

SECTION 6 - RANGE OF ALTERNATIVE MITIGATION ACTIONS CONSIDERED

The following table represents a range of types of mitigation actions to address each of the hazards identified in this plan. This table is intended to be used as a launching point for the discussion and development of specific mitigation actions for each municipality, in conjunction with a mitigation action items “Tip Sheet”, which was also distributed to members of the Core Planning Group. In addition to listing examples of mitigation actions, the Tip Sheet also provided background information regarding the selection of mitigation actions and information regarding the eligibility of mitigation actions under the various FEMA grant programs.

At a working session of the Core Planning Group on May 11, 2009, participating jurisdictions considered this range of actions and identified a mitigation strategy for their jurisdiction. Mitigation actions will be identified and analyzed for a comprehensive range of mitigation actions and projects for each hazard, and address reducing the effects of hazards on both new and existing buildings and infrastructure.

Note to FEMA reviewer: The next section of this plan, entitled, “Action Item Evaluation and Prioritization” will explain the criteria used by Core Planning Group members to evaluate and prioritize this range of actions.

**Table 6-1
Types of Actions Considered to Achieve Mitigation Goals**

Goals		Actions	
Goal Number	Description	Action Number	Description
1	Promote disaster-resistant development.	1.A	Join the National Flood Insurance Program (for non-participating or suspended communities).
		1.B	Ensure that local comprehensive plans incorporate natural disaster mitigation techniques by requiring a courtesy- review of draft plans by the County Emergency Management Agency.
		1.C	Explore the need for hazard zoning, high-risk hazard land use ordinances, subdivision regulations, and development density controls.
		1.D	Organize an annual event / fair for homeowners, builders and county and local jurisdictions that includes sale of NOAA weather radios, dissemination of information brochures about disasters and building retrofits, demonstration of “defensible-space” concept and fire resistant construction materials (for roofs/exterior finishes and inflammable coverings for openings like chimneys and attics) etc.
		1.E	Develop a stormwater management plan that includes subdivision regulations to control run-off; both for flood reduction and to minimize saturated soils on steep slopes that can cause landslides.

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2	Build and support local capacity to enable the public to prepare for, respond to, and recover from disasters.	2.A	Expand and disseminate GIS and other hazard information on the internet.
		2.B	Develop a plan and seek funding for backup electric and telecommunications systems in local government-owned critical facilities.
		2.C	Support and fund Community Emergency Response Team (CERT) programs that also include a mitigation component.
		2.D	Create a Hazard Information Center – a virtual and physical library that contains all technical studies, particularly natural resources.
		2.E	Implement public awareness, education, and outreach programs for all or targeted hazards.
		2.F	Expand GIS to collect and develop more sophisticated hazard mapping. Use information to update plan. Ensure information will be available to the public and to relevant communities and agencies.
		2.G	Provide training for inspection and enforcement of adopted codes and ordinances.
3	Reduce the possibility of damage and losses due to flooding caused by floods, hurricanes, and nor'easters.	3.A	Join the National Flood Insurance Program (NFIP). As a participant, floodplains within the participating community will be identified and mapped. In return, the participating community will become eligible for flood insurance as long as the local governing body adopts and enforces a floodplain ordinance.
		3.B	Join the NFIP Community Rating System (CRS), under which communities implementing actions that go beyond the specified NFIP minimum are eligible for discounted flood insurance premiums.
		3.C	Obtain specialist training and certification (e.g. Certified Floodplain Manager) for local staff tasked with enforcement of relevant codes and flood-related ordinances.
		3.D	Limit uses in floodways to those tolerant of occasional flooding, including but not limited to agriculture, outdoor recreation, and natural resource areas.
		3.E	Develop a Countywide gauging and warning system for flash and riverine flooding.
		3.F	Continue to implement best management practices for floodplain areas.
		3.G	Identify and document repetitively flooded properties. Explore mitigation opportunities for repetitively flooded properties, and if necessary, carry out acquisition, relocation, elevation, and flood-proofing measures to protect these properties.
		3.H	Identify locations/structures suitable for construction of floodwalls and other barriers such as raised roads.
		3.I	Conduct a routine stream maintenance program (for currently non-participating communities) and seek financial assistance to clean out stream segments with heavy sediment deposits.

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		3.J	Develop specific mitigation solutions for flood-prone roadways and intersections. This can include, but is not limited to, actions such as culvert upgrades, drainage improvements, road raisings, etc.) Develop a work plan for when sites will be surveyed and what role can the local government play in selection and implementation of mitigation activities (e.g. any monetary or contextual support through the local capital improvement plan).
		3.K	Implement wetlands development regulations and restoration programs.
		3.L	Implement identified stormwater recharge, rate or volume projects identified in Regional Stormwater Management Plans to decrease “flash” in streams during/after storm events.
		3.M	Implement and enforce open space preservation programs.
		3.N	Implement specific actions to enhance/improve participation in/compliance with National Flood Insurance Program (NFIP).
5	Reduce the possibility of damage and losses due to earthquakes.	4.A	Retrofit/Reconstruct old critical facilities.
		4.B	Acquire dilapidated vulnerable structures.
		4.C	Public awareness through video/brochures about simple steps homeowners can take to mitigate damage.
		4.D	Examine provisions for earthquake resistant retrofits for existing structures and infrastructure, paying particular attention to unreinforced masonry structures built prior to the adoption of building codes requiring earthquake resistant design for new construction.
		4.E	Implement hillside and steep slope development regulations.
6	Reduce the possibility of damage due to lightning strikes	5.A	Carry out inventory of compliance with existing local codes/standards, especially for critical facilities.
		5.B	Adopt building safety codes such as National Fire Protection Association (NFPA) -780 Standard for the Installation of Lightning Protection Systems (1997).
		5.C	Public awareness/outreach regarding use of ground outlets and surge protectors in homes and businesses.
3	Reduce the possibility of damage and losses due to drought.	6.A	Encourage citizens to implement water conservation measures by distributing water saving kits which include replacement shower heads, flow restrictors, and educational pamphlets which describe water saving techniques. Also encourage conservation by offering rebates for ultra-low-flow toilets.
		6.B	Modify rate structure to influence consumer water use including: increasing rates during summer months and imposing excess use charges during times of water shortage.
		6.C	Reduce water use for landscaping by imposing mandatory water-use restrictions during times of water shortage. Also, develop a demonstration garden to exhibit water conservation techniques.

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		6.D	Publish and distribute pamphlets on water conservation techniques and drought management strategies.
		6.E	Develop and adopt an emergency water allocation strategy to be implemented during severe drought.
		6.F	Implement water metering and leak detection programs followed by water main repair/replacement to reduce losses.
		6.G	Encourage beneficial re-use of treated wastewater effluent through cooperative projects with dischargers, agriculture and other major water users to distribute or provide this alternative source of water.
7	Reduce the possibility of damage and losses due to coastal erosion and wave action	7.A	Establish erosion setback lines which located landward of the first stable natural vegetation at a specified distance based on the long-term rate of erosion.
		7.B	Protect erosion-prone shorelines and banks using structural measures such as beach renourishment, bulkhead construction, groins, revetments, and rock placement.
		7.C	Implement V Zone construction requirements for new development located in Coastal A Zones (for communities not currently implementing these requirements).
		7.D	Conduct compliance audits of previously raised/mitigated structures in V-Zones.
8	Reduce the possibility of damage and losses due to dam failures.	8.A	Enforce participation in/compliance with National and NJDEP / NJOEM Dam Safety Programs.
		8.B	Investigate sources of funding to assist private dam owners to complete required repairs/maintenance. Investigate low interest loans to owners and/or jurisdiction acting as guarantor of private owners' loans.
		8.C	Notify owners of property in dam break inundation areas of risks, implement restrictions for new development in these areas.
9	Reduce the possibility of damage and losses due to wildfires	9.A	In consultation with NJDEP Forest Protection & Fire Management and local forest rangers, develop detailed mapping of wildland/urban interface areas.
		9.B	Develop inventory of addresses for route alerting during wildfire emergencies that require public warning and information.
		9.C	In consultation with NJDEP Forest Protection & Fire Management and local forest rangers, review local EOPs for possible wildfire components regarding Fire-Rescue, Alert Warning Communications, and Evacuation.
		9.D	Implement and enforce open space preservation programs.
		9.E	Prescribed burning for hazard reduction.

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		9.F	Initiate a public outreach program for homeowners.
		9.G	Retrofit buildings with fire resistant materials, especially roofing.
		9.H	Relocate structures (in particular critical facilities) out of hazard areas.
		9.I	Community brush and debris removal and hazard fuels reduction.
		9.J	Firewise landscaping in higher risk areas.
		9.K	Mitigation for streets, highways, and roads that provide key fire access and fuelbreaks.
		9.L	Implement hillside and steep slope development regulations.
10	Reduce the possibility of damage and losses due to winter storms.	10.A	Promote (or purchase, for critical facilities) NOAA weather radios.
		10.B	Educate residents about driving in winter storms and handling winter-related health effects
		10.C	Planting ice and windstorm-resistant trees and implementing landscaping practices to reduce tree-related hazards and public education to encourage these practices
		10.D	Bury or otherwise protect utility lines to avoid power outage due to winter storms (if risk is very high then only this action might be cost-effective)
11	Reduce the possibility of damage and losses due to extreme temperatures.	11.A	Develop and distribute outreach tools for homeowners and building permit applicants on protection of structures against cold weather damage and proper maintenance of heating/cooling systems.
		11.B	Review existing emergency response plans for enhancement opportunities: work with social support agencies, homeowners associations and general public to develop and implement monitoring and warning systems focused on vulnerable populations and provision of adequate shelter facilities.
12	Reduce the possibility of damage and losses due to tornadoes and high winds caused by windstorms, hurricanes and nor'easters.	12.A	Adopt an ordinance to require safe rooms in mobile home parks
		12.B	Provide low interest loans (or other form of financial assistance) for building safe rooms.
		12.C	Provide technical assistance for building safe rooms.
		12.D	Adopt an ordinance to require hurricane clips on new construction.
		12.E	Install hurricane clips and wind shutters on existing development-particularly emergency facilities and shelters built before existing codes were adopted to offer some degree of wind protection.
13	Reduce the possibility of damages to emergency facilities from flooding, wind damage and wildfire damage.	13.A	Conduct a study to determine the year-built and level of protection (flood, wind) for each emergency facility.
		13.B	On completion of 13.A, seek funding for mitigation projects for emergency facilities not currently designed for protection from flooding, high wind, or wildfire damage.

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In addition to these general types of mitigation actions, the Core Planning Group and JATs also considered a series of more specific mitigation actions that had been identified throughout the course of the planning process as specific problems and/or problem areas were brought to light.

The following three sources of additional information on types of hazard mitigation actions were also recommended to the Planning Group as reference sources when developing jurisdiction-specific mitigation strategies:

- Mitigation Action Items Tip Sheet
- Mitigation Job Aid (from FEMA's How-To #3 Appendix D)
- Mitigation Glossary of Terms (from FEMA's How-To #3 Appendix A)

During the planning process, the question arose as to how individual municipalities were to proceed with their development of mitigation strategies and actions in situations where other agencies such as the U.S. Army Corps of Engineers are known to be considering the implementation of (possibly large-scale) mitigation measures in the same area.

The Planning Group was advised that the full implementation of such proposed projects is not guaranteed, and that even if such projects are approved and funded, it can be many years before they are initiated. With that in mind, the communities were advised to decide whether they would be willing to risk the chance of damage over that interim period between the current planning process and the assumed completion date of studies and subsequent projects; particularly where implementation is not guaranteed.

However, if a community decides to defer mitigation actions pending studies for projects by other agencies, it is recommended that the study be revisited during the five year update to ensure that sufficient progress is being made towards completion of a project, or to determine if another strategy is needed. It is also recommended that each community include at least one mitigation project regardless of hazard or whether there are any other plans or proposals, in order to receive credit from FEMA for having a mitigation plan which may be used to aid applications for grants to reduce risks from hazards not affected by the proposed plans.