

SECTION 4 – MITIGATION STRATEGY

<i>Requirement §201.4(c)(3)</i>	<i>[The State must include a] Mitigation Strategy that provides the State’s blueprint for reducing the losses identified in the risk assessment.</i>
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INTRODUCTION

According to § 201.4(c)(3) the State of Maine Hazard Mitigation Plan includes a mitigation strategy that provides the State of Maine with a blueprint for reducing the losses identified in the risk assessment. The strategy includes goals, objectives and actions that are based on the risk assessment and are consistent with goals from other state and local plans and policies. The goals, objectives and actions contained in this section are aimed at achieving long-term hazard protection. The State has also assessed its own as well as its local jurisdictions’ capabilities to staff programs or projects and fund measures to achieve the goals of the plan. The State has identified funding from federal, local, and private sources to complement its own limited resources.

This section includes the following four subsections as follows:

- State Capability Assessment (page 4-1)
- Local Capability Assessment (page 4-13)
- Funding Sources (page 4-17)
- Goals, Objectives and Strategic Measures (page 4-18)

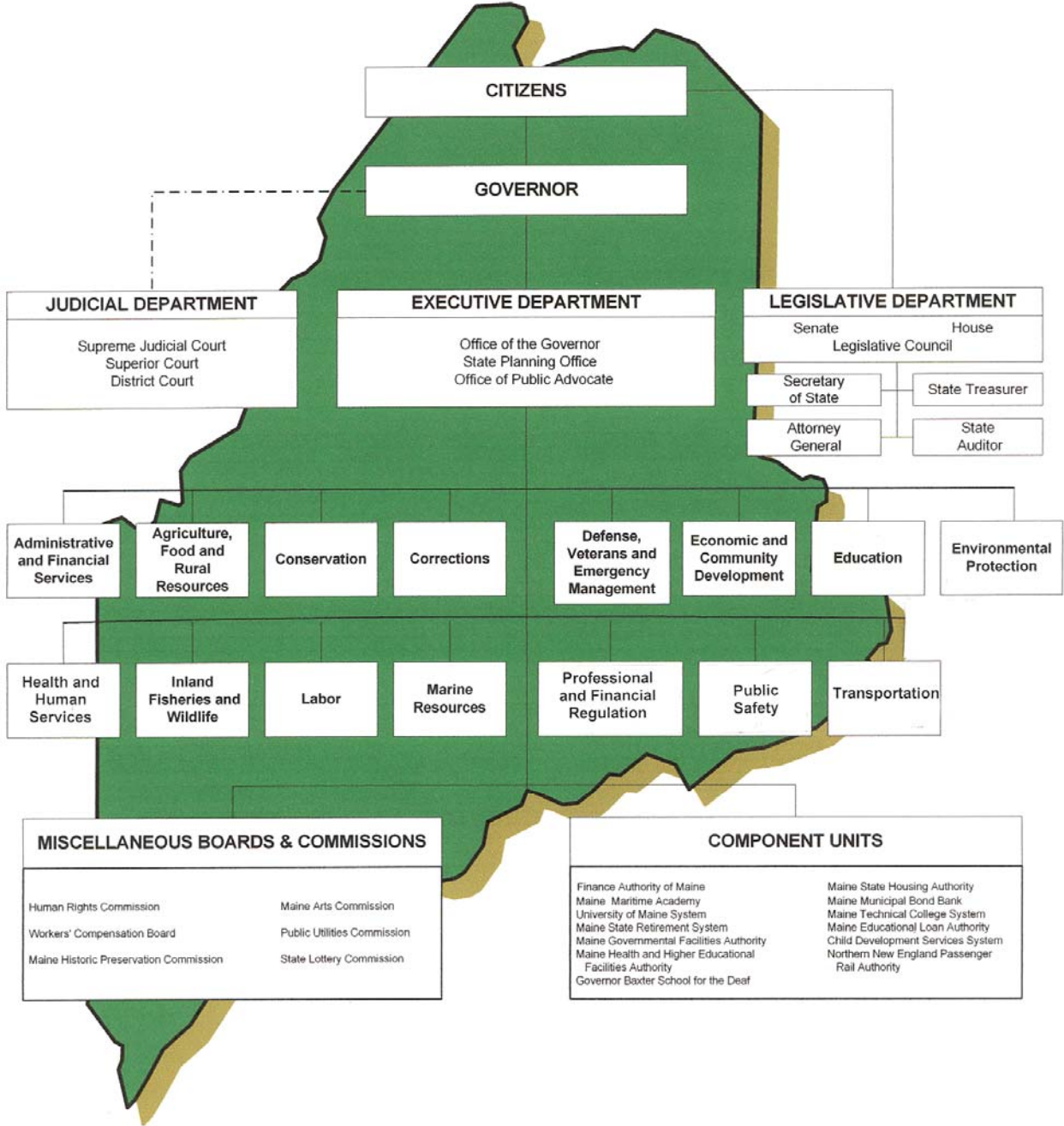
STATE CAPABILITY ASSESSMENT

<i>Requirement §201.4(c)(3)(ii)</i>	<i>[The State mitigation strategy shall include a] discussion of the State’s pre- and post-disaster hazard management policies, programs, and capabilities to mitigate the hazards in the area, including: an evaluation of State laws, regulations, policies and programs related to hazard mitigation as well as development in hazard-prone areas; and a discussion of State funding capabilities for hazard mitigation projects.</i>
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Evaluation of State’s Pre-disaster and Post-disaster Hazard Mitigation Policies, Programs and Capabilities

The chart on page 4-2 illustrates the organizational format of the government of the State of Maine. It is provided to give the reader a broad concept of the various departments and their reporting structures. Pages 4-3 through 4-12 include a summary and evaluation of the State’s pre-disaster and post-disaster hazard mitigation policies, programs and capabilities.

ORGANIZATION CHART OF MAINE STATE GOVERNMENT AS OF JUNE 30, 2007



The table which follows describes in summary the current capabilities of the State of Maine by Hazard category and whether these programs are pre-disaster or post-disaster mitigation activities.

State Mitigation Capabilities by Hazard Matrix

HAZARD	TYPICAL DAMAGES or LOSSES	AGENCY TASKED	PROGRAMS	PRE- OR POST-DISASTER
Flooding	All Structures	State Planning Office	Maine Floodplain Management Program Community Assistance Program Map Modernization Program	Pre-disaster
Flooding	Local Roads State Roads	Dept of Transportation	Maine Local Roads Center Capital Improvement Projects	Pre-disaster Pre-disaster
Flooding	New Public Property	Office of Community Development	Economic Development Infrastructure Grants Public Facilities Grant Program	Pre-disaster
Flooding	Environment	Dept of Environmental Protection	Erosion & Sedimentation Control, Natural Resources Protection Act, Shoreland Zoning & Stormwater Program	Pre-disaster
Flooding	Structures/Roads	Maine Emergency Management Agency	Dam Safety Law (37-B, Chapter 24)	Pre-disaster
Flooding	Evacuations & Mass Care	American Red Cross	Disaster Shelter Management Program	Post-disaster
Wildfires	Timberland	Maine Forest Service	Forest Protection Division	Post-disaster
Wildfires	Timberland	Maine Forest Service	Forest Health and Monitoring	Pre-disaster
Wildfires	Residential Structures	Maine Forest Service	Cooperator Assistance Program Federal Excess Property Program Volunteer Fire Assistance Program	Post-disaster
Blight & Infestation	Crops	Agricultural, Natural, and Rural Resources Office	Pesticide Control Program	Pre-disaster
Blight & Infestation	Crops	Agriculture, Food and Rural Resources	Authority to quarantine plant pests Enforcement of Permit Regulations	Post-disaster
Blight & Infestation	Environment	Bureau of Geology and Natural Areas	Invasive Species Awareness and Prevention Plan	Pre-disaster
Blight & Infestation	Environment	Dept of Environmental Protection	Spread of Invasive Aquatic Plants Grants Watershed Protection Grants	Pre-disaster
Blight & Infestation	Environment	Inland Fisheries & Wildlife	Invasive Aquatic Plant Prevention Program	Pre-disaster
Blight & Infestation	Environment	Dept of Marine Resources	Public Health Program	Pre-disaster
All-Hazards	All Types	Maine Emergency Management Agency	Emergency Mgmt Performance Grants Pre-Disaster Mitigation Grants Public Education & Information	Pre-disaster
All-Hazards	All types	Maine Emergency Management Agency	Hazard Mitigation Program Grants	Post-disaster
All-Hazards	Life & Safety	Emergency Services Comm Bureau	Enhanced 911	Post-disaster
All-Hazards	Public Property	Bureau of General Services	Inventories all State Owned Property Maintains construction plans and costs	Post-disaster
All-Hazards	Public Property	Bureau of General Services	Insurance on State Owned Property	Post-disaster

In general terms, the goals of the State Hazard Mitigation Plan are to motivate and assist state, county and local government elected and appointed officials, and public and private agencies to mitigate against the effects of natural hazards.

As observed in the previous table, there are a number of fairly effective mitigation programs in place to deal with the impacts of flooding, wildland fires and blight & infestation. Additionally, hurricane pre-disaster mitigation is handled directly by the Floodplain Management Program via floodplain management ordinance development standards for coastal construction and the

adoption of the FEMA Coastal Construction Manual (FEMA 55). There has been and continues to be a concerted effort to deal with these hazard events. Conversely, there is little mitigation effort in terms of dealing with the impacts of severe winter storms, erosion and landslides, severe summer storms, drought and earthquakes. These are dealt with in the all-hazard mitigation programs and efforts shown in the table above.

Through the development of the State Hazard Mitigation Plan, the State of Maine seeks to review and assess the State's financial, legal and programmatic ability to initiate and complete the mitigation efforts which will reduce the impacts of its identified natural disaster hazard events. This assessment of state capabilities is defined by the natural disaster hazard events expected to have the greatest impact on the State of Maine.

Flooding. In Maine, the greatest amount of damage from flooding events occurs to the roadway system, both state and municipal roads, bridges, culverts and ditches. This is followed in severity and probability with damage to homes and businesses located along the shores of rivers, lakes and the coastal waters. Currently, there are four major state programs that work to mitigate the effects of flooding.

1. **Road repair and local technical assistance.** The Maine Department of Transportation (MDOT) is responsible for the repair, maintenance and upgrade work to State-owned highways. When funds are available, the MDOT upgrades and/or elevates road surfaces to reduce the possibility of flood damage to roads. The MDOT also maintains the Maine Local Roads Center which provides technical assistance to municipalities for completing the same actions. There is seldom sufficient funding, both at the state and municipal level, to complete all the road work that is necessary.

Maine has made significant progress since completion of the 2004 State Hazard Mitigation Plan in the area of helping communities mitigate flood damages to roads, bridges, ditches and culverts. The Maine Emergency Management Agency has partnered with the Local Roads Center to sponsor a series of ongoing workshops throughout the State on the use of geo-synthetics to mitigate flood damages to local transportation systems by stabilizing banks, fill, rip-rap, road surfaces and other structures.

2. **Floodplain Management Program.** The State Planning Office's Floodplain Management Program provides technical assistance, model floodplain ordinances to municipalities, training for local officials and professional groups (e.g. professional land surveyors, insurance agents and lenders), and manages the National Flood Insurance Program (NFIP) within the State. The effort to enact floodplain ordinances in every Maine community has had the greatest effect of loss reduction on real property in the State. The requirement for every municipality to have a floodplain ordinance is not mandatory. However, 93% of the communities in Maine have enacted a floodplain management ordinance. Some communities were never given a map.

Maine is also pro-active with the NFIP Community Rating System (CRS) that recognizes communities with good performance in floodplain management. Based on a point system for activities that enhance flood mitigation and floodplain management beyond the minimum NFIP regulations, communities may improve their standing in the NFIP which results in lower flood insurance premiums. Maine has more communities in the CRS than any other New England state with 22 communities currently enrolled in the CRS Program. The 22 communities represent more than one third of the state's flood insurance policy base.

The 2004 State Hazard Mitigation Plan recognized that Maine's flood hazard mitigation efforts were somewhat limited by the aging Flood Insurance Rate Maps. Since that time, progress has been made:

- Hurricane Surge Inundation Maps have been completed by the Army Corps of Engineers, and MEMA has distributed copies to all affected municipalities;
- FEMA's Map Modernization Program has produced a number of new, digital flood plain maps that are much more detailed and easier to use than the earlier FIRMS.
- The Map Modernization Program is being implemented by county wide mapping and Southern Maine was the first area of the State to be digitally mapped. Over the next several years the mapping will be advanced as the program moves north through the state.
- LIDAR-based topographical mapping is being undertaken by NOAA and the Army Corps of Engineers along Maine's southern coast (York and Cumberland Counties). This information is expected to become available in 2008. The LIDAR mapping is a great tool for updating the FIRMs and could be a valuable tool for determining erosion rates.

On the downside, LIDAR based mapping is limited to a few costal areas, primarily Maine's beaches, and selected riverine areas, and many communities are still struggling with aging FIRMS. There is a concern at the State level that FEMA may not be on target to complete its Map Modernization Program for Maine within the initial timeframe envisioned by Congress (2009).

- 3. MEMA Mitigation grants program.** The third state program is the planning and hazard mitigation grant programs managed by the Maine Emergency Management Agency (MEMA). MEMA is responsible for the maintenance of the State Emergency Operations Plan (EOP) and State Hazard Mitigation Plan (HMP) which helps State agencies to prepare and respond to natural disaster hazard events. MEMA also manages the State portion of FEMA's Hazard Mitigation Grant Program and the Pre-Disaster Mitigation Program. However, due to insufficient agency staffing, more technical assistance is needed by county and municipal governments in order for these local officials to have a better awareness and understanding of hazard mitigation policies, plans and programs. In addition, completion of 16 county hazard mitigation plans, six local plans and one University of Maine System plan have made it clear that hazard mitigation needs far exceed available resources. These plans have collectively identified roughly \$150 million in hazard mitigation needs. At the current level of funding (\$1.5 million annually), it will take about 100 years to address these needs, assuming no additional needs are identified during that time period.
- 4. DEP Programs.** The last set of state programs that effectively deals with flooding are the Department of Environmental Protection's (DEP) Stormwater Management, Shoreland Zoning and Dam Licensing statutes, regulations and programs. These programs and regulations deal with the man-made causes of stormwater capability reduction and waterbody retention. The Stormwater Management Law does not apply to small projects, including the construction of single family dwellings.

Winter Storms. The second greatest amount of damage caused by a natural disaster hazard event is severe winter storms. Winter storm damages typically involve downed overhead utility lines, flooding from ice jams and melt off, and debris in the roads (since flooding has been covered in the preceding section, it will not be reviewed in this section). Currently, there is one major State program that works to mitigate the effects of severe winter storms.

The MDOT is responsible for snow and debris removal on all State highway roads. MDOT garages are well placed around the state to complete this task in a timely manner. MDOT also provides technical assistance to municipalities for the road debris clearance with the Maine Local Roads Center. At times, the MDOT will even assist with the actual debris clearance on select local roads. However, in many cases, a bad winter storm can overwhelm the financial and equipment capabilities of many municipalities.

Hurricanes. Historically, hurricanes in Maine have always been a Level 1, and excluding the flooding, have not caused significant destruction. However, the damaging effects of hurricane storm surge and flooding have caused major damage in Maine in the past. As such, State programs that work to mitigate the effects of flooding have already been described in a preceding section. There are no mitigation programs in the State of Maine dedicated solely to lessening the impacts of hurricanes. Unfortunately, in many instances, the storm surge inundation flood areas are much greater than the 100 year FIRM flood areas and it is these areas that are not regulated by the current state and local floodplain management programs in Maine. However, completion and distribution to municipalities of the hurricane surge inundation maps provides new information to local officials to help them better regulate development in areas that could be impacted by hurricanes. This is the first step in educating the public about the potential impacts of hurricanes on the Maine coast.

Erosion/Landslides. Some inland areas and about half of the Maine coast, including many of its beaches, are slowly eroding, but erosion generally goes unnoticed until a home or other structure is threatened or destroyed. The biggest losses are to individual properties, although there have been instances of damage to public roads. Eroding bluffs can be “armored” by the use of sea walls, rocks, riprap or other engineered solutions, but there is no State program to support such efforts. Many individuals cannot afford to pay for the protection needed to save their properties. Unfortunately, federal rules governing the HMGP and PDM-C programs are such that municipal applications aimed at helping individuals protect their properties are not competitive.

Wildfire. Although Wildfires normally do not cause a great deal of destruction in Maine, they have a terrible potential, as evidenced in the forest fires of 1947. Forest fires could cause a huge loss of residential structures in the State due to the very high percentage of Maine homes located in the wildland-urban interface and the general lack of pre-disaster mitigation efforts. Land use planning and regulation and building codes in Maine do not deal at all with the wildland-urban interface issues. Mitigation efforts in the State are limited to the Maine Forest Service which performs forest health and monitoring, oversees forest firefighting efforts, and provides financial and equipment grants to local fire departments. Since completion of the 2004 State Hazard Mitigation Plan, the Maine Forest Service has initiated a community assessment program aimed at helping communities and rural homeowners at the wildland/urban interface better protect their properties from the threat of wildfire. The assessment is a voluntary program that relies on public education to reach its intended audience.

Blight & Infestation. Blight and infestation are present in the State of Maine in many areas and there are several state agencies and programs that are working to mitigate the losses from these sources. The Department of Agriculture, Food and Natural Resources manages pesticide programs to reduce the loss to agricultural products. The Bureau of Geology and

Natural Areas, Department of Environmental Protection, Department of Inland Fisheries and Wildlife, and the Department of Marine Resources are all working to prevent the spread of invasive species.

Severe Summer Storms. The types of severe summer storms in Maine include thunderstorms and tornadoes. Tornadoes are rare and due to the low population density have not been a major concern. Thunderstorms have caused damages to structures, mostly from overturned trees. Lightning has caused injuries and deaths, mostly from individuals being struck. There are no mitigation programs in the State of Maine dedicated solely to lessening the impacts of severe summer storm, excluding that of all-hazards emergency management planning and emergency response agencies (see page 4-3).

Drought. Maine is not a “dry” state in terms of climate, however there have been periodic periods of drought conditions. The impacts of Maine droughts are higher instances of dry water wells, poor performance of annual agricultural products, and greater opportunities for forest fires. There are no mitigation programs in the State of Maine dedicated solely to lessening the impacts of drought.

Earthquake. The recent magnitude 4.3 earthquake in Bar Harbor demonstrates that earthquakes of this size can cause damage (see photo at beginning of Earthquake portion of Section 3). Although the statistical estimate for return time of a magnitude 6.0 earthquake in Maine is approximately 363 years, little monitoring and research have been done to substantiate this estimate. And although earthquake probability in Maine is relatively low compared to other areas of the country, the risk to property is moderate to high because of inadequately designed and aging structures. Continued instrumental earthquake monitoring in New England is funded entirely by the federal government, with some in-kind contribution by State agencies. There are no mitigation programs in the State of Maine dedicated solely to lessening the impacts of earthquakes, excluding that of all-hazards emergency management planning and emergency response agencies.

Summary

Because the State of Maine has a small population (2006 estimate of 1,321,574), it does not have significant state, county and local government staffs or budgets dedicated to hazard mitigation. There are no State-funded grants for local floodplain projects. There are only three State personnel working in the Local Roads Center, providing technical assistance to communities. There are no State personnel who deal with hurricane, earthquake, drought or severe summer storm mitigation. There are multiple agencies that deal with blight and infestation mitigation, however they are scattered and many times are part-time positions. There does appear to be sufficient staffing for the annual spread of wildfires, however, there is a severe shortage of trained and equipped state and local manpower for a wildfire disaster of the 1947 magnitude. Many of these existing programs are already funded in part by federal sources.

Of significant importance to furthering hazard mitigation, the Governor and Legislature signed two bills into law in the spring of 2004. The first law establishes a single, statewide model building code for all cities and towns which presently have no adopted code. The other law tasks the State Planning Office with providing model downtown rehabilitation code assistance to Maine’s 494 cities and towns. Both of these laws represent a significant opportunity for Maine to address, in a coordinated fashion, six out of the nine major hazard risks to the State: flooding, winter storms, hurricanes, summer storms, wildfires and earthquakes. Maine has worked for 20 years to reach the point of having model codes for new construction and rehabilitation. Successfully designing these model codes and administering training and

technical assistance for their adoption and administration will be the next challenge for Maine in implementing this important hazard mitigation tool.

In addition, there is a Governor's Executive Order dating back to March 4, 1968, that essentially prohibits most new State facilities from being located in a floodplain area. Exceptions would include boat landings, ferry terminals, piers and wharfs, parks, preserves and similar facilities. The Governor's Executive Order is patterned after federal Executive Order 11988 in stating that if the proposed action can be undertaken outside the floodplain it should be so located, and if it must be located in the floodplain it must comply with the standards of the National Flood Insurance Program.

Evaluation of State's Policies related to Development in Hazard Prone Areas

The table on the next page contains an evaluation of the State's policies related to development in hazard prone areas.

Hazard Management Capabilities of the State that have Changed Since 2004

The table does not reflect a number of improvements in the State's hazard management capabilities since publication of the 2004 Plan:

- County Emergency Management officials are far more knowledgeable about hazard mitigation than they were just a few years ago, and are committed to helping their counties deal with mitigation issues;
- Some county directors have been heavily involved in post disaster assistance work;
- The Maine Forest Service is now placing a far greater emphasis on prevention of fires in the wildland/urban interface, rather than just responding to fires in those areas;
- There have been a number of important mapping initiatives that have resulted in local officials being more aware of hazards, and using the various maps to better manage development in those areas. Updated maps include the preparation of updated Flood Insurance Rate Maps, current LIDAR mapping efforts along beaches, and the preparation of coastal bluffs maps and coastal landslide maps for most of the coast and mapping of inland landslides in the towns of Wells, Cumberland, Bangor and Greenbush.
- The number of approved full-time equivalent positions for the Maine Floodplain Management Program now stands at four, up one-half person since 2004.

**Maine Hazard Mitigation Strategy
State Mitigation Capability Assessment Matrix**

State Department, Agency, Authority, Board, Commission, Division	Mitigation-related Programs, Plans, Policies, Regulations, Funding or Practices	Effect on Loss Reduction (X) State Mitigation Initiatives			General Description of Effect on Mitigation Initiatives
		Provides Funding	Supports Implementation	Conflicts with	
Governor's Office Executive Department	-Executive Order dated March 4, 1968, precluding the uneconomic, hazardous, or unnecessary use of flood plains in connection with State facilities.		X		Essentially Prohibits new State facilities from being located in flood plains.
American Red Cross Disaster Services	- Disaster Shelter Management Program		X		Maintains statewide database of 535 disaster relief shelters. Provides for safety and pre-event identification of mass care facilities including feeding, family and volunteer reception centers.
Administrative and Financial Services Bureau of General Services Risk Management Division	- Insurance on State-owned property		X		Provides insurance advice to the State government and administers all State insurance and self-funded plans and programs. Helps to reduce the cost of loss to State-owned property.
Administrative and Financial Services Bureau of General Services Professional Services Div.	- Inventories all State-owned property - Maintains construction plans and costs		X		Provides technical and fiscal oversight/approval to construction and repair of buildings and public works. Ensures that State facilities are built to code.
Administrative and Financial Services Chief Information Officer	- Sets standards for the use of information technology in State government		X		Guides the use of information technology, such as the State Internet system. Supports mitigation efforts through better distribution of information.
Agriculture, Food and Rural Resources Animal Health & Industry Div	- Enforcement of Permit Regulations - Prompt diagnosis of disease - Surveillance testing programs - Accreditation of Veterinarians		X		Controls animal disease through regulation, education and enforcement. Reduces the impact and severity of animal-borne diseases.
Agriculture, Food and Rural Resources Plant Industry Division	- Authority to quarantine plant pests. - Enforcement of permit regulations		X		Controls plant disease through regulation, education and enforcement. Reduces the impact and severity of plant infestations.
Agriculture, Food and Rural Resources Agricultural, Natural, and Rural Resources Office	- Pesticide Control Program - Animal Welfare Program - Integrated Pest Management		X		Oversees the use of pesticides and the health and safety of agricultural animals in the prevention of blight, infestation and disease.

State Department, Agency, Authority, Board, Commission, Division	Mitigation-related Programs, Plans, Policies, Regulations, Funding or Practices	Effect on Loss Reduction (X) State Mitigation Initiatives			General Description of Effect on Mitigation Initiatives
		Provides Funding	Supports Implementation	Conflicts with	
Conservation Bureau of Geology and Natural Areas	- Inventories, maps, assess, and interprets Maine's geology. - Invasive Species Awareness and Prevention Plan		X		Through the study of Maine's geology, the program evaluates Maine's likelihood of damaging earthquakes, landslides, and coastal erosion. Identifies, reviews and builds strategies to reduce impact of invasive species.
Conservation Land Use Regulation Commission	- Serves as the planning and zoning authority for unorganized areas of State, encompassing 10.4 million acres		X		By regulating development in the unorganized areas, the program ensures that development is directed away from hazard areas.
Conservation Maine Forest Service	- Forest Protection Division		X		Oversees the pre-suppression, suppression and investigation of Maine forest fires. Provides trained and equipped Forest Rangers.
Conservation Maine Forest Service	- Forest Health and Monitoring		X		Pest management and damage prevention for Maine's forest resources.
Conservation Maine Forest Service	- Cooperator Assistance Program - Federal Excess Property Program - Volunteer Fire Assistance Program	X	X		Provides grant funds, training and equipment to communities for forest fire protection suppression.
Defense, Veterans and Emergency Management Maine Emergency Management Agency	- Dam Safety Law (37-B, Chapter 24) - State Emergency Operations Center - Emergency Management Education - Disaster Preparedness Information		X		Coordinates the protection of Maine citizens from All-Hazards emergencies; coordinates disaster mitigation, preparedness, response and recovery actions; and assists county and local governments in protecting life and property.
Defense, Veterans and Emergency Management Maine Emergency Management Agency	- Emergency Management Performance Grants	X			Oversees and manages the Federal funding of the Emergency Management program in Maine. Provides personnel for planning and mitigation efforts at the state and county level.
Defense, Veterans and Emergency Management Maine Emergency Management Agency	- Hazard Mitigation Grant Program - Pre-Disaster Mitigation Grants	X			Oversees and manages federal funding of hazard mitigation, local and state plans and local mitigation programs and construction projects.
Defense, Veterans and Emergency Management Maine National Guard	- Disaster Recovery manpower pool		X		Provides a quick manpower and equipment resource for the Governor to reduce the severity and duration of disaster events.
Economic & Community Development Department Office of Community Development	- Economic Development Infrastructure Grant Program - Public Facilities Grant Program	X			Includes public projects for flood and drainage improvements and for the construction of fire stations, homeless shelters, piers and dams. Projects must meet flood protection standards.

State Department, Agency, Authority, Board, Commission, Division	Mitigation-related Programs, Plans, Policies, Regulations, Funding or Practices	Effect on Loss Reduction (X) State Mitigation Initiatives			General Description of Effect on Mitigation Initiatives
		Provides Funding	Supports Implementation	Conflicts with	
Environmental Protection State Statutes	- Erosion & Sedimentation Control - Hydropower & Dams - Natural Resources Protection Act - Shoreland Zoning - Stormwater Program		X		Enforces standards on damages from Erosion. Licensing of hydropower projects for flood control. Regulates development in wetland areas. Regulates development in the shoreland zone. Regulates development that affects stormwater.
Environmental Protection Dept of Water Quality	- Prevent Spread of Invasive Aquatic Plants Grant. - Watershed Protection Grants	X			Provides education, inspection and hand removal grants for preventing aquatic plant infestations. Provides education grants to local schools for educating students about watershed protection.
Inland Fisheries & Wildlife Resource Management	- Invasive Aquatic Plant Prevention Program		X		Provides an education, permit and enforcement program to reduce the introduction of invasive aquatic plant infestation into Maine waters.
Marine Resources Bureau of Resource Management	- Public Health Program		X		Identifies pollution sources that may be corrected in order to increase the amount of shellfish producing areas open to harvesting. Biotxin sampling is conducted to monitor the occurrence of PSP or "red tide" and close shellfish harvest areas as necessary to protect public health.
Public Safety Emergency Services Communication Bureau	- Enhanced 911		X		Saves lives by giving the public the ability to dial for immediate help for all emergencies. Provides for automatic caller location information, critical to speeding up the dispatch of emergency services.
Public Safety Fire Marshal's Office	- Licensing and Inspections Program		X		Enforces fire safety- related building codes to reduce loss of life due to fires.
State Planning Office Floodplain Management Program	- Maine Floodplain Management Program		X		Provides technical information, FIRM maps and model ordinances to Maine communities. Provides information about flooding and the NFIP. Provides training on reading and using flood maps, ordinance interpretation, and floodplain management. Provides interagency reviews of proposals in the floodplain for state and federal agencies. Reviews local ordinances for compliance with the NFIP standards.

State Department, Agency, Authority, Board, Commission, Division	Mitigation-related Programs, Plans, Policies, Regulations, Funding or Practices	Effect on Loss Reduction (X) State Mitigation Initiatives			General Description of Effect on Mitigation Initiatives
		Provides Funding	Supports Implementation	Conflicts with	
State Planning Office Land Use Office	- Land Use Planning - Community Planning & Investment Program (CPIP)	X	X		Provides technical and financial assistance to municipalities, advises the legislature, coordinates with other State agencies, and advocates for sound land use planning. Administers the CPIP, covering the topic areas of community planning, growth management and smart growth.
State Planning Office Code Enforcement Training and Certification Office	- Municipal Code Enforcement Training Program	X	X		Trained, testing and certifying in all land use codes, including building, shoreland zoning, and floodplain management.
State Planning Office Maine Coastal Program	- Coastal Zone Management Program		X		Provides technical assistance to municipalities, advises the legislature, coordinates with other state agencies, and advocates for sound land use planning in Maine coastal areas.
Transportation Bureau of Planning Community Services Division	- Maine Local Roads Center		X		Provides training, technical assistance, and information to municipalities for constructing, maintaining, and managing local roads & bridges.
Transportation Environmental Office	- Natural Resources Mitigation Program		X		Directs and coordinates compensatory mitigation for impacts to wetland resources caused by State transportation projects.

LOCAL CAPABILITY ASSESSMENT

<i>Requirement §201.4(c)(3)(ii)</i>	<i>[The State mitigation strategy shall include a] general description and analysis of the effectiveness of local mitigation policies, programs, and capabilities.</i>
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General Description and Analysis of Local Mitigation Policies, Programs and Capabilities

Between 2003 and 2005, the Maine Emergency Management Agency worked with the County Emergency Management Agencies on the development of their County multi-jurisdictional Hazard Mitigation Plans. Based on the knowledge and experience gained throughout the course of this effort, this section describes and analyzes the effectiveness of existing local mitigation capabilities and the expected effectiveness of the general trend of future local mitigation activities.

In many of Maine's smaller, rural communities, there are few if any regulations other than the municipal shoreland zoning ordinance and a floodplain management ordinance. This is because Maine has a history and culture that is steeped in independence, a distrust of big government, a belief in personal responsibility, respect for the property of others, and a tradition of neighbor helping neighbor in times of need. These small town values, rather than government mandates, govern much of life throughout rural Maine. Many of Maine's smaller towns do not have the staff or money to undertake much in the way of hazard mitigation. That being said, there are a number of very positive trends:

- There has been huge increase in the use of modern technology; many of Maine's smallest towns now have computers and digital cameras, and are conversant with technologies such as email, the use of web sites and teleconferencing, all of which tend to reduce time and distance factors;
- The use of modern technology has led to greater documentation and mapping capabilities;
- There are increasing instances of local communities responding effectively with a high level of sophistication to emergency needs.

The following paragraphs contain an analysis by hazard category.

Flooding. Some Maine communities have taken advantage of the Maine Department of Transportation's (MDOT) Maine Local Roads Center and have acquired technical assistance and training on maintenance and upgrades to local roads, especially in terms of stormwater management. MEMA has partnered with the Local Roads Center to sponsor a series of workshops for local officials on the use of geo-synthetics to mitigate damages from future flooding/storm events. MEMA expects that in the future, more communities will use geo-synthetics to reduce repetitive losses to local roads, bridges, culverts and ditches. After education, road maintenance and upgrades are usually the second largest municipal budget item.

Most Maine communities (93%) have received technical assistance and guidance from the State Planning Office's Floodplain Management Program, have floodplain ordinances and are members of the National Flood Insurance Program (NFIP). In addition, the 22 communities in the CRS Program represents more than one third of the flood insurance policy base. This represents a higher level of floodplain management than the federal minimums. This program has probably had the greatest effect on loss reduction on real property in the State. FEMA's Map Modernization Program will allow more municipalities to better manage their floodplains,

especially where local flood insurance rate maps are based on LIDAR topographic mapping. There is a concern, however, that many Maine communities will not receive an updated map within the time frame originally envisioned by Congress (2009). Moreover, there are still a number of smaller communities in Maine that have not ever received a Flood Insurance Rate Map. Most of LURC's jurisdiction is not mapped but they participate by virtue of LURC's permit review process.

Some municipalities have received hazard mitigation grants for structural mitigation projects, usually road upgrades. Over time, those communities that have participated have eliminated their road washout problems. One such community is the town of Searsmont, which has received several mitigation grants and has effectively protected all of its local roads from flooding damage. Unfortunately, the mitigation needs documented in the 16 County plans, six local plans, and one University of Maine System Plan, far outweigh available funding. The approved mitigation plans listed on page 2-2 of this Plan include roughly 1,500 mitigation projects. Assuming an average of about \$100,000 per project (some are less, but some are a lot more), the total need is about \$150 million. Over the past five years, Maine received about \$1.5 million annually in HMGP funding. Even if no new projects were added to the list, it would take about 100 years to address all of the previously identified needs!

Every municipality in the State of Maine is required to have a State-certified Code Enforcement Officer (CEO). Most municipalities also have a local comprehensive plan and a set of land use ordinances. The CEO enforces not only the local ordinances but provides advice and a second set of eyes for state environmental permit programs in stormwater management and shoreland zoning. However, State law does not make local comprehensive plans and ordinances mandatory and many smaller towns do not have these mitigation tools.

Winter Storms. The biggest impact to many municipal budgets from winter storms is the expense of unplanned debris removal and extra snow and ice removal costs. In many cases, a bad winter storm can overwhelm the financial and equipment capabilities of many smaller municipalities. Many communities will spread calcium chloride on roads prior to a storm to help reduce the amount of icing and some communities will cut back trees within the municipal road easement. However, a majority of communities do not have the resources to accomplish these pre-disaster mitigation activities.

Hurricanes. Coastal Maine communities are typically the only ones to experience most hurricane damages and much of this is from storm surge flooding. Based on a review of the Storm Surge Inundation Maps, there are more areas that are subject to flooding than what are shown on the FIRM maps. Unfortunately, Maine communities have used the FIRM maps for their floodplain ordinances, but a full blown Category 1 hurricane could exceed the 1% return frequency and consequently cause flooding beyond the NFIP's 1% or regulatory "100-year flood event.

While higher category storms are more frequent in other parts of the country, one of the natural mitigating factors for hurricanes in Maine is the fact that Maine's coastal waters are colder and cannot support higher category hurricanes. As the flooding history in Maine continues to cover more time and as the ocean's temperatures continue to rise there may be an increase in the more severe hurricanes. Major structures have been built on the coast recently that were outside the FIRM Special Flood Hazard Areas, but have been shown to be possibly endangered by the storm surge flooding from even a Category 1 Hurricane. As of this writing, MEMA has sent a digital copy of the hurricane surge inundation maps to every affected community along Maine's coast.

Erosion/Landslides. The Maine Geological Survey (MGS) has completed coastal bluff erosion maps for about 75% of Maine's coast. The covered area extends from York County in Southern Maine to a portion of Washington County (Maine's eastern-most county). The information provided on these maps is available on the MGS web site, and copies of the maps have been provided to the affected municipalities. Many communities are beginning to use this information to mitigate the impacts of erosion and sedimentation. The Maine Department of Environmental Protection has incorporated MGS Coastal Bluffs Maps into its Shoreland Zoning rules. There is now a requirement that municipal shoreland zoning ordinances include greater setbacks for development near unstable bluff areas.

MGS has prepared a parallel set of Landslide Hazard Maps that details historical and potential landslide areas along the coast.

MGS is also mapping landslides in non-coastal areas. A pilot project in 2006 developed the method of identifying historical landslide areas and also established methods of terrain analysis for landslide susceptibility. In 2008 additional mapping of landslide hazards will continue at MGS. About one third of the state has geological sediments that make the land potentially vulnerable to landslides. In addition to earth materials, slopes, regional geomorphology and ground and surface water affect landslide hazards.

Wildfire. Forest fires have the potential for causing a huge loss of residential structures in Maine communities, due to the very high percentage of Maine homes located in the wildland-urban interface and the general lack of pre-disaster mitigation efforts. Moreover, a major wildfire that destroys trees and ground cover in a previously forested river basin could result in increased runoff from storms, thereby increasing downstream flooding potential. Land use planning and regulation and building codes in Maine do not deal at all with the wildland-urban interface issues. Mitigation efforts at the local level are limited to the forest firefighting efforts of the local volunteer or municipal fire department. Since publication of the 2004 State Hazard Mitigation Plan, the Maine Forest Service has initiated a community assessment program for communities with a history of wildfire. The program, which is voluntary, is aimed at educating local officials and homeowners about inexpensive steps (such as the removal of overhanging tree limbs) they can take to protect their structures. Local officials in a number of communities have formally agreed to take the steps recommended in their community assessments.

Blight and Infestation. Blight and infestation are present in the State of Maine in the coastal and inland waters, the Maine forests and on the many local farms. Since the coastal and inland waters are either owned or managed by the State government, the municipal governments are typically not involved. Maine forests may encompass many communities and unorganized townships and also are typically managed by the State. Because crop damages from blight could also be a widespread hazard, it is typically State and Federal agencies that are involved in the pre- and post-disaster mitigation activities.

Summer Storms. A number of communities, including larger cities such as Portland and Lewiston, have enacted local stormwater regulations that mirror those of the Department of Environmental Protection. Tornadoes are too rare and lightning affects too few people (an occasional home fire somewhere in the State). Thunderstorms can cause localized power outages and leave storm debris in the roads, but these will only take a few hours to repair and clean up.

Drought. Maine communities are impacted by drought by the increase in possibility of forest fires, dry wells and poor crops. Forest fires and poor crops were discussed in other paragraphs of this section. Individuals and public water suppliers typically deal with dry wells

through their own investment in new wells. There are no mitigation programs at the local level in Maine dedicated solely to lessening the impacts of drought.

Earthquake. The recent magnitude 4.3 earthquake in Bar Harbor demonstrates that earthquakes of this size can cause damage (see photo at beginning of Earthquake portion of Section 3). Although the statistical estimate for return time of a magnitude 6.0 earthquake in Maine is approximately 363 years, little monitoring and research have been done to substantiate this estimate. And although earthquake probability in Maine is relatively low compared to other areas of the country, the risk to property is moderate to high because of inadequately designed and aging structures. Continued instrumental earthquake monitoring in New England is funded entirely by the federal government, with some in-kind contribution by State agencies. There are no mitigation programs at the local level in Maine dedicated solely to lessening the impacts of earthquakes, excluding that of all-hazards emergency management planning and emergency response agencies.

**General Summary
Local Mitigation Capabilities by Hazard Matrix**

HAZARD	TYPICAL DAMAGES or LOSSES	ACTIVITY TASKED	PROGRAMS	PRE- OR POST-DISASTER
Flooding	All Structures	Code Enforcement Officer or Municipal Planning Board	Floodplain Ordinance	Pre-disaster
Flooding	Local Roads	Road Commissioner or Public Works Director	Maine Local Roads Center Municipal Capital Improvement Projects	Pre-disaster Pre-disaster
Flooding	Environment	Code Enforcement Officer	Municipal land use ordinances Erosion & sedimentation control, Natural Resources Protection Act, Shoreland Zoning & Stormwater Program Wildland Firefighting Program	Pre-disaster
Winter Storms	Roads	Road Commissioner or Public Works Director	Winter Road Maintenance program.	Post-disaster
Hurricanes	Environment	Code Enforcement Officer	Shoreland Zoning & Stormwater Program	Pre-disaster
Wildfires	Residential Structures	Municipal/Volunteer Fire Department	Wildland Firefighting program	Post-disaster
Erosion/ Landslides	All structures	Maine Geological Survey	Costal bluffs and coastal landslide hazard maps Inland landslide hazard mapping	Pre-disaster
All-Hazards	All Types	Municipal Emergency Management Director	Public education & information	Pre-disaster
All-Hazards	All types	Municipal Elected Officials	Hazard Mitigation Program Grants	Post-disaster

FUNDING SOURCES

<i>Requirement §201.4(c)(3)(iv)</i>	<i>[The State mitigation strategy shall include] identification of current and potential sources of Federal, State, local, or private funding to implement mitigation activities.</i>
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The State of Maine and local jurisdictions use several funding sources to implement hazard mitigation activities. The majority of the funding comes from federal and municipal programs. Federal funds are typically managed by the State.

The State is interested in pursuing other sources of funds and encouraging municipalities, Maine residents and local businesses to invest in hazard mitigation measures. Some existing and potential funding sources are included in the table below.

Current and Potential Funding Source	Purpose	Hazard	Pre- or Post-Disaster	Estimated Amount (Annual)
FEDERAL				
Hazard Mitigation Grant Program	Implement long-term mitigation strategies	All-Hazards	Post	15% of Disaster
Pre Disaster Mitigation Grant	Provide planning and projects to lessen impacts of disasters	All-Hazards	Pre	\$0-3 million
Flood Mitigation Assistance Program	Planning, Project & Technical Assistance Grants	Flooding	Pre	\$160,000
Community Development Block Grant	Improve community services and facilities	Flooding	Pre	\$3,000,000
FEMA FIRE Grants	Upgrade community emergency services	All-Hazards	Post	\$10,000,000
Homeland Security Grants	Upgrade community emergency response and homeland security capabilities	All-Hazards	Post	\$11,000,000
US DOA National Conservation Resources Service	Provide funds to farmers to incorporate erosion control and stormwater management into their farming practices	Flooding	Pre	Varies
Emergency Management Performance Grants	Funds to help educate the public on natural and technological hazards	All-Hazards	Pre	\$1,700,000
Disaster Housing Program	Small grants to incorporate hazard mitigation into home repairs	All-Hazards	Pre	% of disaster
STATE				
Maine Highway Fund	Provide funding for highway road maintenance and capital improvements	Winter Storm	Post	Varies
Environmental Protection Permits	Enforce compliance with stormwater management and erosion control	Flooding	Pre	Varies
MUNICIPAL				
Municipal Capital Improvement Projects	Construct long-term upgrades to local roads and bridges	Flooding	Pre	Varies by community
Land Use Impact Fees	Fund activities that will deal with land use development impacts	All-Hazards	Pre- or Post	Need to be created

The majority of these funding sources are highly competitive and the amounts can differ greatly. In addition, some funding sources (Community Development Block Grants, Maine Highway Fund, Land Use Impact Fees) are only marginally related to hazard mitigation.

GOALS, OBJECTIVES AND STRATEGIC MEASURES (ACTIONS)

The 2007 Maine Hazard Mitigation goals, objectives and actions are set forth on the following pages, 4-19 through 4-29. There are a number of significant differences from the 2004 version of the Plan:

- 1. Revised Format.** The format has been completely changed to a tabular presentation, so that the reader can easily see the linkages between each of the goals, objectives and actions. In the 2004 Plan, it was very difficult to see any of the linkages.
- 2. Better Organization.** Goals, objectives and actions are now arranged by topic, beginning with administration and proceeding in order through each of the hazards profiled in this Plan. In the 2004 Plan, there was no such breakdown.
- 3. Revised Goals.** In the 2004 Plan, most of the goals were not goals. Some were actually objectives, and some were actions. A concerted effort has been made to provide at least one broad-based goal for each of the major headings (Administration, Flooding, etc). Under each heading, more specific objectives have been added, followed by even more specific, measurable actions.
- 4. More Realistic Actions.** The 2004 Plan contained a number of actions that are not realistic. For example, the 2004 Plan called for hiring more State staff. This is not realistic, given Maine's ongoing budget problems and the current State of Maine limits on additional hiring.

The actions set forth on the following pages more closely relate to the role that the Maine Emergency Management Agency has assumed relative to mitigation:

- The provision of technical assistance and training;
- The preparation of plans and updates;
- Support for improved information including better hazard-related maps; and
- Support for county and municipal hazard mitigation projects.

Note: All of these actions have been evaluated relative to environmental soundness, technical feasibility and cost effectiveness. Those that require additional funding beyond day-to-day agency operations will be further evaluated, using these criteria, prior to funding.

KEY TO ABBREVIATIONS

Abbreviations used in the following table include the following:

\$F	Federal funds
\$S	State funds
\$C	County funds
\$L	Local funds
DEP	Maine Department of Environmental Protection
DOC	Maine Department of Conservation
FEMA	Federal Emergency Management Agency
MEMA	Maine Emergency Management Agency
MFS	Maine Forest Service
MGS	Maine Geological Survey
SPO	Maine State Planning Office

GOALS/OBJECTIVES AND STRATEGIC MEASURES (ACTIONS)

ADMINISTRATION

Goals: Enhance the State's hazard mitigation capabilities.

Objectives	Actions	Resources	Agency	Time Frame	Results of Action
1. 406 Program. Utilize the 406 program to the maximum extent possible to implement mitigation projects.	A. Education. Immediately following a disaster, use workshops to inform officials of 406 program requirements.	Existing Staff \$ F, S,	MEMA	Short Range	Education of local officials on opportunities for implementation of mitigation projects
	B. Project identification. Use county and local mitigation plans as a basis for identifying infrastructure improvements that might be funded under the 406 program.	Existing Staff \$ S	MEMA	Short Range	Maximum completion of hazard mitigation projects
2. Long-range planning. Continue long-range hazard mitigation planning efforts.	A. Plan integration. Integrate county hazard mitigation plans into an overall State plan and establish overall, statewide hazard mitigation priorities.	Consultant \$ F, S	MEMA	Short Range	Integration of multi-jurisdictional plans
	B. County plan updates. Provide leadership and guidance to county EMA offices and local officials as county multi-jurisdictional plans are updated, giving priority attention to counties with the most serious hazard mitigation issues.	Existing Staff \$ F, S, C, L	MEMA	Long Range	More effective county-wide, multi-jurisdictional plan updates
	C. Standardization. Work with county EMA officials to standardize the format and presentation of updated county hazard mitigation plans.	Existing Staff \$ S, C, L	MEMA	Long Range	More effective county-wide, multi-jurisdictional plan updates
	D. State plan. Maintain and update a State Hazard Mitigation Plan.	Existing Staff \$ F, S	MEMA	Long Range	Better protection of Maine residents

Objectives	Actions	Resources	Agency	Time Frame	Results of Action
<p>3. Mitigation awareness. Build county and municipal officials' and residents' awareness of mitigation and proven, cost-effective mitigation measures and the need for mitigation.</p>	<p>A. Website. Continue to use MEMA's website to post the State's Hazard Mitigation Plan as well as articles and other educational materials dealing with hazard mitigation, and to post notice of meetings, workshops and training exercises.</p>	<p>Webpage \$ S</p>	<p>MEMA</p>	<p>Long Range</p>	<p>Provision of mitigation information to local officials and the general public</p>
	<p>B. Community outreach. Continue to revise, update, and make available materials aimed at educating local officials and the public about hazard mitigation.</p>	<p>Existing Staff \$ F, S</p>	<p>MEMA</p>	<p>Short range</p>	<p>Provision of mitigation to local officials and the general public</p>
	<p>C. Workshops. Continue to hold mitigation workshops for local officials, interested engineering firms and others, focusing on parts of the State with the most serious hazard mitigation issues.</p>	<p>Existing Staff \$ F, S, L</p>	<p>MEMA</p>	<p>Long Range</p>	<p>Provision of mitigation information where it is most needed</p>
	<p>D. Open houses. Continue to sponsor and participate in open houses, workshops and similar events aimed at increasing public awareness of hazard mitigation.</p>	<p>Existing Staff \$ S</p>	<p>MEMA</p>	<p>Long Range</p>	<p>Greater awareness of mitigation issues</p>
	<p>E. Early warning systems. Within the limits of available funding, support improvements to the State's early warning capabilities, such as river gauges and NOAA alerting systems, giving priority to areas with the most serious hazard issues.</p>	<p>\$ F, S, L</p>	<p>MEMA</p>	<p>Long Range</p>	<p>More time and data for emergency managers for effective decision-making</p>
<p>4. Technical assistance. Continue to provide technical assistance to and coordinate with local jurisdictions on state, county and municipal level mitigation efforts.</p>	<p>A. Additional staff. Hire additional staff to improve the agency's hazard mitigation capabilities.</p>	<p>\$ F, S</p>	<p>MEMA</p>	<p>Short Range</p>	<p>More effective hazard mitigation program</p>
	<p>B. Prioritization. Develop agency priorities so that MEMA staff resources can be directed to the most important tasks and the areas of the State with the greatest need, within the limits of maintaining a manageable workload.</p>	<p>Existing Staff \$ S</p>	<p>MEMA</p>	<p>Short Range</p>	<p>Targeting of mitigation technical assistance to public officials for effective mitigation decision-making</p>
<p>5. Better coordination. Better coordinate the mitigation and data collection efforts of State agencies.</p>	<p>A. Mitigation Committee. Meet periodically with the Mitigation Review Committee consisting of MEMA and key State agency leaders to review state programs for opportunities to combine capabilities and resources on mitigation strategies.</p>	<p>Existing Staff \$ S</p>	<p>MEMA, State Agencies</p>	<p>Long Range</p>	<p>Cost-effective hazard mitigation with every public dollar</p>

Objectives	Actions	Resources	Agency	Time Frame	Results of Action
	B. Hazard additions to State GIS system. Add hazard occurrence information to the State's GIS system.	Existing Staff \$ S	MEMA, Maine OGIS	Long Range	Greater availability of hazard occurrence data
	C. Potential losses. Collect vulnerability and potential loss data to estimate losses for State-owned and operated buildings, infrastructure and critical facilities associated with the most likely hazard events.	Consultant \$ S, L	MEMA	Long Range	Better data for hazard mitigation assessment and decision making
6. State projects. Develop a process for better review and evaluation of State-funded or managed projects for compliance with good mitigation practices and standards	A. Best practices manual. Develop a Best Management Practices (BMP) Manual (similar to DEP's Erosion Control BMP Manual) for the review and evaluation of State-funded or managed projects for compliance with good mitigation practices and standards.	Consultant \$ S	MEMA, State Agencies	Long Range	Provision of ideas and technical know-how to public officials and the private sector on methods to incorporate hazard mitigation into their projects
	B. Administration plan. Revise the hazard mitigation prioritization criteria in the Administration Plan to include communities at highest risk, with consideration for repetitive loss and most intense development pressures.	Existing Staff \$ S	MEMA	Long Range	Simplification of the process for choosing Hazard Mitigation Projects

FLOODING:

Goals: Reduce loss of life, injury and property damage in Maine caused by flooding.

Objectives	Actions	Resources	Agency	Time Frame	Results of Action
1. Outreach. Help local officials develop more effective ways of mitigating flood damages to local roads, bridges, culverts and ditches.	A. Workshops on geo-synthetics. Continue to sponsor workshops through the Local Roads Center on the use of geo-synthetics to better mitigate flood damages to local roads, bridges, culverts and ditches.	Existing Staff \$ F, S	MDOT Local Roads Center/ MEMA	Ongoing	Better approaches to mitigating flood damages
2. Improved mapping. Support efforts to improve flood plain mapping. (see also summer storms/hurricanes)	A. Map Modernization. Support FEMA's Map Modernization Program including: <ul style="list-style-type: none"> Preparation of a flood insurance rate map for every community in Maine; Preparation of LIDAR-based mapping to the maximum extent possible 	Existing Staff \$ F	SPO, State Agencies	Ongoing	Better floodplain management
	B. Coastal LIDAR maps. As time and resources permit, use LIDAR-based maps to prepare detailed maps of potential storm flooding and extreme tidal flooding events for coastal communities.	\$ F, S	DOC/ MGS	Ongoing	Better prediction of infrastructure and evacuation routes subject to frequent coastal flooding
3. Sea level rise. Continue to monitor sea level rise and its implications for Maine.	A. Monitoring. Continue to track changes in sea level and evaluate future projections and: <ul style="list-style-type: none"> Recommend priorities to FEMA for updating inundation maps (e.g., FIRMS, hurricane surge: tidal rise scenarios) giving priority to the areas most vulnerable to storm surge flooding and hurricane surge inundation; Provide information to municipalities, utilities and the public on the implications of sea level rise. 	Existing Staff \$ F, S	DOC/ MGS	Ongoing	Improved geographic information on flooding vulnerability created by rising floodplains and tides
4. Watershed management. Minimize increased downstream flooding caused by runoff from upstream development.	A. Monitoring. In developing areas of the State, monitor the extent to which upstream development may or may not be contributing to the potential for increased, downstream flooding.	Existing Staff \$ F, S, L	DEP	Long Range	Development of information on how the dynamics of watershed development adversely impact downstream properties

Objectives	Actions	Resources	Agency	Time Frame	Results of Action
	B. Watershed recommendations. Where upstream patterns of development may be contributing to the potential for increased, downstream flood flows, recommend an action plan for addressing the problem.	Existing Staff \$ S, L	DEP	Long Range	Development of workable, cost-effective strategies for protecting downstream properties
5. Dams. Improve State management of dams.	A. GIS mapping. Refine GIS mapping of high hazard and significant hazard dam locations at the time of inspections and through Emergency Action Plan revisions.	Existing Staff \$ S	MEMA	Long Range	Assessment of downriver flooding vulnerabilities from dam failures (breaches) for better land use and emergency planning
6. County plan updates. Provide guidance to county EMAs and others involved in updating county hazard mitigation plans.	A. Strategy guidance. As county plans are updated, encourage consideration of consistent flood strategies including, but not limited to: <ul style="list-style-type: none"> • Developing early warning systems • Monitoring ice and river flow conditions, where applicable • Monitoring preparation of Emergency Action Plans (EAPs) for dams, and participation in EAP drills • Encouraging municipalities to incorporate updated flood hazard information such as coastal surge/SLOSH maps, and hurricane inundation maps into their ordinances • Maintaining lists of people with disabilities who would be adversely impacted by flooding • Developing and circulating lists of emergency shelters • Participating in hazard mitigation grant programs, particularly the 406 program, where applicable • Developing plans to upgrade roads, culverts, ditches and drainage systems to make roads and structures safe from flooding 	Existing Staff \$ F, S, C, L	MEMA	Medium Range	Development of more effective county plans

WINTER STORMS

Goals: Reduce loss of life, injury and property damage in Maine caused by winter storms.

Objectives	Actions	Resources	Agency	Time Frame	Results of Action
<p>1. County plan updates. Provide guidance to county EMAs and others involved in updating county hazard mitigation plans.</p>	<p>A. Strategy guidance. As county plans are updated, encourage consideration of consistent winter storm strategies including, but not limited to:</p> <ul style="list-style-type: none"> • Developing early warning systems • Developing public education service announcements • Encouraging homeowners to keep driveways open for emergency vehicles • Maintaining lists of people with disabilities who would be adversely impacted by winter storms • Developing and circulating lists of emergency shelters • Developing plans for alternative transportation • Participating in hazard mitigation grant programs, particularly the 406 program, where applicable • Installing back-up power at all emergency facilities 	<p>Existing Staff \$ F, S, C, L</p>	<p>MEMA And Counties</p>	<p>Medium Range</p>	<p>Development of more effective county plans</p>

SUMMER STORMS/HURRICANES

Goals: Reduce loss of life, injury and property damage in Maine caused by summer storms and hurricanes.

Objectives	Actions	Resources	Agency	Time Frame	Results of Action
1. Coastal storm surge flooding/hurricane surge inundation. Provide for better management of coastal storm surge flooding and hurricane surge inundation.	A. State Floodplain Management Program. Develop recommendations for the use of hurricane surge inundation maps in: <ul style="list-style-type: none"> • Local ordinances • Public education and awareness efforts 	Maps and model ordinances \$ S	SPO/ MEMA	Long Range	Better regulation of development in all flood zones
	B. DEP Project Review. Consider developing regulations for development in areas subject to hurricane surge inundation.	Existing Staff \$ S	DEP	Long Range	Better management of areas subject to hurricane inundation
2. County plan updates. Provide guidance to county EMAs and others involved in updating county hazard mitigation plans.	A. Strategy guidance. As county plans are updated, encourage consideration of consistent summer storm/hurricane strategies including, but not limited to: <ul style="list-style-type: none"> • Developing early warning systems • Developing public education service announcements • Maintaining lists of people with disabilities who would be adversely impacted by summer storms/hurricanes • Developing and circulating lists of emergency shelters • Developing plans for alternative transportation • Participating in hazard mitigation grant programs, particularly the 406 program, where applicable • Installing back-up power at all emergency facilities • Developing plans to upgrade roads, culverts, ditches and drainage systems to make roads safe from hurricanes 	Existing Staff \$F, S, C, L	MEMA	Medium Range	Development of more effective county plans

EROSION/LANDSLIDES

Goals: Reduce property damage in Maine caused by erosion and landslides.

Objectives	Actions	Resources	Agency	Time Frame	Results of Action
1. Coastal bluff and landslide areas. Develop information on vulnerable coastal bluffs and landslide areas.	A. Coastal Bluff and Landslide Mapping. Complete mapping of bluff and landslide areas along the remainder of the Maine coast for a uniform and state-wide GIS coverage.	MEMA \$ S	DOC/ MGS	Short Range	Use of maps for setbacks for new development in shoreland areas in coastal municipalities
2. Landslide assessment. Provide information for local regulation of high hazard landslide areas in interior Maine.	A. Inland Landslide Mapping. Map inland landslide risk areas.	\$ F, S	DOC/ MGS	Medium Range	Better management of high hazard landslide areas
	B. Policy Development. Write model language for avoiding unsound development in landslide-prone areas.	State Rules	DEP	Medium Range	Reduced exposure of development and infrastructure to future landslides
3. Beach monitoring. Enhance decision-making by providing better information on beaches and coastal sand dunes and their vulnerability to erosion.	A. Coastal Beach Mapping. Update geological boundaries of the coastal sand dune system in GIS and release the update via web products. Provide DEP with digital data.	Maine Coastal Program \$ F	DOC/ MGS	Short Range	Increased community resiliency, Enhanced storm protection through natural dunes, Expedited permitting
	B. Analysis. Calculate beach erosion rates and map erosion hazard areas for short- and long-term processes and sea level rise.	Maine Coastal Program \$F	DOC/ MGS	Short Range	Increased community resiliency, Enhanced storm protection through natural dunes, Expedited permitting
	C. Maine Beach Monitoring Project. Continue to monitor the change in beach profiles and dune edge along the southern and mid-coast regions.	Sea Grant \$ F, S, L	DOC/ MGS	Ongoing	Documentation of erosion trends for beach management and planning

WILDFIRES

Goals: Reduce loss of life, injury and property damage in Maine caused by wildfires.

Objectives	Actions	Resources	Agency	Time Frame	Results of Action
<p>1. Urban/Wild land interface. Provide for better management of the urban/ wild land interface.</p>	<p>A. Community assessments. Continue to offer community assessments in high fire incident areas, and continue to educate homeowners on steps they can take to reduce the risk of fire to their properties.</p>	<p>Existing Staff, \$ F, S</p>	<p>SPO and MFS</p>	<p>Long Range</p>	<p>Reduction of the possibility of residential losses due to wild fires</p>
<p>1. County plan updates. Provide guidance to county EMAs and others involved in updating county hazard mitigation plans.</p>	<p>A. Strategy guidance. As county plans are updated, encourage consideration of consistent strategies for wildfires including, but not limited to:</p> <ul style="list-style-type: none"> • Developing public education service announcements • Maintaining access to gated roads • Maintaining lists of special needs people who would be adversely impacted by wildfires • Developing and circulating lists of emergency shelters • Participating in hazard mitigation grant programs, particularly the 406 program, where applicable • Installing back-up power at all emergency facilities 	<p>Existing Staff \$ F, S, C, L</p>	<p>MEMA</p>	<p>Medium Range</p>	<p>Development of more effective county plans</p>

BLIGHT/INFESTATION

Goals: Reduce loss of life, injury and property damage in Maine caused by blight/infestation

Objectives	Actions	Resources	Agency	Time Frame	Results of Action
1. Management. Continue to provide for management of blight and infestation.	A. Monitoring. Continue to monitor blight and infestation throughout the State.	Existing Staff \$ S, C, L	MFS	Ongoing	Reduction of the possibility of losses due blight and infestation
	B. Action Plan. Work with officials of other State agencies, groups and organizations to develop and implement an action plan when warranted by particular outbreaks of blight and infestation.	Existing Staff \$ S	MFS	Ongoing	Reduction of the possibility of losses due blight and infestation

DROUGHT

Goals: Reduce loss of life, injury and property damage in Maine caused by drought

Objectives	Actions	Resources	Agency	Time Frame	Results of Action
1. Management. Continue to provide for management of drought	A. Monitoring. Continue to monitor drought conditions on an as-needed basis.	Existing Staff \$ S, L	Drought Advisory Comm.	As needed	Guidance to Governor and State on what to do in the event of another drought
	B. Action Plan. Advise the Governor, as needed, on emergency actions the Governor can take to lessen the impacts of drought.	Existing Staff \$ S	Drought Advisory Comm.	As needed	Guidance to Governor and State on what to do in the event of another drought

EARTHQUAKE

Goals: Reduce loss of life, injury and property damage in Maine caused by earthquake

Objectives	Actions	Resources	Agency	Time Frame	Results of Action
1. Management. Continue to provide for management of earthquakes.	A. Monitoring. Continue instrumental monitoring of earthquake occurrences and collection of intensity reports.	Existing Staff \$ F, S, L	MGS	Ongoing	Compilation and analysis of data base on earthquake occurrences and effects
	B. Emergency response. In the event of a large earthquake, mobilize the State's emergency response system.	Existing Staff \$ F, S, C, L	MEMA	As needed	Emergency response, including assistance to most severely affected populations
	C. Communication. Communicate with regional seismologists to gather information. Continue to educate and inform the public and other State and local agencies.	Existing Staff \$ S	DOC/ MGS	Ongoing	Guidance to private and public decision-makers

Priorities

Each of the preceding goals, objectives and actions were analyzed, evaluated and prioritized by the Hazard Mitigation Team using the following criteria:

- Population benefited
- Environmental soundness
- Probability of funding
- Technical feasibility for implementation
- Improved information for better hazard mitigation

The criteria table that was used to evaluate and prioritize the preceding actions is shown below. The Benefit to Cost Ratio category used in the 2004 Plan was dropped because many of the actions are not project-specific and cannot be analyzed using traditional benefit/cost techniques. Conversely, the category relating to better information for hazard mitigation has been added because it is highly relevant to the action matrix.

MITIGATION ACTION CRITERIA TABLE

Criteria Category	4 Points	3 Points	2 Points	1 Point	0 Points
Population Benefited	Over 1 Million	500,000 to 999,999	100,000 to 499,999	10,000 to 99,999	1 – 9,999
Environmental Soundness	Greatly improves the environment	Small improvement to environment	Neutral impact to environment	Small impact to environment	Causes harm to environment
Probability of Funding	Funds are already available	Grants with matching funds required	Requires one year investment	Requires long term investment	No chance of funding
Technical Feasibility	Very easy to implement	With effort, can put into place in 1 year	Requires regulatory changes only	Requires statutory changes	No chance of implementation
Information for Better Management	Greatly improves info for better management	Small improvement in info for better mgt	Public service information only	Information for small # of people	No improvement in info for better mgt
Cost Effectiveness	Highly Cost Effective	Moderately Cost Effective	Somewhat Cost Effective	Possibly Cost Effective	Unknown, or Not Cost Effective

The criteria points worksheet used to evaluate each of the actions is shown on the next page.

MITIGATION ACTIONS – CRITERIA POINTS WORKSHEET

Actions	Pop. Ben.	Envir. Sound.	Prob. Fund.	Tech. Feas.	Better Info.	Cost Effect.	Total Points
Administration							
1A 406 program education	4	2	4	4	4	4	22
1B 406 program - project identification	4	2	4	4	4	4	22
2A Plan integration	4	2	3	3	3	4	19
2B County plan updates	4	2	3	3	3	4	19
2C Standardization	4	2	3	4	4	4	21
2D State plan update	4	2	3	4	4	4	21
3A MEMA website	4	2	4	4	4	4	22
3B Community outreach	4	2	4	3	2	4	19
3C Workshops	4	2	4	3	4	4	21
3D Open houses, public info	0	2	4	4	4	4	18
3E Early warning systems	4	2	3	3	4	4	20
4A Additional staff	4	3	1	4	4	4	20
4B Prioritization MEMA staff	4	2	4	4	4	4	22
5A Mitigation committee	4	3	4	4	4	4	23
5B Hazard additions to GIS system	4	4	3	3	4	4	22
5C Potential loss data, State facilities	4	2	3	3	4	3	19
6A Best practices manual	4	4	3	3	4	3	21
6B Administration Plan	4	2	4	4	4	3	21
Flooding							
1A Workshops on geo-synthetics	4	4	3	3	4	4	22
2A Map modernization	3	4	4	4	4	4	23
2B Coastal LIDAR maps	3	4	3	4	4	4	22
3A Monitor sea level rise	4	4	3	4	4	4	23
4A Monitor watershed development	4	3	2	3	3	3	18
4B Watershed recommendations	3	3	3	3	2	3	17
5A GIS mapping of dams	1	2	2	3	1	2	11
6A County plan updates	4	3	3	3	3	3	19
Winter Storms							
1A County plan updates	4	3	3	3	3	3	19
Summer Storms/Hurricanes							
1A Flood plain mgt recommendations	1	2	3	3	3	2	14
1B DEP project review	1	3	3	3	3	2	15
2A County plan updates	4	3	3	3	3	3	19

Actions	Pop. Ben.	Envir. Sound.	Prob. Fund.	Tech. Feas.	Better Info.	Cost Effect.	Total Points
Erosion/Landslides							
1A Coastal bluff and landslide mapping	2	3	3	3	4	4	19
2A Inland landslide mapping	2	3	1	3	4	4	17
2B Policy development	1	3	4	3	3	4	18
3A Coastal beach mapping	1	2	4	3	4	4	18
3B Analysis	1	2	4	3	4	4	18
3C Maine Beach Monitoring Project	1	2	4	3	4	4	18
Wildfires							
1A Community assessments	1	2	3	3	1	4	14
2. County plan updates	4	3	3	3	3	3	19
Blight/Infestation							
1A Continue monitoring	4	2	3	3	4	4	20
1B Action plan when needed	4	0	2	3	0	3	12
Drought							
1A Continue monitoring	4	2	3	3	4	4	20
1B Action plan when needed	4	0	2	3	0	3	12
Earthquake							
1A Continue monitoring	4	2	3	3	4	4	20
1B Emergency response	4	0	2	3	0	3	12
1C Communication	4	2	4	4	4	4	22

Actions and Strategies Contained in County, Local and University System Plans

This Plan reflects the priorities and thinking that went into the preparation of 16 county plans and the University of Maine System plan, in large part because of MEMA's extensive involvement with the planning processes of these various jurisdictions. Inclusion in this Plan of all of the goals, objective, strategies and recommended projects from these plans would very cumbersome and redundant. Copies of these plans are on file with MEMA and some are available on line on county websites.