff member provides administrative support, such as taking minutes and sending out meeting notices.

At the first committee meeting, you should establish a planning timetable. Depending on deadlines, time constraints and staff time available, committee meetings can be held once or twice a month.

Scheduling meetings should be done so as to include as many people as often as possible. While it can be hard for some members to make more frequent meetings, you should not prepare the draft without their input.

Staff to be included in mitigation planning

- **Planning/community development (planning direction, coordination with other plans, programs to help residents and businesses)**
- **Engineer (codes and structural measures)**
- **Emergency manager (emergency services and recovery measures)**
- **Public safety, police and fire (emergency services measures)**
- **Public works/streets/highways (structural measures, maintenance)**
- **Building/zoning/code enforcement (regulations, building and property protection)**
- **Public information/community relations (property protection measures, public involvement)**
- **Parks and forest preserve (acquisition, protection of natural areas)**
- **Governing board or manager's office (political acceptance and adoption)**

Consensus

One of your goals is to have the various groups reach consensus on objectives, procedures and measures. Consensus does not mean majority vote. It means a general agreement or something everyone can live with.

The committee will likely need subcommittees so participants can spend more time on details that require more time than is available to the full committee. Usually the committee chair is given the power to name subcommittees and appoint their members. Determining who has a vote usually is not necessary because issues are often decided by consensus.

Meetings should be scheduled to accommodate as many

people as possible. One threat to the planning process is that it starts to drag and become boring. Nine months of monthly meetings with nothing to show but a disorganized draft plan can discourage many committee members. It is important to maintain momentum throughout the process.

Typical Planning Committee

Field trips are educational and allow committee members to see the problems and examples of solutions first hand. Destinations may include sites that have been flood-proofed, dams and reservoirs, emergency operating centers, restored wetlands, reforested burnt areas and retrofitted buildings. These and similar locations will give the members a first-hand view of how mitigation measures work. Field trips often change the minds of those skeptical about some of the potential measures. They also can serve to break up the monotony.

Later duties

The planning committee's work is not done when the plan is adopted by the governing board. The plan should specify future assignments for the committee, such as developing more detail for some mitigation recommendations, helping design and implement some projects and monitoring the community's progress in implementing the action plan.

For Community Rating System credit under the National Flood Insurance Program,¹² a written progress report must be prepared each year, a duty for which the planning committee is well suited because committee members wrote the plan and have a stake in seeing it implemented.

B. Involve the public

The planning process will succeed only if the right people are involved. Two groups of people are important: the technical staff of agencies and organizations responsible for implementing solutions and the public.

Technical staff was discussed in the previous section. The public includes:

- owners and renters of vulnerable homes and commercial buildings
- representatives of homeowner, business or neighborhood organizations

1st meeting:	organize, orientation to the planning process, review flood data
2nd meeting:	hazard area inventory
3rd meeting:	needs and goals
4th meeting:	prevention measures
5th meeting:	property protection measures
6th meeting:	emergency services measures
7th meeting:	structural projects
8th meeting:	critical facilities protection
9th meeting:	public information activities
10th meeting:	review of draft plan
11th meeting:	public meeting on draft plan, formal recommendation to the governing board

- **Better fit local needs**
- **Strengthen local support**
- **More realistic plan**
- **Avoid misunderstandings**
- **Share the workload**

- managers of critical facilities, such as large businesses, power stations and schools
- farmers, foresters and others who affect and are affected by soil and river channel conditions
- “river watchers,” and members of similar grass roots and special interest organizations
- land developers, real estate agents, lenders and others who influence the community’s land use practices
- special purpose councils or associations (fire protection districts, watershed councils, etc.)

Each segment of the community has its own concerns. In the absence of a recent disaster experience, hazard mitigation is unlikely to be a high priority for many people. Members of the public can help you design an effective program and provide support for it. You can involve them in a variety of ways:

- people can serve on the planning committee
- you can invite interested individuals to all meetings, encouraging them to attend when issues that are most important to them are considered
- you can distribute a questionnaire or host a workshop to gather input and give guidance to the planning committee
- you can conduct a “waterfront day”, “earthquake preparedness week”, or a demonstration project to attract public attention and raise the community’s level of awareness and interest
- A newsletter and presentations at other community meetings can provide people updates on the plan's progress
- some people may just want to have a chance to review the draft plan

The level of individual involvement depends on the time available for civic participation and how important the issues appear to be. But people will only participate if you ask them, and they will only continue to participate if they feel they have a say in your planning work.

Involvement doesn't mean that people just sit on a committee or that they are expected to always support what the chair proposes. A good leader will make sure everyone is heard. You need to make sure that committee proposals will be acceptable to constituencies represented by individuals involved with the process.

C. Coordinate with other agencies

Involvement by government agencies and private organizations is important to your planning efforts. Someone may be implementing or planning to implement activities that can affect the community’s vulnerability to damage and you need to make sure that your efforts are not going to be in conflict with a government program or duplicate the efforts of another organization.

State, regional and federal agencies may initiate various mitigation efforts or projects. While such planning initiatives may not address all local issues, they likely will thoroughly evaluate mitigation alternatives applicable to specific programs, potentially saving you a lot of work.

External agencies can also help you by providing hazard data, technical information, guidance on regulatory requirements, advice and assistance in the planning effort, implementation of a recommended measure and financial assistance to help you implement a recommended measure.

Who to involve

At a minimum, your planning team should include the planning or engineering offices in the cities, villages, towns and county governments. Find out who is the most appropriate local official for specific hazard-related matters and talk to that person.

Help in organizing and conducting planning may be available from a local, regional or state planning agency or a private organization. For example, the National Park Service's Rivers, Trails and Conservation Assistance Program provides staff support for local planning efforts under certain conditions.

Another source of assistance is a private consultant. Planning and engineering firms usually have personnel skilled in the various mitigation measures and the planning process. In addition to their experience, they have access to a broad range of information and other specialists.

Metro's Natural Hazards Program can also provide hazard mitigation technical support and guidance to local governments and others.

D. Assess the hazard

Your community must identify its exposure to hazards. This means more than recalling the most recent — and probably still most vivid experience. The planning committee should identify the nature, frequency and characteristics of all significant hazards. Historical information is very important. Technical studies that provide information about severity and probabilities of occurrence can also guide the planning process.

Some hazards may occur relatively frequently (e.g., small floods, severe winter storms) and result in minor damage. Others may rarely occur (e.g., 100-year flood, great earthquake), but cause potentially enormous losses. You should attempt to estimate potential losses from frequent

Identifying Agencies & Programs

Guidance on references and contacts on hazard mitigation and emergency management agencies and programs is available through your state office of emergency services/State Hazard Mitigation Officer, fire marshal, forestry department and others.

An excellent source of information is the *M.O.M. Resource Directory* prepared jointly by FEMA and the National Park Service. It is a computer program that lists over 300 government and private programs. It is easy to install and use. The software is designed to run in Windows and is available free from:

**Rivers, Trails and Conservation Assistance
National Park Service
P.O. Box 25287 IMFA-RM-S
Denver, CO 80225-0287
303/969-2781 fax: 303/987-6676**

minor events to determine whether they can add up to great losses over time. Such an analysis helps determine the appropriateness and priority given to mitigation efforts. For example, it may be judged prudent and cost-effective to strengthen existing earthquake hazardous buildings so life safety risk is reduced in more frequent moderate events even though those measures may not prevent extensive damage in very rare great events. On the other hand, the community's fire stations may be strengthened to a higher performance level because they are critical facilities and need to remain operational.

The following example procedures are drawn largely from flood mitigation planning experiences, but they are applicable to all hazards. The challenge in assessing multiple hazards is deciding which hazards present the greatest risk to the community so a sound basis can be made to begin a multiple-hazard mitigation program that will reduce future losses.

Identify your planning area of concern. Is it your immediate neighborhood, the whole city, or every flood problem in the watershed? There should be a written description of the location and types of flooding that occur in the area.

Example: The "base flood"

Most planning programs deal with the "base flood". This is a statistical concept that considers both the severity of a flood and the likelihood of it occurring. Most of the nation's base floodplains have been mapped by the Federal Emergency Management Agency on Flood Insurance Rate Maps or "FIRMs." If you want to know what area is at risk of flooding, your community's FIRM will show the base floodplain for larger watersheds. Your building, planning, or zoning office should have copies. This series of maps does not include the floodplains from smaller watersheds, such as those that drain less than one square mile.

Example: Your Community's FIRM

The base floodplain is shown as the "Special Flood Hazard Area" on the Flood Insurance Rate Map (FIRM) provided by FEMA. The base floodplain is designated as an "A" Zone.

The 500-year floodplain is shown as a "B" Zone and areas above the 500-year flood level are shown as "C" Zones. On newer maps, the B and C zones are called "X" zones. The designation as a B, C, or X Zone does not mean that the area is free from local drainage problems or flooding from streams or ditches not mapped on the FIRM.

In some cases, you should consider a higher protection level than the base flood. For example, if your community suffered a flood that was higher than the mapped base flood, you should consider the more severe flood as the mitigation plan standard. (The highest flood recorded is called the *flood of record*.)

Critical facilities, such as a hospital, fire station, power substation, or hazardous materials facility should be protected from the 500-year flood or the flood of record, whichever is higher. Most Flood Insurance Rate Maps show the 500-year floodplain.

Other flood data

In addition to the area affected and the flood height, the following information can help you get a handle on your flood problem:

- area and map of the watershed,
- areas repetitively flooded (FEMA can provide insurance claims data on this),
- amount of warning time,
- how long the area will stay underwater (*duration*),
- velocities, sediment, debris and other perils that accompany a flood, and
- whether there are any flood protection projects underway.

Other agencies that may have information on your flood problem are:

- Oregon Department of Land Conservation and Development,
- Oregon Water Resources Department,
- regional planning, sanitary, drainage, irrigation or water management districts,
- local land use planning agency,
- county emergency manager,
- county or state highway or transportation department,
- Non-profit and volunteer organizations,
- U.S. Department of Agriculture's Natural Resources Conservation Service, which is usually co-located with your local soil and water conservation district,
- U.S. Army Corps of Engineers,
- U.S. Bureau of Reclamation, and
- local university geography, engineering, or natural sciences department or library.

Most available studies map the base floodplain for larger bodies of water. However, if people get wet, they consider it flooding and they'll want you to address it. Therefore, this step should review flooding from small ditches, flooding in depressional areas and sanitary or storm sewer backup that isn't shown on your Flood Insurance Rate Map or covered in existing engineering studies.

E. Assess the problem

Getting everyone to agree on a problem statement is the first step in getting them to agree on goals and solutions. The problem description should include a map or series of maps of the area of concern which can be updated as more information is made available. It should also have discussions of the impacts of the hazards in question.

Flooded buildings

A count of the number of buildings affected by each type of flooding is useful to have. Not only does it inform planners of the magnitude of the problem, but programs like the National Flood Insurance Program need to know the number.

The building count should be done by use or type of building because flooding affects different types differently. For example, a commercial or industrial building is likely to suffer more dollar damage than a house and have a bigger impact on the community if it has to close because of flooding or flood damage.

Similarly, a building with a basement will be hit harder by shallow flooding and sewer backup than will a building with a crawlspace. An historic site or local landmark may deserve more attention than other properties because of its special value to the community.

The number and types of buildings affected can be obtained by a review of aerial photos or a windshield survey. The amount of time and resources available dictate how much data can be collected. At a minimum, you should obtain a total count of the residential and nonresidential structures affected by each type of flooding.

An assessment of predicted or actual building damage is another useful type of information. It may be readily available from the following sources:

- Flood control studies often obtained the elevations of buildings and developed estimates of their average annual dollar damage.
- Post-flood, after action, or damage assessment reports may include damage data.
- Disaster assistance agencies and flood insurance claims records will have data on damage to buildings that applied for financial assistance.
- Large-scale, community-wide maps and general information are usually sufficient for a community mitigation plan. Estimates may be sufficient for larger communities that may find it difficult and time consuming to locate every floodprone building.

However, if time and resources permit, you should consider collecting data *on each lot* to determine appropriate property protection measures. This information is particularly valuable if a large acquisition or structural flood control project has been judged not feasible.

Other problems

Flooding impacts more than buildings. The problem assessment should review the following items, too:

- roads, bridges and transportation facilities closed during a flood
- critical facilities affected (e.g., hospitals damaged or isolated)

Your written problem statement may devote just as much space to each of the other concerns as it does to flooding. To be effective in the long run, the plan should be a true multi-hazard approach. You may have to suppress your desire to make one hazard the only concern.

- areas of repetitive flooding
- flood protection measures in effect or under construction
- what happened in past floods
- undeveloped areas and wetlands which provide natural and beneficial functions

A plan needs to discuss the other objectives besides protection from natural hazards. During this phase of the planning process, you should be involving people with other interests, such as recreation, water quality, economic development and historic preservation. Some of them may have already prepared plans or written problem statements that they can give you.

The plan should look ahead and consider the potential for future development or other community changes that could impact flood potential. Your problem definition should review expected changes to the watershed and floodplain, especially the development potential of vacant land. It should also note the trends for redeveloping flood-prone areas in ways to reduce community vulnerability.

F. Set goals

Up to now, your planning work has been relatively non-controversial. You have been talking to agencies and organizations and collecting and recording facts. Now comes the tough part — getting people to agree on what should be done.

Goals are general statements of direction, such as "reduce flood damage to existing buildings" or "improve recreational opportunities." Objectives are more specific targets. Examples of objectives that support these two goals could be "acquire and relocate the homes on Small Creek between 1st and 3rd Streets" and "double the number of boat slips so more people can use the lake."

Community goals and objectives and other potentially controversial issues may have been resolved in previous efforts that resulted in other community plans. More likely, those involved in your planning process need to identify and clarify their concerns and goals so you can reach agreement on the wording of goals and objectives statements.

Reaching agreement

It is often easy to reach agreement on overall goals, but it is not unusual to take a long time to reach consensus on specific objectives as they relate to particular areas or individual properties. However, the time spent is well worth it in order to gain the agreement and cooperation from all affected.

Positive goal statements provide people more incentives to work on the mitigation plan than do negative statements about the community. Where possible, settle on goals and objectives that support more than one interest (e.g., implement erosion reduction measures to sustain farmland, improve water quality and reduce sedimentation in stream channels.)

Generally, "agreement" means consensus or something everyone can live with. You should strive for unanimous support or at least agreement that no one will actively oppose a goal or objective

statement. Short of that, you have to judge if a decision by majority vote can improve the planning process or hide potentially damaging opposition until the plan is considered by policy makers in a public forum, perhaps resulting in a political battle.

You probably will have a good feel about whether agreeing on goals and objectives statements will be difficult. If it does not appear to be too divisive, try this simple approach:

- have everyone write their goals and objectives down
- post them for all to see, combining those that are the same or similar
- restate them in summary form, using positive statements
- identify those that everyone can agree on
- discuss concerns people have with the remaining goals
- offer revisions to determine whether agreement can be reached

If this approach does not work, you have two options: either drop the more detailed statements and get consensus on the general goals or invite an experienced facilitator to help you move through a formal process of consensus building. You may want to line up a facilitator in advance to retain the momentum of the planning process.

A facilitator can be very helpful. As a neutral outsider, he or she can be trusted by all to give all interests a chance to be heard. Good facilitators also employ numerous tactics to identify common concerns among individuals in a group and minimize differences. They are skilled in separating issues and interests from discussions of people and positions. They can build an environment where give and take is easier and productive.

G. Review possible activities

Many inexpensive and easy-to-implement measures can address the hazards problem while meeting other community objectives.

How to review

The many suggested mitigation measures in the Metro Regional Hazard Mitigation Planning and Policy Guide can be used as a checklist to ensure that you have considered everything. No measure should be discarded until you are sure you fully understand the issues. While some of the measures may be quickly eliminated as inappropriate, most will deserve careful consideration to ensure a full understanding of how they might work and their benefits and costs.

You and your fellow planners should systematically review each possible measure, discarding it only after these questions are answered in the negative:

- Is the measure technically appropriate for the hazard?
- Does it support any of your goals and objectives?
- Do benefits equal or exceed costs?
- Is it affordable?

- Can a source for funding implementation be identified?
- Will it comply with all local, state and federal regulations?
- Does it have a beneficial or neutral impact on the environment?

Funding

Money is often the most important issue in reviewing alternatives. Two questions arise: "Is the project worth the expense?" and "Where can we get the money?"

Determining a mitigation project's value to the community becomes more important as its cost increases. You may need an additional, more detailed analysis before recommending higher cost measures. Your plan could recommend conducting a benefit-cost analysis before deciding on a project or you could condition your recommendation on the availability of funding.

Two references on comparing benefits and costs are *Flood Proofing — How to Evaluate Your Options* by the U.S. Army Corps of Engineers and FEMA's computer software: *Benefit-Cost Analysis of Hazard Mitigation Projects*. FEMA uses its software to determine if a project should be funded by one of its disaster assistance programs. *Note:* an economic review of benefits and costs or a system used by one agency should not be the sole determinant of whether a project is right for your situation.

Where can you get the money? This is where other agencies and organizations can be of great assistance. There are hundreds of public and private programs willing to fund worthy projects. They usually have several prerequisites, such as a written plan, a budget and an explanation of the benefits.

Start by talking to the agencies and organizations you have identified as important to understanding and reducing future losses. A single project may be funded by several different organizations. Often, an organization will fund only a part of a project, selecting grant applications designed to have multiple sources of funding. In other words, many organizations want their money to have impact and will often support multi-objective projects over measures focused on a single objective.

Don't forget local sources. Businesses and local groups will frequently support projects that benefit their customers, employees or members or that offer positive public relations opportunities. Many projects provide direct benefit to an organization. For example, why should a business build an outside lunch room for its staff if it can help the city fund a public picnic area across the street?

And, don't forget "in-kind" services. You may not need cash to implement some mitigation measures. Instead of paying for park maintenance, why not have a service organization maintain the area with volunteers? Often, in-kind services can be counted toward the local share needed to match an outside source of funds.

Go for a balanced program

A successful planning approach ensures balance in tackling natural hazards and other community problems. Hazard mitigation should not provide cover for "hidden agendas". Nor should you put all your mitigation "eggs" in one basket, such as a single major structural project. You could wait years for it to be built, thereby losing opportunities to implement less expensive mitigation measures. For many large structural projects, the odds are good that disaster will strike again before the project is completed.

Although attention is usually focused on reducing losses to existing development, dealing with future development and preserving natural areas pays off in the long run and prevents small problems from becoming bigger ones. A balanced program with measures from each of the six mitigation strategies will help to protect existing development, manage new development and protect other natural and beneficial functions.

Your first priority should be to develop a plan that meets your needs, not one designed just to obtain funds or meet the requirements of state or federal agencies. This can be difficult, as some grant programs encourage certain measures.

H. Draft an action plan

Only after assessing the problem, setting goals and objectives and reviewing all the possible solutions, can you begin to select the most appropriate actions to be recommended. This effort culminates in the written plan — a series of recommendations detailing what will be done, by whom and when.

The plan can be in almost any format. However, at a minimum, it should include:

1. *A description of how the plan was prepared.* This helps readers (and potential funding agencies) understand the background and rationale for the plan and how public input was obtained.

Example Mitigation Plan Organization

- 1. Introduction**
 - a. Why there is a plan**
 - b. How it was prepared**
 - c. Who was involved**
- 2. Problem description**
 - a. Flooding, earthquake, etc.**
 - b. Recreation needs**
 - c. Fish and wildlife**
 - d. Etc.**
- 3. Goals and Objectives**
- 4. Alternative measures**
- 5. Recommended measures**
 - a. Measure #1**
 - i. Description**
 - ii. Objectives supported**
 - iii. Who is responsible**
 - iv. When it must be done**
 - v. Who can help**
 - vi. Budget**
 - b. Measure #2**
- 6. Implementation and evaluation**
 - a. Adoption**
 - b. Implementation schedule**
 - c. Monitoring**
 - d. Evaluation and revision**

2. *Recommendations for action.* The plan should clearly identify what will be done, by whom, by what date it will be started and how it will be financed. It can be a list of projects and project assignments — the more specific, the better.
3. *A budget.* The plan should explain how its recommendations will be financed. It should note those recommendations, such as policies and public information activities, that can be implemented without special funding as part of a community's or organization's normal operations.

I. Adopt the plan

The draft plan should be made available for review by the residents and businesses who will be affected, appropriate community departments, interested organizations, state and federal agencies and neighboring communities.

Public meeting

After people have had several weeks to digest the plan, a public meeting or workshop should be held. A public meeting is a requirement for many funding programs.

A public *meeting* is not the same as a public *hearing*. State or local laws usually require a public hearing when a community is considering adopting or amending a land use plan or zoning ordinance. There are specific legal requirements for notifying the public and conducting such a hearing. These legal requirements need not be met for plans in most communities.

In preparing for a public meeting, adequate notice of the date, time and place must be given and information about the plan should be distributed well in advance. The best notice is a flyer, brochure, or other announcement with a summary of the plan delivered to all parties that may be affected. The notice should tell people where they can obtain a copy of the draft plan for review before the meeting.

Adoption

After the meeting, the planning committee should make appropriate changes to the plan. To have a strong impact, the plan must be adopted by your governing board.

It always helps to get support from other entities. For example, a plan with recommendations on watershed management could go to the soil and water conservation district for a vote of support. If planning committee members were selected to represent a particular interest or organization, those organizations should pass a resolution or otherwise officially support the plan.

The city council will probably act more favorably on a plan that has the written support from the chamber of commerce and neighborhood organizations. In big cities and counties, you may need to circulate the plan for approval from various department heads before it goes to the governing board. A plan that needs FEMA funding should have a letter of support from the state emergency management agency and/or the National Flood Insurance Program coordinator.

J. Implement, evaluate and revise

Adoption by the various governments is not the last step in the planning process. You will probably have to do some monitoring and follow up to ensure that it will be implemented.

Implementation

The people responsible for various recommendations in the plan must understand and agree to their roles in implementing mitigation measures. Implementation agents — such as representatives of local operations and maintenance agencies — must participate in the planning process. It would help greatly if the plan (or the governing board's resolution of adoption) clearly identified a person responsible for each recommendation.

Be Prepared:

A good example of flexible implementation is Plainfield, Illinois. In 1990, a tornado destroyed 20 buildings in the village's floodway. Federal disaster assistance and state flood protection funds were made available to buy the properties and convert the damaged floodway lands into open space.

It is also helpful to make some mitigation plan recommendations a core activity of the implementing agency or organization. For example, people responsible for implementing specific mitigation measures might have those duties included in their job descriptions or annual performance plans.

The plan should identify some very visible but inexpensive projects that can be quickly implemented. This helps assure the public and the planning committee participants that the hard work of planning generates results. For example, locally funded projects (because they typically get done more quickly) such as a stream cleanup or distribution of public information materials may be initiated shortly after mitigation plan adoption.

Monitoring

No plan is perfect. As implementation proceeds, flaws will be discovered and changes will be needed. Your plan should have a formal process to measure progress, assess how things are proceeding and recommend needed changes.

Those responsible for implementing the various recommendations probably have many other jobs to do. A monitoring system helps ensure that people remember their assignments and project timelines. Monitoring can be as simple as a checklist maintained by the person designated as responsible for the plan or a more formal reporting system, such as regular reports to the governing board or an oversight committee.

Evaluation

Even with full implementation, the plan should be evaluated in light of progress and changed conditions. Your planning committee should meet periodically to review progress and submit its recommendations to the agencies and organizations responsible for implementation.

While a plan will usually produce the best and most efficient program, a community should be ready to act fast to take advantage of opportunities provided by disasters, receipt of unanticipated

revenue, changes in the community's priorities or heightened public interest due to disasters elsewhere. These changes may represent opportunities to implement mitigation measures more quickly.

The Community Rating System

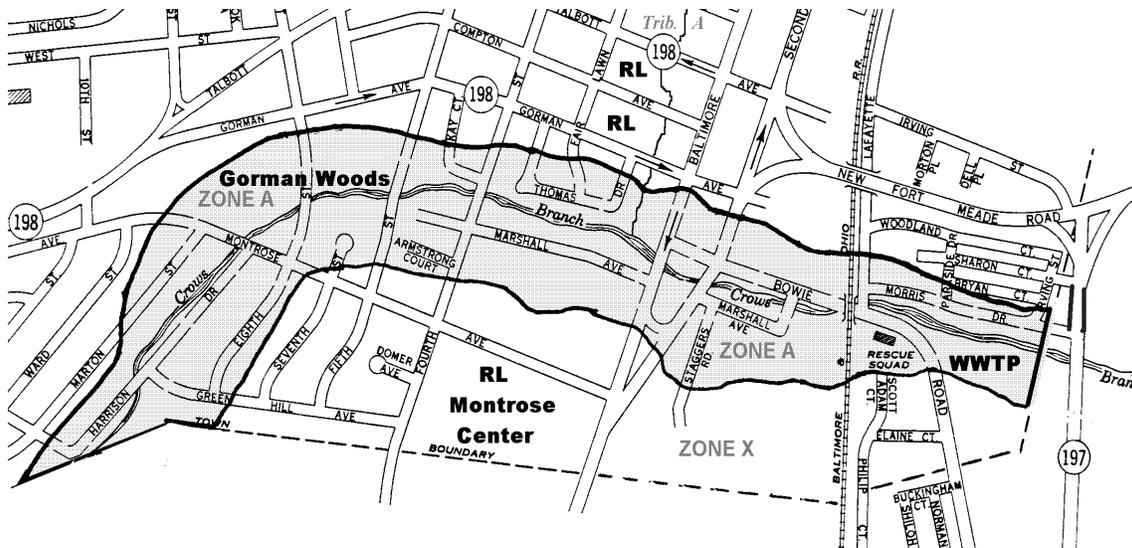
The flood-related Community Rating System (CRS) can help monitor local mitigation programs and encourage communities to keep implementing measures many years. It is administered by FEMA under the National Flood Insurance Program. The flood insurance premium rates are reduced for properties in a CRS community based on the floodplain management activities the community implements.

The CRS encourages local governments to start new programs in areas such as public information, technical assistance to property owners, open space preservation, higher regulatory standards, stormwater management, acquisition and relocation and flood warning. Work is monitored by FEMA. If the activity is forgotten or modified, FEMA advises appropriate local officials that the CRS classification is threatened and their residents' insurance premiums could increase.

Although focused only on flood mitigation, a community's participation in CRS can serve to increase a community's commitment to hazard mitigation generally, thereby improving the chances that a multi-objective, multi-hazard mitigation program is sustained over time.

A consistent commitment to reducing a community's vulnerability to disaster offers significant opportunities to improve personal safety and preserve economic well-being. Hazard mitigation planning is an important tool in creating a disaster-resistant community.

Example: City of McLake Planning Map



Zone A, base floodplain
RL - Repetitive loss area
Trib. A - Tributary A to Crows Creek
WWTP - Wastewater Treatment Plant

Example Flood Problem Statement for "McLake" - an example community

1. The base flood on Crows Creek affects 150 homes and 12 businesses. This is the area mapped as "Zone A." There are approximately two hours of warning time on Crows Creek at the upstream city limits.
2. The Crows Creek floodway downstream of the railroad is subject to average flood velocities greater than five feet per second and is considered a high hazard area. There are seven houses in this area that are deteriorating. Some are vacant.
3. Repetitive flooding of Tributary A of Crows Creek affects 12 homes in the Thomas Subdivision. This area faces the greatest and most frequent damage from flooding and is designated priority area #1.
4. The Montrose shopping center was built in a depression and floods on the average once every other year during heavy rains, resulting in damage to inventories and parked cars, lost business and a threat to public health. It is designated as priority area #2.
5. The Rescue Squad office, the wastewater treatment plant and the Baltimore and Second Street bridges are floodprone critical facilities.
6. While only flooded once in the last 40 years, the impact of flooding on the wastewater treatment plant is so great that it is designated as priority area #3.
7. Sewer backup and poor local drainage are problems for buildings with basements and split level homes throughout town.
8. Gorman Woods is a unique asset with recreational and educational benefits that should be preserved and protected.
9. Flooding and stormwater problems can be expected to worsen if current watershed development practices continue.