Ideas for Increasing Your Community's Resilience from Floods

Communities work hard to build sustainability by balancing their immediate social, economic, and environmental needs with the long-term needs of future generations. This document provides community officials with an overview of some of the most cost-effective and easily implemented mitigation actions communities can take to protect their resources and citizens from flood disasters. It is a starting point for gathering mitigation ideas, and it provides sources of more information so communities can seek innovative and different ideas to meet their local needs.

Ideas for Local Planning and Regulations

Incorporating floodplain management practices into community planning and regulations, especially in partnership with other local, State and regional entities, is perhaps the most effective way to reduce the potential loss of life and property from flood hazards.

Strategies include:

- Determining and enforcing acceptable land uses to alleviate the risk of damage by prohibiting or limiting floodplain development through regulatory and/or incentive-based measures.
- Including flood hazard and coastal zone management in comprehensive planning.
- Developing a floodplain management plan and updating it regularly.
- Establishing watershed-based planning initiatives to address flooding with neighboring jurisdictions.
- Forming a citizen plan implementation steering committee to monitor local mitigation actions.
- Adding or increasing “freeboard” requirements (feet above base flood elevation) in the flood damage ordinance.
- Incorporating procedures for tracking high water marks into emergency response plans.
- Conducting a verification study of FEMA’s repetitive loss inventory and developing an associated tracking database.
- Revising the floodplain management ordinance to incorporate cumulative substantial damage requirements.
- Participating in the Community Rating System, which rewards communities exceeding the minimum National Flood Insurance Program requirements by discounting flood insurance premium rates for policyholders.

A flood is the partial or complete inundation of normally dry land, including riverine flooding, coastal flooding, and shallow flooding. Common impacts of flooding include damage to personal property, buildings, and infrastructure; bridge and road closures; service disruptions; and injuries or even fatalities.

Sustainability is meeting the needs of the present without compromising the ability of future generations to meet their own needs. Traditional indicators of sustainability are social, economic and environmental health. Resilience is the ability of a community to readily recover from adversity. Communities become resilient by identifying hazards, assessing vulnerabilities, and taking mitigation actions.

Mitigation is action taken to reduce or eliminate long-term risk to hazards. Examples of flood mitigation actions are planning and zoning, flood protection, property acquisition and relocation, elevation, or public outreach projects.
Ideas for Structure and Infrastructure Projects

Structure and infrastructure projects vary in size and costs from maintenance of existing infrastructure to constructing new flood control structures or removing buildings from flood-prone areas in order to minimize future flood losses. Such mitigation actions include:

- Increasing soil drainage or absorption capacities with detention and retention basins, relief drains, spillways, drain widening/dredging or rerouting, logjam and debris removal, extra culverts, bridge modification, dike setbacks, flood gates and pumps, or channel redirection.
- Increasing dimensions of drainage culverts in flood-prone areas.
- Requiring developers to construct on-site retention basins for excessive stormwater and as a firefighting water source.
- Performing regular inspection and maintenance of drainage systems, such as sediment and debris clearance.
- Implementing an inspection, maintenance, and enforcement program to help ensure continued structural integrity of dams and levees.
- Routinely cleaning debris from support bracing underneath low-lying bridges.
- Regularly clearing sediment build-up on riverbanks near aerial lines.
- Incorporating ice jam prevention techniques.
- Elevating structures so the lowest floor, including the basement, is raised above the base flood elevation.
- Raising utilities or other mechanical devices above expected flood levels.
- Elevating and anchoring manufactured homes or, preferably, keeping manufactured homes out of the flood hazard area.
- Relocating utilities and water heaters above base flood elevation and using tankless water heaters in limited spaces.
- Wet floodproofing in a basement and encouraging wet floodproofing of areas above base flood elevation.
- Dry floodproofing non-residential structures by strengthening walls, sealing openings, or using waterproof compounds.

Ideas for Protection of Natural Systems

Natural resources provide floodplain protection, riparian buffers, and other ecosystem services that mitigate flooding. Conserving natural areas and vegetation not only reduces potential flood losses but also provides many other environmental and socio-economic benefits. Ideas include:

- Protecting and preserving wetlands to help prevent flooding in other areas.
- Developing an open space acquisition, reuse, and preservation plan to preserve the natural and beneficial functions of floodplains.
- Protecting and enhancing landforms serving as natural mitigation features (i.e., riverbanks, wetlands, dunes, etc.).
- Using vegetative management, such as vegetative buffers, around streams and water sources.
- Using transfer of development rights to allow a developer to increase densities on another parcel not at risk in return for keeping flood hazard areas vacant.

Ideas for Education and Awareness Programs

Increasing flood risk awareness and educating property owners about options for protecting their properties from floods provides information needed to make good choices. Outreach activities include:

- Encouraging homeowners to purchase flood insurance.
- Annually distributing flood protection safety pamphlets or brochures to the owners of flood-prone property.
- Educating citizens about safety during flood conditions, including the dangers of driving on flooded roads.
- Offering GIS hazard mapping online for residents and design professionals.
- Using outreach activities to facilitate technical assistance programs that address measures citizens can take or facilitate funding for mitigation measures.
- Encouraging homeowners to install backflow valves to prevent reverse-flow flood damages.
- Encouraging residents in flood-prone areas to elevate homes.