



## Principles of Comprehensive Flood Hazard Management

Flood hazard management is an important planning tool because it encompasses not only the flood plain (the traditional limit of comprehensive stormwater planning), but environmental and economic issues, and land uses beyond the designated 100-year floodplain. Flood hazard management recognizes several principles and techniques. Some of the more fundamental and important concepts that this FHRP recognized or worked to meet are summarized here.

- Waterways are dynamic systems that undergo natural processes, such as flooding, erosion, siltation and channel migration.

Flood control efforts focus on controlling or changing these processes, while flood hazard management recognizes that it is often more cost effective and beneficial to accommodate a waterway's dynamic nature. Structural measures such as diking or constructed conveyance systems are often appropriate; however allowing drainage to take its natural course may provide a longer-term and more environmentally sound solution. This natural course may include overbank flow, an essential event in the maintenance of fish and wildlife habitat, soil nutrient replenishment and protection of other areas downstream. Alternative protection measures addressed in the flood hazard management process include the restriction of development within the flood plain, bioengineering solutions (wetland storage areas, stream restoration, etc.) the elevation of structures and the preservation of flood water drainage courses.

- Identifying and understanding the cause of flood damage is an essential first step.

Traditional means of preventing flood hazards by treating the symptoms are now supplemented by the more recent management practices of recognizing the need to also treat the causes of chronic flooding.

- The entire watershed must be considered.

As discussed earlier, a comprehensive plan includes characterization of an area's contributing watershed and a complete understanding of the impact of upland or remote activities that can compound a local drainage issue. Because watersheds are based on geographical constraints, they typically cross jurisdictional boundaries. Jurisdictional cooperation is often required to ensure that proper planning and management efforts can be undertaken. This can also have political and funding implications that must be addressed prior to implementation of any flood hazard reduction strategies.

- Public and agency participation is an important part of the FHRP process.

The consideration of community concerns is an integral practice throughout the development of a FHRP. Through community involvement, common goals and objectives can be established, alternatives evaluated and consensus solutions reached. Public participation is also valuable in the documentation of present flooding areas, historical flood events and changes in watershed characteristics that may otherwise have gone undocumented.

Federal government agencies such as the U.S. Army Corp of Engineers and U.S. Geological Survey, local agencies such as the Departments of Fish and Wildlife, Ecology and Natural Resources, forestry interests, agricultural interests, local tribal governments, special districts, interest groups and neighborhood associations should all have a voice in determining the goals and objectives of flood hazard management plans.

- A process-oriented examination of issues should be undertaken.

Alternative non-structural and structural solutions to meet the short- and long-term goals of the FHRP should be developed by considering the following:

- Construction and maintenance costs
- Environmental impacts
- Funding capabilities
- Public approval
- Prioritization of recommended solutions

- Other resource protection goals can be met concurrently.

The comprehensive nature of flood hazard management planning allows for the consideration of many natural resources during the plans to reduce flood hazards. The protection of environmental resources can often be accomplished by both *modifications to* and the *preservation of* natural hydrological processes. This is addressed more fully in the first concept item of this section.

- Coordination between Public Works, Planning and Building Departments should be accomplished.

Because of the different flood hazard management roles and responsibilities of the various local departments, it can be important to improve interdepartmental coordination. For example, public works departments are responsible for construction and maintenance of structural flood reduction measures, while building departments review new construction proposals for National Flood Insurance Program (NFIP) standards. Planning departments have jurisdiction over shoreline activity regulation, including development in Federal Emergency Management Agency (FEMA) floodways. These efforts are not always interdepartmentally

coordinated; however FHRPs provide a vehicle to bring all interested parties together to increase interdepartmental support.

- Comprehensive planning solutions should be incorporated.

FHRPs strive to incorporate the full range of comprehensive planning tools available to achieve environmental, public and private objectives. These tools include the following:

- The acquisition of flood sensitive areas for compatible land use, such as low impact recreation activities.
- Land use zoning and site development standards that are responsive to flood protection issues such as the requirement for onsite detention/retention systems.
- Forestry management and agricultural practices that reduce runoff and attenuate peak flows.
- Shoreline Master Program regulations that restrict inappropriate development and encourage compatible land uses.
- The use of existing dikes and levees for recreational trails and public access to water, as part of park and recreation plans.
- The design of transportation facilities to reduce their impact on the watershed.
- The protection and creation of wetlands for stormwater storage and biofiltration, as well as fish and wildlife habitats.
- Stormwater management planning that requires individual or cooperative retention/detention systems.
- Carefully designed structural flood control projects that reduce, as much as possible, negative impacts to other public objectives.
- The retrofitting/floodproofing of existing structures

## ***Flood Control Assistance Account Program (FCAAP)***

The Flood Control Assistance Account Program (FCAAP) was established by the State Legislature in 1984 to assist counties and other local jurisdictions with comprehensive planning and maintenance efforts to reduce flood hazards and flood damages. Matching reimbursable grants are available to counties, cities, towns and special districts for comprehensive flood hazard management plans, maintenance projects and emergency flood-related projects. Administered by the Department of Ecology's Shorelands and Coastal Zone Management Program, FCAAP emergency funds can be used to aid local governments in their efforts to meet federal and other emergency fund matching requirements.

Due to the many factors contributing to flood conditions, FCAAP promotes a watershed approach to minimizing flood hazards from headwaters to the coastal environment. Efforts within a watershed approach include preservation/restoration of wetlands to accommodate increases in runoff, land use practices that regulate uses in flood plains, forest practices that protect streambanks from erosion, and urban practices that manage stormwater and storage facilities.

Eligibility for FCAAP assistance is contingent upon Ecology's review of flood plain management activities. Local jurisdictions must participate in the National Flood Insurance Program (NFIP). Eligible projects are defined as those that must be done immediately to protect lives, property and other resources. Levee repair, the removal of channel obstructions and the mitigation of imminent flood threats to public roads, bridges and critical facilities fall into this category.

FCAAP emergency funding applications are made on the same form as non-emergency fund applications. The maximum amount of initial emergency funds available per county is \$150,000 per biennium, subject to availability. Grants up to 80 percent of eligible construction and flood fighting costs are also subject to availability.