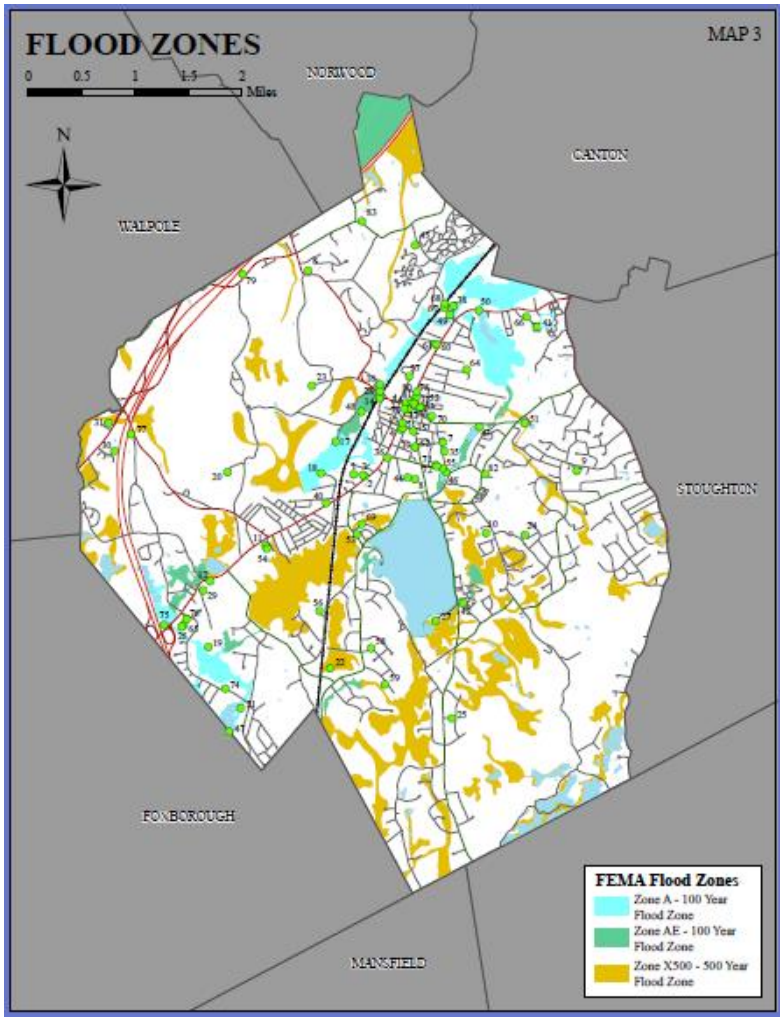
# TOWN OF SHARON

# HAZARD MITIGATION PLAN




MAPC
METROPOLITAN AREA PLANNING COUNCIL

**Metropolitan Area Planning Council**

**Adopted by the town of Sharon**

**July 6, 2010**

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## ACKNOWLEDGEMENTS AND CREDITS

This plan was prepared for the Town of Concord by the Metropolitan Area Planning Council (MAPC) under the direction of the Massachusetts Emergency Management Agency (MEMA) and the Massachusetts Department of Conservation and Recreation (DCR). The plan was funded by the Federal Emergency Management Agency's (FEMA) Pre-Disaster Mitigation (PDM) Grant Program.

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# I. INTRODUCTION

## Planning Requirements under the Federal Disaster Mitigation Act

The Federal Disaster Mitigation Act, passed in 2000, requires that after November 1 2004, all municipalities that wish to continue to be eligible to receive Federal Emergency Management Agency (FEMA) funding for hazard mitigation grants, must adopt a local multi-hazard mitigation plan. This planning requirement does not affect disaster assistance funding.

Massachusetts has taken a regional approach and has encouraged the regional planning agencies to apply for grants to prepare plans for groups of their member communities. The Metropolitan Area Planning Council (MAPC) received a grant from the Federal Emergency Management Agency (FEMA) under the Pre-Disaster Mitigation (PDM) Program, to assist the Town of Sharon and other Metro South/West communities to develop their local Hazard Mitigation Plans. The local Hazard Mitigation Plans produced under this grant are designed to meet the requirements of the Disaster Mitigation Act for each community.

In order to address multijurisdictional and regional issues, the participating municipalities were afforded the opportunity to meet with their neighboring communities during plan development, and MAPC has also produced a regional document that summarizes the issues and recommendations for the Metro South/West communities.

## What is Hazard Mitigation?

Natural hazard mitigation planning is the process of figuring out how to reduce or eliminate the loss of life and property damage resulting from natural hazards such as floods, earthquakes and hurricanes. Hazard mitigation means to permanently reduce or alleviate the losses of life, injuries and property damage resulting from natural hazards through long-term strategies. These long-term strategies can include planning, policy changes, programs, projects and other activities.

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## II. COMMUNITY PROFILE

Sharon is a growing town of approximately 17,000 people midway between Boston, Massachusetts and Providence Rhode Island. An active network of civic organizations, shared appreciation of the diversity of its population and a cherished history make Sharon a vibrant community.
The community spirit of Sharon residents was evident during a 1993 Town Meeting vote in support of a new school addition. Despite the burden the new school addition would represent for taxpayers, townspeople of all ages voted overwhelmingly in favor of the proposal. Additionally, the cohesiveness of the community is balanced by the town's openness to newcomers.

It is a community where a local Rabbi was a leading force in helping to welcome the new Islamic Center of New England, when it first opened in the 1990s. The community also has a long history of supporting the cross-educational METCO program, which brings inner city students from Boston out to suburban school systems to learn and grow.
Years ago at the local train station a sign hung that read, "Sharon, a nice place to live because it's naturally beautiful." The sign is gone now, but the town remains a place of natural beauty.

Sharon is the home of the Massachusetts Audubon Society's first wildlife sanctuary, the 350-acre Lake Massapoag, as well as a portion of Borderland State Park.

Sharon is bordered by Norwood to the north, Canton on the northeast, Stoughton on the east, Easton on the southeast, Mansfield on the south, Foxborough on the west and Walpole on the west and northwest. It is 9-miles west of Brockton, 19 miles southwest of Boston and 208 miles from New York City.

The town is governed by a three-member Board of selectmen with a Town Administrator and Open Town Meeting form of government. Sharon was incorporated in 1765.

(This narrative was written with information provided by the community and is taken in part from the Community Profile on the website maintained by the Department of Housing and Community Development).

**Table 1**
**Sharon Characteristics from 2000 Census**

Population = 17,408
- 7.0 % are under age 5
- 10.0 % are over age 65
- 0.4 % live in group quarters

Number of Housing Units = 6,026
- 10.0 % are renter-occupied housing units

Source: 2000 Census.

The Town of Sharon has several unique characteristics to keep in mind while planning for natural hazards:

- Flooding in the town is not a significant threat to lives or property. However, the town does have some problems with water inundation during high rain and storm events and during the spring snowmelt season.
- Another defining characteristic of the town are its tree-lined streets. Although these trees are vulnerable to high winds and ice storms, they are a tradeoff the town is willing to have.
- The town has proactive municipal officials that frequently share information and coordinate on a regular basis. An example of this was the data collection sessions for this PDM plan, at which representatives of several town departments were present.
- Sharon is home to historic structures and sites that are irreplaceable and bring economic value to the town.
- Sharon contains several major roadways that provide emergency routes for evacuation and for routes to medical facilities.
- Sharon has some bridge crossings and roadways that could be at risk in the event of flooding.
- Sharon would be a good candidate for flood-related grants due to the potential impact to property, transportation emergency routes, economic/historic resources, and the ability to solve the flooding problems through structural measures such as culvert upgrades, dam and bridge upgrades or flood proofing. The cost-benefit analysis would likely be in the town's favor.
- Much of the critical infrastructure in the town is located in clusters, often near areas of floodplain. These facilities are therefore at higher risk during natural hazards.

## Existing Land Use

The most recent land use statistics available from the state are from 1999 aerial photography. Table 2 breaks the town into 21 land use category. The table shows the acreage of each land use category and the percentage of land area in Sharon in each category. Open Land includes areas with abandoned agriculture, power lines or areas devoid of vegetation. Urban Open Land includes undeveloped land and protected green space.

**Table 2**
**Existing Land Use, Sharon, 1999**

| Land Use | Acres | % of Town |
|---|---|---|
| Cropland | 302.66 | 1.94 |
| Pasture | 104.88 | 0.67 |
| Forest | 8,025.24 | 51.36 |
| Non-forested Wetlands | 360.94 | 2.31 |
| Mining | 14.22 | 0.09 |
| Open Land | 465.80 | 2.98 |
| Participatory Recreation | 361.40 | 2.31 |
| Spectator Recreation | 0 | 0 |
| Water Recreation | 11.98 | 0.08 |
| Multi-family Residential | 103.06 | 0.66 |
| High Density Residential (less than ¼ acre lots) | 0 | 0 |
| Medium Density Residential (¼ – ½ acre lots) | 2,646.83 | 16.94 |
| Low Density Residential (Larger than ½ acre lots) | 1851.87 | 11.85 |
| Salt Water Wetlands | 0.00 | 0.00 |
| Commercial | 64.04 | 0.41 |
| Industrial | 90.81 | 0.58 |
| Urban Open | 238.20 | 1.52 |
| Transportation | 373.27 | 2.39 |
| Waste Disposal | 0 | 0 |
| Water | 581.63 | 3.72 |
| Woody Perennials | 29.00 | 0.19 |
| *Total* | ***15,625.87*** | |

For more information on land use categories, see www.mass.gov/mgis/lus.htm.

## Potential Future Land Use

In 2000, MAPC, under contract to the Executive Office of Environmental Affairs, prepared a buildout analysis for every community in the Boston region. A buildout analysis is a tool to help communities understand the potential impacts of future growth

that might occur given the amount of developable land remaining and how that land is zoned.

The buildout is based on available land within each zoning district and it estimates the number of additional housing units and commercial development that could be accommodated. Generally, the projections account only for as-of-right development. The results of the 2000 Census were not released when MAPC performed the analyses.

**Table 3: Buildout Impacts in Sharon, MAPC Analysis**

| | |
|---|---|
| Developable Land Area (acres) | 2,522 |
| Additional Residents | 4,115 |
| Additional K-12 Students | 814 |
| Additional Residential Units | 1,480 |
| Additional Commercial/Industrial (sq. ft.) | 2,164,682 |
| Additional Roadway at Buildout (miles) | 27 |

While these statistics give an idea of how Sharon could grow, MAPC consulted with town staff to provide a more realistic picture of future development based on the town's recent comprehensive planning efforts and current trends and projects. The potential future development and redevelopment areas are shown on Map 2, "Potential Development" and are described below. The letters refer to those on Map 2.

A) Known as Avalon, this development on Hill Road backs up to the town line with Walpole and Norwood and features 156 units of rental apartments
B) Sharon Commons a 500,000 square foot mixed use development with retail and approximately 128 units of residential space. The project is not yet approved and there is some question as to whether the residential space will be rental space or condominiums. The site starts at South Walpole Street near the I-95 overpass and runs south to South Main Street. Portions of the site are within the FEMA 100-year flood plain, but town officials noted that an existing, adjacent development has been within the same flood plain for years and there has been no flooding.
C) Brickstone Development is an age-qualified assisted living development with assisted living units in a mix of high-rise and mid-rise buildings. The site is located in the southeastern corner of the town near Borderland State Park off Mountain Street. Current proposal is for six eight-story buildings (774) as the tallest structures on the site.
D) Residences at Old Post Road, this is another housing development to the south of the proposed 40B project on Old Post Road. The proposal on this site has been approved for 48 units.
E) Bay Road, located bear the Eisenhower Drive Extension, is a planned development of eight single-family homes at the town's eastern most point, near the border with Stoughton. The site is located partially within the 500-year flood plain and is adjacent to Dry Pond. This project has been completed.

F) Hunter's Ridge is located off North Main Street, between Huntington Avenue and Lantern Avenue. This site includes a proposed 50-units of single family housing. Currently, the project has stalled due to a bankruptcy filing by the developer.
G) Off of Route 1 – Old Post Road, at High Plain Street, this site is a potential hotel development that could cross the Sharon/Walpole line. The access to the site would likely be through Walpole, but the project is on the back burner because of the current economic climate.
H) Route 27 (Norwood Street), known as Pine Woods, this is a potential 40B project with approximately 100 units of single family housing.
I) Herb Chamber Lexus Dealer on Route 1 has just received its occupancy permit from the town. This project has been completed.
J) The town's former Wilber School at the corner of Chestnut and South Main Streets is proposed to become 79 units of rental apartments with a mix of one and two bedrooms. This project is underway.

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# III. PUBLIC PARTICIPATION

Public participation occurred primarily at two levels: the Metro Boston South/West Hazard Mitigation Community Planning Team (regional committee) and the Sharon Multiple Hazard Community Planning Team (local committee). In addition, the town held one public meeting to present the plan and solicit input.

**Sharon's Participation in the Regional Committee**

In April 2007, a letter was sent notifying the communities of the first meeting of the Metro Boston South/West Regional Committee and requesting that the Chief Elected Official designate two municipal employees and/or officials to represent the community. The following individual was appointed to represent Sharon on the regional committee:

April Forsman GIS Analyst

The Metro Boston South/West Regional Committee met on the following dates:

April 3, 2007
December 11, 2007
June 18, 2008

Agendas from these meetings are located in Appendix B.

**The Local Multiple Hazard Community Planning Team**

In addition to the regional committee meetings, MAPC worked with the local community representatives to organize a local Multiple Hazard Community Planning Team for Sharon (local committee). MAPC briefed the local representatives as to the desired composition of that team as well as the need for representation from the business community and citizens at large.

**The Local Multiple Hazard Community Planning Team Meetings**

On December 12, 2007 MAPC conducted the first meeting of the Sharon Local Committee. The meeting was organized by GIS Analyst April Forsman and included Public Works Director Eric Hooper, Deputy Fire Chief Steve Cummings, Building Inspector Joseph Kent, Town Engineer Peter O'Cain and Joseph Domelowicz Jr. of MAPC. The purpose of this meeting was to identify local areas of concern, and developable land within the town. Additional meetings were held to review existing mitigation measures, develop hazard mitigation goals and to begin the discussion of potential mitigation measures. The group at the second planning session, on January 31, 2008 included GIS Analyst Forsman and Building Inspector Kent. A third meeting was held with Deputy Fire Chief Cummings on April 1, 2008.

**Table 4: Attendance at the Sharon Local Multiple Hazard Community Planning Team Meetings**

| |
|---|
| December 12, 2007 |
| April Forsman, GIS Analyst/Planner |
| Eric Hooper, Public Works Director |
| Steve Cummings, Deputy Fire Chief |
| Joe Kent, Building Inspector/Code Enforcement |
| Peter O'Cain, Town Engineer |
| |
| January 31, 2008 |
| April Forsman, GIS Analyst/Planner |
| Joe Kent, Building Inspector/Code Enforcement |
| |
| April 1, 2008 |
| Steve Cummings, Deputy Fire Chief |

## Public Meeting

The town held a public meeting on May 26, 2009 at the Sharon Town Hall to introduce the plan to the public. Notice of the meeting was posted at Town Hall and was publicized as a regular Selectmen's meeting. In addition, the meeting was broadcast on the Sharon local cable access television station. MAPC presented an overview of the planning process and priority mitigation strategies to attendees. MAPC then edited the plan based on the comments at the meeting. The attendance list for the meeting is below.

**Table 5: Attendance at the May 26, 2009 Board of Selectmen's Meeting**

| |
|---|
| Selectmen Chairman William A. Heitin |
| Selectman Richard A. powell |
| Selectman Walter Roach |
| Town Administrator Benjamin E. Puritz |
| Roni Thaler |
| Joseph Domelowicz, MAPC |
| Martin Pillsbury, MAPC |

# IV. OVERVIEW OF HAZARDS AND VULNERABILITIES

This section provides a general overview of how a number of natural hazards impact Sharon. The next section provides more detail about impacts at specific locations and existing mitigation efforts.

## Overview of Hazards and Impacts

The 2004 Massachusetts Hazard Mitigation Plan provides an overview of natural hazards in Massachusetts. It indicates that Massachusetts is subject to the following natural hazards (listed in order of frequency): floods, heavy rainstorms, nor'easters, coastal erosion, hurricanes, tornadoes, urban and wildfires, drought and earthquakes.

Table 6 summarizes the hazard risks for the state and notes where risks in Sharon differ from the state assessment. The state analysis takes into account the frequency of the hazard, historical records and variations in land use. An explanation of the definitions used can be found at the end of the table. Table 7 lists those federal disaster and emergency declarations for Norfolk County.

**Table 6: Frequency and Severity of Natural Hazards in the State**

| Hazard | Frequency in State | Severity in State | Issues in Sharon |
|---|---|---|---|
| Flood | High | Serious to extensive | Lower than the state |
| Dam Failure | Low | Extensive | Same as state |
| Hurricanes | Medium | Extensive to catastrophic | Same as state |
| Severe Storms (wind, hail, etc) | Medium | Serious | Same as state |
| Tornadoes | Medium | Extensive - catastrophic | Not a major issue in Sharon |
| Winter Storms | High | Serious | Same as state |
| Earthquakes | Low | Catastrophic | Not a major issue in Sharon |
| Landslides | Low | Minor | Not a major issue in Sharon |
| Brush Fires | Medium | Serious | Not a major issue in Sharon |

**Definitions Used in the Commonwealth of Massachusetts State Hazard Mitigation Plan**

Frequency
- Very Low Frequency: Events that occur less frequently than once in 1,000 years (less than 0.1% per year).
- Low Frequency: Events that occur from once in 100 years to once in 1,000 years (0.1% to 1% per year).
- Medium Frequency: Events that occur from once in 10 years to once in 100 years (1% to 10% per year).
- High Frequency: Events that occur more frequently than once in 10 years (greater than 10% per year).

Severity
- Minor: Limited and scattered property damage; no damage to public infrastructure (roads, bridges, trains, airports, public parks, etc.); contained geographic area (i.e., 1 or 2 communities); essential services (utilities, hospitals, schools, etc.) not interrupted; no injuries or fatalities.
- Serious: Scattered major property damage (more than 50% destroyed); some minor infrastructure damage; wider geographic area (several communities); essential services are briefly interrupted; some injuries and/or fatalities.
- Extensive: Consistent major property damage; major damage to public infrastructure (up to several days for repairs); essential services are interrupted from several hours to several days; many injuries and fatalities.
- Catastrophic: Property and public infrastructure destroyed; essential services stopped, thousands of injuries and fatalities.

**Table 7: Disaster and Emergency Declarations for Norfolk County**

| ID Number | Type | Date |
|---|---|---|
| 1701 | Severe Storms and Inland and Coastal Flooding | April 15-25, 2007 |
| 1642 | Severe storms, flooding | May 12, 2006 (continuing) |
| 1614 | Severe storms, flooding, landslides, mudslides | October 7 - 16, 2005 |
| 1512 | Severe winter storms | April 1, 2004 through April 30, 2004 |
| 3191 | Snowstorm | December 5 – 6, 2003 |
| 3175 | Snowstorm | February 17-18, 2003 |
| 3165 | Blizzard | March 2001 |
| 1364 | Severe storms, flooding | March 5, 2001 through April 16, 2001 |
| 1224 | Heavy rain, flooding | June 13 to July 6, 1998 |
| 1142 | Heavy rain, flooding | October 1996 |
| 1090 | Blizzard | January 1996 |
| 3103 | Blizzard | March 1993 |
| 920 | Storm | October 1991 |
| 914 | Hurricane (Bob) | August 1991 |

Sources: www.fema.gov and *State Hazard Mitigation Plan*, MEMA and DCR, October 2004.

## Flood Hazards

Flooding and potential for brush fires were the most prevalent serious natural hazards identified by local officials in Sharon. Flooding is caused by hurricanes, nor'easters, severe rainstorms and thunderstorms.

### Regionally Significant Storms

There have been a number of major rain storms that have resulted in significant flooding in northeastern Massachusetts over the last fifty years. Significant storms include:

- August 1954
- March 1968
- January 1979
- April 1987
- October 1991 ("The Perfect Storm")
- October 1996
- June 1998
- March 2001
- April 2004
- May 2006
- April 2007

Through October 2007, Sharon property owners filed a total of 6 losses with the National Flood Insurance Program. Of these, 4 have been paid for a total of just over $4,994 FEMA maintains a database on these flood insurance policies and claims, which can be found at www.fema.gov/business/nfip/statistics/pcstat.shtm. The following table provides further detail from the database:

**Table 8: Flood Insurance Policies and Claims in Sharon (as of October 31, 2007)**

| | |
|---|---|
| Flood insurance policies in force | 29 |
| Coverage amount of flood insurance policies | $7,065,300 |
| Premiums paid | $15,527 |
| Total losses (all losses submitted regardless of the status) | 27 |
| Closed losses (Losses that have been paid) | 17 |
| Open losses (Losses that have not been paid in full) | 0 |
| CWOP losses ( Losses that have been closed without payment) | 10 |
| Total payments (Total amount paid on losses) | $63,082.26 |

There are no repetitive loss structures in Sharon. As defined by the National Flood Insurance Program (NFIP), a repetitive loss property is any property which the NFIP has paid two or more flood claims of $1,000 or more in any given 10-year period since 1978. For more information on repetitive losses see http://www.fema.gov/nfip/replps.shtm.

**Wind-Related Hazards**

Wind-related hazards include hurricanes and tornadoes as well as high winds during severe rainstorms and thunderstorms. The region has been impacted by hurricanes throughout its history, starting with the Great Colonial Hurricane of 1635. The eye of one hurricane passed right through Boston in 1944. Between 1858 and 2000, Massachusetts has experienced approximately 32 tropical storms, nine Category 1 hurricanes, five Category 2 hurricanes and one Category 3 hurricane. This equates to a frequency of once every six years. Hurricanes that have occurred in the region include[1]:

- Great New England Hurricane* September 21, 1938
- Great Atlantic Hurricane* September 14-15, 1944
- Hurricane Doug September 11-12, 1950
- Hurricane Carol* August 31, 1954
- Hurricane Edna* September 11, 1954
- Hurricane Hazel October 15, 1954
- Hurricane Diane August 17-19, 1955
- Hurricane Donna September 12, 1960
- Hurricane Gloria September 27, 1985
- Hurricane Bob August 19, 1991

*Category 3.

[1] Information on storms provided by Cambridge Emergency Management Department. It is assumed that these same storms affected eastern Massachusetts, including Sharon.

Not included in this list is the Portland Gale of November 26-28, 1898, which may well have been the most damaging coastal storm in Massachusetts history.

As shown in Map 5 in Appendix A, two tropical storms have tracked through Sharon, both in 1888. A hurricane or storm track is the line that delineates the path of the eye of a hurricane or tropical storm. The town does experience the impacts of the wind and rain of hurricanes and tropical storms regardless of whether the storm track passed through the town. The hazard mapping also indicates that the 100 year wind speed is 110 miles per hour. Two tornados have been recorded within the town.

Winds during other storms also can cause damage. Downed trees and limbs can be a problem due to weather conditions such as strong wind or heavy snow and ice. Tree limbs can down power and communication lines and impact major roadways.

### Winter-Related Hazards

In Massachusetts, northeast coastal storms known as nor'easters, occur one to two times per year. Winter storms are a combination of hazards because they often involve wind, ice, flooding and snow fall. The average annual snowfall for most of the town is 36 - 48 inches.

As expected, a number of public safety issues can arise during snow storms. Impassible streets are a challenge for emergency vehicles and affect residents and employers. Snow-covered sidewalks force people to walk in streets, which are already less safe due to snow, slush, puddles and ice. Large piles of snow can also block sight lines for drivers, particularly at intersections. Not all residents are able to clear their properties, especially the elderly. Refreezing of melting snow can cause dangerous roadway conditions.

## Fire-Related Hazards

Brush fires and drought fall under the category of fire-related natural hazards.

According to the State Plan, the most recent severe drought in the state occurred from 2001 to 2003 and other multi-year droughts occurred in 1879-83, 1908-12 , 1929-32, 1939-44, 1961-69, and 1980- 83.

Recent wild fires in the state, according to the state plan, affected 2,600 acres in 2002, and 1,600 acres in 2003. Approximately 90% of wild fires in the past 10 years were caused by humans and 10% by lightning. In addition to obvious threats to humans and property, because wildfires burn ground vegetation and ground cover, subsequent rains can worsen erosion.

According to local officials, natural fires in Sharon are a significant issue. There are generally fewer than 20 brush fires annually townwide and much of that inactivity was

attributed to successful public education campaigns about fire safety in the wooded areas of town. Less than 1% of the fires result in any significant property damage and there have been no deaths as a result of brush fires. The areas with the highest incidence of brush fires are F. Gilbert State Forest, wooded areas adjacent to train tracks in the town, and other undeveloped wooded areas adjacent to local residential areas. It is important, however, to remember that fire can also be a result of other events such as from the aftermath of an earthquake.

**Geologic Hazards**

Geologic hazards include earthquakes, landslides, sinkholes, subsidence, and unstable soils such as fill, peat and clay.

*Earthquakes*

According to the State Hazard Mitigation Plan, New England experiences an average of five earthquakes per year. From 1627 to 1989, 316 earthquakes were recorded in Massachusetts. Most have originated from the La Malbaie fault in Quebec or from the Cape Anne fault located off the coast of Rockport. The region has experienced larger earthquakes, of magnitude 6.0 to 6.5 in 1727 and 1755. Other notable earthquakes occurred here in 1638 and 1663 (Tufts University).

As shown on Map 4 in Appendix A, no earthquake epicenters have been recorded within Sharon. Although new construction under the most recent building codes generally will be built to seismic standards, much of the development in the town pre-dates the most recent building code.

Earthquakes can result in many impacts beyond the obvious structural impacts. Buildings may suffer structural damage that is not readily apparent. Earthquakes can cause major damage to roadways, making emergency response difficult. Water lines and gas lines can break, causing flooding and fires. Equipment in buildings can be vulnerable. For example, a hospital may be structurally engineered to withstand an earthquake, but if the equipment inside the building is not properly secured, the operations at the hospital could be severely impacted during an earthquake. Earthquakes can also trigger landslides.

The State Plan includes a map of Peak Ground Acceleration (PGA). The Plan explains that:

> "PGA measures the strength of a potential earthquake in terms of the peak acceleration of ground movement. The potential damages due to an earthquake increase as the acceleration of ground movement increases. Peak ground acceleration is expressed as a percentage of a known acceleration, the acceleration of gravity…Therefore, the geographic areas with the highest PGA have the highest potential for damages during an earthquake."

*Landslides*

Landslides can result from human activities that destabilize an area or can occur as a secondary impact from another natural hazard such as flooding. In addition to structural damage to buildings and the blockage of transportation corridors, landslides can lead to sedimentation of water bodies.

The entire town of Sharon has been classified as having a low risk for landslides.

**Overarching Impacts from Natural Hazards**

A number of impacts can occur from any of the above-mentioned natural hazards. Most common and most visible are electrical outages and closures of roadways. This can occur due to high winds that knock down wires and limbs, from heavy snow falls that take time to clear, or from a landslide that carries large boulders or soil onto a roadway. In addition to causing inconveniences, these impacts can result in economic losses to local businesses that cannot function without electricity, or their customers or employees cannot get to the business. Minimizing vulnerability to natural hazards can help to reduce these and other impacts to people's safety, health, and overall economic viability.

## Critical Facilities Infrastructure in Hazard Areas

Maps 1-7 in Appendix A and Table 9 list critical infrastructure in Sharon. Critical infrastructure includes those facilities that perform an important function during a natural disaster such as shelters and emergency operation centers. Critical infrastructure also includes locations that house sensitive populations, such as schools or nursing homes. There are other critical facilities and infrastructure that may not be mapped because the information was not available. These may include utilities, communication facilities, or transportation corridors. The purpose of mapping the natural hazards and critical facilities is to present an overview of hazards in the community and how they relate to critical facilities.

Much of the Critical infrastructure in Sharon is clustered near the center of town and in Southwest and Northeastern Sharon. All of these clusters are located in or near floodplain areas. Few of the critical infrastructure facilities are located in the 500-year FEMA floodplain (X500), but several facilities are located within the 100-year floodplain (AE). Several others are located within locally-identified areas of flooding.

Landslide risks across the town are low, and the table below indicates that.

The entire town has snow accumulation averages of 36.1 to 48 inches and therefore most critical infrastructure sites are classified as being at a high risk for annual snow accumulation in that range. However, all areas of town have average wind speeds which

are uniform at 110 mph throughout the town, so all sites are classified at the same level of risk with regard to wind-related hazards.

Critical sites the town staff has emphasized that are particularly important and vulnerable include:

- Underground Storage Tanks (USTs) in or near flooding areas
- Dams
- Water/Sewer pumping stations in or near flooding areas
- Communications towers and centers
- Hazardous materials storage sites
- Electrical substations

The breakdown of the critical sites and how they relate to selected hazards follows in Table 9.

**Table 9: Relationship of Critical Facilities and Selected Hazard Types in Sharon**

| ID | Name | Type | FEMA Flood Zone | Locally-Identified Flood Area | Landslide Risk |
|---|---|---|---|---|---|
| 1 | Department of Public Works | DPW | No | No | No |
| 2 | Police Department | Police Station | No | No | No |
| 3 | Emergency Operations Center | EOC | No | No | No |
| 4 | Fire Department | Fire Station | No | No | No |
| 5 | Town Hall | Town Hall | No | No | No |
| 6 | Epoch Senior Care | Nursing Home | No | No | No |
| 7 | Cottage Street School | School | No | No | No |
| 8 | Sharon High School | School | No | No | No |
| 9 | East Elementary School | School | No | No | No |
| 10 | Sharon Junior High School | School | No | No | No |
| 11 | Sharon Heights Elementary School | School | No | No | No |
| 12 | Sharon Vetenary Clinic | School | No | No | No |
| 13 | CVS Pharmacy | Pharmacy | No | No | No |
| 14 | Sharon Commuter Rail Station | Transit | No | No | No |
| 15 | Beth Israel Deaconess Health Care | Medical | No | No | No |
| 16 | Well #4 | Water Supply | No | No | No |
| 17 | Well #2 | Water Supply | A | No | No |
| 18 | Well #3 | Water Supply | A | No | No |
| 19 | Well #5 | Water Supply | No | No | No |
| 20 | Moose Hill Water Tank | Water Tank | No | No | No |
| 21 | Well #7 | Water Supply | A | No | No |
| 22 | Well #6 | Water | X500 | No | No |

| ID | Name | Type | FEMA Flood Zone | Locally-Identified Flood Area | Landslide Risk |
|---|---|---|---|---|---|
| | | Supply | | | |
| 23 | Upland Road Water Tank | Water Tank | No | No | No |
| 24 | Hampton Road Water Tank | Water Tank | No | No | No |
| 25 | Massapoag Avenue Tank | Water Tank | No | No | No |
| 26 | Shaws Supermarket | Supermarket | No | No | No |
| 27 | Sharon Community Center | Municipal | No | No | No |
| 28 | Water Department Building | Municipal | No | No | No |
| 29 | Ward's Berry Farm | HazMat | No | No | No |
| 30 | George Melhado & Company | HazMat | No | School Meadow Brook at Commercial St. | No |
| 31 | Metal Bellows | HazMat | No | No | No |
| 32 | First Congressional Church | Place of Assembly | No | No | No |
| 33 | Saint John's Episcopal Church | Place of Assembly | No | No | No |
| 34 | Unitarian Church of Sharon | Place of Assembly | No | No | No |
| 35 | Our Lady of Sorrows | Place of Assembly | No | No | No |
| 36 | Evangelical Baptist Church | Place of Assembly | No | No | No |
| 37 | First Baptist Church | Place of Assembly | No | No | No |
| 38 | Temple Sinai of Sharon | Place of Assembly | No | No | No |
| 39 | Temple Israel | Place of Assembly | No | No | No |
| 40 | VFW Sharon Post | Place of Assembly | No | No | No |
| 41 | Stony Brook Court | Elderly Housing | No | No | No |
| 42 | Salvation Army Hillcrest Lodge | Shelter | No | No | No |
| 43 | Mann's Pond Dam | Dam | AE | No | No |
| 44 | Sharon High School Sewer Pump Station | Dam | No | No | No |
| 45 | MacIntosh Farms | Sewer | No | No | No |

| ID | Name | Type | FEMA Flood Zone | Locally-Identified Flood Area | Landslide Risk |
|---|---|---|---|---|---|
| | Sewer Pump Station | Pumping Station | | | |
| 46 | Hammershop Pond Dam | Dam | AE | No | No |
| 48 | Beaver Brook Dam | Dam | AE | No | No |
| 49 | Barney and Carey Lumber Company Dam | Dam | A | No | No |
| 50 | Carworks Pond Dam | Dam | A | No | No |
| 51 | Sharon Fish and Game Club Dam | Dam | X500 | No | No |
| 52 | Sharon Nursery and Day School | DayCare | No | No | No |
| 53 | DayCare | Day Care | No | No | No |
| 54 | Sharon Country Day School | Day Care | No | No | No |
| 55 | Henry George School | School | No | No | No |
| 56 | Islamic Academy of New England | School | No | No | No |
| 57 | Jewish Special Education Colabborative | School | No | No | No |
| 58 | League School of Boston | School | No | No | No |
| 59 | Bird's Nest PreSchool | DayCare | No | No | No |
| 60 | Chabad Center | School | No | No | No |
| 61 | Chabad Center | DayCare | No | No | No |
| 62 | Hertz Nursery School | Day Care | No | No | No |
| 63 | Creative Beginnings | Day Care | No | No | No |
| 64 | Striar Hebrew Academy | Day Care | No | No | No |
| 65 | Kindercare Learning Center | Day Care | No | No | No |
| 66 | Sharon Housing Authority | Elderly Housing | No | No | No |
| 67 | Pressure Reducer Station | Reducer | No | No | No |
| 68 | Canton Street Bridge (RR) | Bridge | No | No | No |

| ID | Name | Type | FEMA Flood Zone | Locally-Identified Flood Area | Landslide Risk |
|---|---|---|---|---|---|
| 69 | Temple Adath Sharon | Place of Assembly | No | No | No |
| 70 | Etz Chaim | Place of Assembly | No | No | No |
| 71 | Striar Hebrew Academy | DayCare | No | No | No |
| 72 | Young Israel Temple | Place of Assembly | No | No | No |
| 73 | U.S. Post Office | PO | No | No | No |
| 74 | Gavin's Pond Road Sewer Pump Station | Sewer Pumping Station | No | No | No |
| 75 | American Legion Hall | Place of Assembly | No | No | No |
| 76 | Rite Aid Pharmacy | Pharmacy | No | No | No |
| 77 | Sharon Congregation Jehovah's Witnesses | Place of Assembly | No | No | No |
| 78 | First Church of Christian Science | Place of Assembly | No | No | No |
| 79 | Victory Assembly of God Church | Place of Assembly | No | No | No |
| 80 | Sharon Library | Municipal | No | No | No |
| 81 | New England Telephone | Communications | No | No | No |
| 82 | Sharon Country Club | HazMat | No | No | No |
| 83 | Spring Valley Counrty Club | HazMat | No | Spring Valley Golf Course | No |

## Explanation of Columns in Table 9

*Column 1: ID #:* ID number which appears on the maps. See Appendix A.

*Column 2: Site Name:* Name of the site. If no name appears in this column, this information was not provided to MAPC by the community.

*Column 3: Site Type*: Type of site.

*Column 4: FEMA Flood Zone*: Risk of flooding. No entry in this column means that the site is not within any of the mapped risk zones on the Flood Insurance Rate Maps (FIRM). If there is an entry in this column, it indicates the type of flood zone as follows:

**Zone A** - Zone A is the flood insurance rate zone that corresponds to the 100-year floodplains that are determined in the Flood Insurance Study (FIS) by approximate methods. Because detailed hydraulic analyses are not performed for such areas, no BFEs (base flood elevations) or depths are shown within this zone. Mandatory flood insurance purchase requirements apply.

**Zone AE and A1-A30 -** Zones AE and A1-A30 are the flood insurance rate zones that correspond to the 100-year floodplains that are determined in the FIS by detailed methods. In most instances, BFEs derived from the detailed hydraulic analyses are shown at selected intervals within this zone. Mandatory flood insurance purchase requirements apply.

**Zones B, C, and X500 -** Zones B, C, and X are the flood insurance rate zones that correspond to areas outside of the 100-year floodplains, areas of 100-year sheet flow flooding where average depths are less than 1 foot, areas of 100-year stream flooding where the contributing drainage area is less than 1 square mile, or areas protected from the 100-year flood by levees. No BFEs or depths are shown within this zone.

**Zone VE -** Zone VE is the flood insurance rate zone that corresponds to the 100-year coastal floodplains that have additional hazards associated with storm waves. BFEs derived from the detailed hydraulic analyses are shown at selected intervals within this zone. Mandatory flood insurance purchase requirements apply

*Column 5: Locally-Identified Flood Area*: Whether the site is located within an area that was identified by town officials and staff as a localized area of flooding. These areas may or may correspond with FEMA flood zones.

*Column 6: Landslide Risk:* The degree of landslide risk for that site. This information came from NESEC. The landslide information shows areas with moderate susceptibility to landslides based on mapping of geological formations. This mapping is highly general in nature. For more information, refer to http://pubs.usgs.gov/pp/p1183/pp1183.html. If there is no entry, it indicates that the site is located in an area with little or no risk of landslides. The other two risk categories, low and moderate, indicate higher degrees of risk.

## Potential Damages to Existing Development

The purpose of the vulnerability assessment is to estimate the extent of potential damages from natural hazards of varying types and intensities. A vulnerability assessment and estimation of damages was performed for hurricanes, earthquakes and flooding. The methodology used for hurricanes and earthquakes was the HAZUS-MH software. The methodology for flooding was developed specifically to address the issue in many of the communities where flooding was not solely related to location within a floodplain.

### Introduction to HAZUS-MH

HAZUS-MH is a tool to help estimate potential damages from certain types of natural hazards. We used HAZUS to estimate losses from a hurricane and earthquake. We did not use HAZUS to estimate flooding damages, for reasons explained below. The following overview of the HAZUS-MH is taken from the FEMA website. For more information, go to http://www.fema.gov/plan/prevent/hazus/.

> "HAZUS-MH is a nationally applicable standardized methodology and software program that contains models for estimating potential losses from earthquakes, floods, and hurricane winds. HAZUS-MH was developed by the Federal Emergency Management Agency (FEMA) under contract with the National Institute of Building Sciences (NIBS). Loss estimates produced by HAZUS-MH are based on current scientific and engineering knowledge of the effects of hurricane winds, floods and earthquakes. Estimating losses is essential to decision-making at all levels of government, providing a basis for developing and evaluating mitigation plans and policies as well as emergency preparedness, response and recovery planning.
>
> HAZUS-MH uses state-of-the-art geographic information system (GIS) software to map and display and display hazard data and the results of damage and economic loss estimates for buildings and infrastructure. It also allows users to estimate the impacts of hurricane winds, floods and earthquakes on populations."

There are three modules included with the HAZUS-MH software: hurricane wind, flooding, and earthquakes. There are also three levels at which HAZUS-MH can be run. Level 1 uses national baseline data and is the quickest way to begin the risk assessment process. The analysis that follows was completed using Level 1 data.

Level 1 relies upon default data on building types, utilities, transportation, etc. from national databases as well as census data. While the databases include a wealth of information on the communities that are a part of this study, it does not capture all relevant information. In fact, the HAZUS training manual notes that the default data is "subject to a great deal of uncertainty."

However, for the purposes of this plan, the analysis is useful. This plan is attempting to only generally indicate the possible extent of damages due to certain types of natural disasters and allow for a comparison between different types of disasters. Therefore, this analysis should be considered a starting point to understanding potential damage from the hazard events. If interested, communities could build a more accurate database and further test disaster scenarios.

Table 10 displays estimated damages from category 2 and 4 hurricanes. Table 11 displays damages from an historic earthquake (5.0), and a stronger (5.7) earthquake.

**Estimated Damages from Hurricanes**

In order to assess damages from hurricanes, the HAZUS-MH hurricane module was used. For the purposes of this plan, Category 3 (Hurricane Gloria 1985) and a Category 4 (Hurricane Donna 1960) storms were chosen to illustrate damages. The reason is to present a "worst case scenario" that would help planners and emergency personnel evaluate the impacts of storms that might be more likely in the future as we enter into a period of more intense and more frequent storms. According to the State Hazard Mitigation Plan,. Between 1858 and 2000, there were 15 hurricanes: 60% were Category 1, 33% were Category 2 and 7 % were Category 3.

**Table 10. Estimated Damage in Sharon from a Category 2 or 4 Hurricane**

| | Cat. 2 | Cat 4* |
|---|---|---|
| **Building Characteristics** | | |
| Estimated total buildings | 5,677 | |
| Estimated total building replacement value (Year 2002 $) | $1,759,723,000 | |
| **General Building Damage** | | |
| # of buildings sustaining minor damage | 548 | 2,125 |
| # of buildings sustaining moderate damage | 51 | 887 |
| # of buildings sustaining severe damage | 1 | 213 |
| # of buildings destroyed | 1 | 159 |
| **Population Needs** | | |
| % of hospital beds available on day of event | 0 | 0 |
| # of households displaced | 9 | 317 |
| # of people seeking public shelter | 2 | 63 |
| **Debris** | 13,361 | 70,193 |
| Building debris generated (tons) | 1,336 | 16,846 |
| Tree debris generated (tons) | 12,025 | 53,347 |
| # of truckloads to clear building debris | 56 | 671 |
| **Value of Damages (Thousands of dollars)** | | |
| Total property damage | $12,393.76 | $190,531.13 |
| Total business interruption loss | $637.09 | $21,572.74 |

*No category 4 or 5 hurricanes have been recorded in New England. However, a Category 4 hurricane was included to help the communities understand the impacts of a hurricane beyond what has historically occurred in New England.

**Estimated Damages from Earthquakes**

The HAZUS earthquake module allows users to define different types of earthquakes and to input various parameters. The module is more useful where there is a great deal of data available on earthquakes. In New England, defining the parameters of a potential earthquake is much more difficult because there is little historical data. The earthquake module does offer the user the opportunity to select a number of historical earthquakes that occurred in Massachusetts. For the purposes of this plan two earthquakes were selected: an 1847 earthquake with a magnitude of 5.0 and an 1817 earthquake with a magnitude of 5.7.

**Table 11: Estimated Damage in Sharon from a Magnitude 5.0 and 5.7 Earthquake**

| | Magnitude 5.0 | Magnitude 5.7 |
|---|---|---|
| **Building Characteristics** | | |
| Estimated total number of buildings | 5,677 | |
| Estimated total building replacement value (Year 2002 $) | $1,759,723,000 | |
| **Building Damages** | | |
| # of buildings sustaining slight damage | 158 | 284 |
| # of buildings sustaining moderate damage | 25 | 51 |
| # of buildings sustaining extensive damage | 3 | 6 |
| # of buildings completely damaged | 0 | 1 |
| **Population Needs** | | |
| # of households displaced | 1 | 3 |
| # of people seeking public shelter | 0 | 0 |
| **Debris** | | |
| Building debris generated (tons) | 0 | 0 |
| # of truckloads to clear building debris | 0 | 0 |
| **Value of Damages (Millions of dollars)** | | |
| Total property damage | $16.67 | $10.69 |
| Total losses due to business interruption | $0.39 | $0.79 |

**Estimated Damages from Flooding**

MAPC did not use HAZUS-MH to estimate flood damages in Sharon. In addition to technical difficulties with the software, the riverine module is not a reliable indicator of flooding in areas where inadequate drainage systems, beaver activity, and increased impervious surfaces contribute to flooding even in areas outside of mapped flood zones. In lieu of using HAZUS, MAPC developed a methodology to predict flood damages.

Sharon is 24.13 square miles or 15,625.87 acres. Approximately 373 acres have been identified by local officials as areas of flooding. This amounts to 2.39% of the land area in Sharon. The number of structures in each flood area was estimated by applying the percentage of the total land area to the number of structures (5,677) in Sharon; the same number of structures used by HAZUS for the hurricane and earthquake calculations. HAZUS uses a value of $309,974 per structure for the building replacement value. This was used to calculate the total building replacement value in each of the flood areas. In areas where the actual number of structures is known, as indicated by an asterisk, the actually number of structures used instead of the estimate.

The calculations were done for a low estimate of 10% building damages and a high estimate of 50% as suggested in the FEMA September 2002 publication, "State and Local Mitigation Planning how-to guides". (Page 4-13). The range of estimates for flood damages is $1,487,875 - $7,439,376. These calculations are not based solely on location within the floodplain or a particular type of storm (i.e. 100 year flood). It should be noted that the Spring Valley Golf Club is not considered an area of potential growth at this time, thus the projection for losses at that site only reflects the one main building on the site. However, if in the future, the gold course is developed

**Table 12: Estimated Damages from Flooding in Sharon**

| ID | Flood Hazard Area | Approx Area (Acres) | % of Total Land Area in Foxboro | # of Struc-tures | Replacement Value | Low Estimate of Damages | High Estimate of Damages |
|---|---|---|---|---|---|---|---|
| 4 | Billings Street, crossing Massapoag Brook | 5.84 | 0.04 | 2 | $619,948 | $61,995 | $309,974 |
| 5 | Morse Street, south of Massapoag Lake | 25.57 | 0.16 | 9 | $2,789,766 | $278,977 | $1,394,883 |
| 6 | Morse Street, at Mountain Street | 6.52 | 0.04 | 2 | $619,948 | $61,995 | $309,974 |
| 7 | Edgehill at Dedham Street | 9.24 | 0.06 | 3 | $929,922 | $92,992 | $464,961 |
| 8 | Saw Mill Pond Road | 5.73 | 0.04 | 2 | $619,948 | $61,995 | $309,974 |
| 9 | Main Street, near Massapoag Brook | 1.87 | 0.01 | 1 | $309,974 | $30,997 | $154,987 |
| 13 | Spring Valley Golf Course | 240.73 | 1.54 | 1* | $309,974 | $30,997 | $154,987 |
| 15 | School Meadow Brook at Commercial St. | 77.80 | 0.50 | 28 | $86,79,272 | $867,927 | $4,339,636 |
| | **Total** | **373.31** | **2.385** | **48** | **$14,878,752** | **$1,487,875** | **$7,439,376** |

## Potential Impacts to Future Development

The Town of Sharon has identified a number of parcels where development has been proposed, is underway or is expected to occur in the future. Table 13 indicates where areas of likely future development may be located within or partially within a natural hazard area.

**Table 13: Relationship of Potential Development in Hazard Areas in Sharon**

| Parcel | Land Slide Risk | Flood Zone |
|---|---|---|
| Avalon on Hill Road - 156 rental apartment | Low | No |
| Sharon Commons - 450,000 s.f. mixed use | Low | 1.4814% in AE<br>28.6788% in A |
| Brickstone - age qualified with mix of units | Low | 2.8163% in X500 |
| Residences at Old Post - 40B project | Low | 6.0395% in X500 |
| Bay Road - single family | Low | 17.7242% in X500 |
| Hunter's Ridge - single family homes | Low | No |
| Old Post Road at High Plain Street - potential Hotel | Low | No |
| Pine Wood - 40B, single family | Low | No |
| Herb Chambers Lexus Auto Dealer | Low | No |
| Wilber School property - proposed apartments | Low | No |

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# V. HAZARDS AND EXISTING MITIGATION MEASURES

This section provides more detail on how certain natural hazards affect specific parts of Sharon. Existing mitigation measures are discussed under each hazard heading and existing mitigation measures for all natural hazards are compiled in Table 14.

## Flood-Related Hazards

### Overview of Town-Wide Flooding

As with most of eastern Massachusetts the natural hazard threat that is most prevalent in the town of Sharon, and therefore the focus of most of the town's hazard mitigation efforts is flooding. However, the town is also at significant risk of brush and forest fires, especially at Borderland State Park and in the areas surrounding high-tension wires and railroad tracks in town.

The western edge of the town of Sharon is bordered by the towns of Walpole and Foxborough, to the northwest is Walpole directly to the north Norwood and Canton and to the east is Stoughton. On the southeast are Easton and Brockton.

The town is impacted by several bodies of water, including but not limited to the Canoe River, Beaver Brook, Massapoag Brook, Massapoag Lake and several smaller lakes, ponds, brooks and streams. However, the Canoe River, Massapoag Brook and Massapoag Lake tend to have the largest impact on flooding, as do inadequate flood storage and under-sized drainage systems.

Virtually all of the 100-year and 500-year flood zones in town are located near major bodies of water, including those named above. However, in many of those zones the flood frequency is greater than the 100-year flood event. Though the flood zones have not been properly studied as a system, town officials believe that many of the town's more frequent flooding problems are related to insufficient or inoperable flood management structures, such as culverts, dams and drain pipes that are not large enough to quickly transport flood waters away from town streets and neighborhoods and toward the nearby wetlands.

Combined with the watershed from its neighboring towns to the north and west, the Sharon area can accumulate a great deal of water in a short amount of time during heavy rains, severe storms and in the spring season.

### *Existing Town-Wide Mitigation for Flood-Related Hazards*

*Participation in the National Flood Insurance Program (NFIP)* – FEMA maintains a database on flood insurance policies and claims. This database can be found on the FEMA website at http://www.fema.gov/business/nfip/statistics/pcstat.shtm

The reporting period covers through January 31, 2007. The following information is provided for the Town of Sharon.

*Street sweeping* – The Town of Sharon owns one street sweeper and each street in town is swept two to three times per year. Other downtown areas such as main business district can be swept more frequently as needed from May through September. Poor draining streets can also be swept as needed following rainstorms.

*Catch basin cleaning* – The Town of Sharon contracts to have catch basin cleaning done each year, with roughly one-third of the 5,200 catch basins in town being cleaned each year. The town's goal is to clean 1,600 catch basins per year.

*Roadway treatments* – The town uses a mixture of one part sand to one part salt for de-icing purposes. This is done to minimize the amount of sand that enters catch basins and streams. The town also uses a special low sodium mix near town wells to minimize the impact of sodium in Town drinking water wells.

*Zoning Regulations* – The town's zoning regulations include a section on Subdivisions Rules and Regulations, which contain a number of requirements that address flood hazard mitigation. Some of these provisions also relate to other hazards. The zoning by-law also includes provisions for Flood Hazard Areas, Ground Water Protection Districts, Site Plan Approval and Open Space Requirements. The town also has a Wetlands Protection regulation.

***Dam Failures***

Town Dam at Massapoag Brook (near Billings Street)
This site is considered a high severity, low frequency flood threat. In the event of a breach. Currently, the dam is considered to be in good condition by the town, but there are some minor, infrequent flooding problems that could be addressed with additional maintenance and stabilization, officials feel the occasional flooding problems could be alleviated and the future threat of a dam failure here could also be averted. More on this occasional flood hazard is included (4) below in the section dealing Site-Specific Flooding.

***Existing Dam Failure Mitigation Measures***

*The Comprehensive Emergency Management Plan* – The CEMP addresses dam safety. The Town is in the process of updating the CEMP.

*Permits required for construction* – State law requires a permit for the construction of any dam.

*DCR dam safety regulations* – All dams are subject to the Division of Conservation and Recreation's dam safety regulations.

### *Site-Specific Flooding*

The following areas were identified by Town staff as areas that have experienced more significant flooding in the past. The numbers in parentheses refer to the Areas of Concern on Map 8 in Appendix A.

Billings Street crossing Massapoag Brook (4)
This is a high severity flood hazard with a low frequency. The issue here is the dam, if the dam were to fail, there would be a potential for extremely severe impacts. There is an existing culvert under the road, but local officials feel that the biggest problem at this spot is the town owned dam that is located here. For future mitigation, they recommend stabilizing the dam, as a way of alleviating the occasional flood concerns here.

Morse Street, south of Massapoag Lake (5)
This is a moderate to high severity flood threat that floods every couple of years. There are existing culverts that should be upgraded or rebuilt. Officials estimate a cost of about $100,000 for this work and list it as a low priority.

Morse Street at Mountain Street (6)
Another moderate to high severity flood threat that floods every two or three years. Officials say there is no existing mitigation here, and suggested that to install culverts or other mitigation measures, would likely create problems on a busier roadway. They see no reason to do anything here and have said that mitigation here is a low priority.

Edgehill at Dedham Street (7)
This is a low severity flood threat, which floods infrequently. There is an existing culvert in reportedly proper working order. Officials say a new, larger box culvert could be installed, but they do not feel this is a priority, given the cost and the minimal benefit it would achieve.

Saw Mill Pond Road (8)
This moderate severity flood hazard that floods annually, due to inflow/infiltration into the catch basins nearby. Town officials indicate that the subdivision was poorly designed and the catch basins are not properly drained away from the street. Maintenance and upgrades to the existing system are recommended, including proper drainage pipes, but there is no cost estimate, funding source or timeline currently in place for this project. The town considers this a medium or moderate priority.

Main Street near Massapoag Brook (9)
This is a low severity hazard that has flooded once, during the hurricane of 1956. There is currently a properly operating culvert and no further mitigation is recommended here.

Spring Valley Golf Course (13)
A low severity flood hazard effects only the golf course and associated parking areas, all of which are on private property. No mitigation is in place and none is recommended. A low priority.

School Meadow Brook at Commercial Street (15)
Flooding at this site been more severe and more frequent. However, the town undertook a dredging of the existing culvert under Route 1 and drainage channel and there has been little problem at this location since. It had previously been an annual problem. Town officials say it has become a high priority to maintain the condition of tat culvert, but no further mitigation is recommended here.

## Wind-Related Hazards

As shown on Map 5 in Appendix A, the town has had tropical storms track through Sharon twice, both in 1888. The hazard mapping also indicates that the 100 year wind speed is 110 miles per hour, and one tornado has been recorded within the town.

Tree damage during high winds has the potential to be a significant hazard in Sharon. Trees can knock out power lines and block major roadways, which hinders emergency response.

Sharon does experience downed trees that have caused isolated power outages and roadway blockages, but Sharon also takes prides in its tree-lined streets. Therefore, maintaining trees in a proactive fashion has been a trade-off for the tree amenities. The Department of Public Works has an effective tree trimming and removal programs.

Sharon has numerous outdoor summer programs and microbursts have been a problem on at least two occasions. A microburst was recorded in town during the late 1990s, which caused some damage to trees and homes across a swath of the town and another microburst was recorded in 2006, causing a great deal of damage in the eastern part of the town. However, since microbursts are associated with the leading edge of rain storms it is impossible to predict where they will strike in the future.

The town of Sharon makes every effort to mitigate against damage due to high winds. Some of the specific actions are provided below.

### *Existing Town-Wide Mitigation for Wind-Related Hazards*

a) The Public Works Department has an effective tree trimming program in public areas and along Rights-of-Ways.

## Winter-Related Hazards

Map 6 in Appendix A indicates that the average annual average snowfall in most of Sharon is between 36 and 48 inches. The town provides standard snow plowing operations, and clearing snow has not posed any significant challenges. The town does

make plowing of roads a priority near emergency routes. Other winter issues include ice storms that can affect utilities and cause isolated power outages.

The town of Sharon currently employs a number of measures to mitigate for winter storm events. These are described below.

***Existing Town-Wide Mitigation for Winter-Related Hazards***

a) The Public Works Department provides standard snow plowing operations, including salting and sanding, but with a restricted salt policy.

b) Overnight parking bans are in effect from November 1 – April 1 during snowstorms.

c) The town has a Snow and Ice Disposal bylaw that states no person shall put any snow or ice in any public place or upon any part of a public street or sidewalk.

d) The town has sufficient snow storage.

**Fire-Related Hazards**

The Sharon Fire Department responds to fewer than 20 brush fires annually. Less 1% of these fires results in significant property damage. There have been no deaths as a result of brush fires. There are several causes for these brush fires depending on the areas where they occur. The greatest brush fire hazard in town and the town's largest concern is the high tension wires, that traverse the town through the northern central area. Town officials noted that Duke Energy Corporation is also running natural gas transmission lines beneath a right-of-way under the high tension wires. There is significant concern that a fire in these areas could lead to a major explosion in the gas lines beneath nthem. The Borderland State Park is owned, maintained and monitored by the state's Department of Conservation and Recreation. However, the town also has significant brush fire threats on its northwestern and southeastern edges known as Moose Hill and Snake Hill respectfully. Growth in development in Sharon over the last decade has reduced the amount of space that is prone to brush fires, according to the Deputy Fire Chief, but there are still hundreds of acres that must be monitored and secured against fire in the dry summer months.

***Existing Town-Wide Mitigation for Fire-Related Hazards (Town-Wide)***

a) Town bylaws allow controlled open burning from January until May, in accordance with state regulations, but a permit is required from the Fire Chief for each day of intended burning.

b) The Fire department reviews all subdivision and site plans for compliance with site access, water supply needs, and all other applicable regulations.

c) The Sharon Fire Department has a strong relationship with the DCR's fire division at F. Gilbert State Park, and the state fire division is well-trained in

fighting brush and forest fires, which are a particular local concern with regard to Moose Hill, Snake Hill and Borderland State Park.

d) The town provides public education and notices during "drought watches."

## Geologic Hazards

### Earthquakes

Most municipal officials acknowledged that earthquakes were the hazard for which their community was least prepared. There have been no recorded earthquake epicenters within Sharon. Although new construction under the most recent building codes generally will be built to seismic standards, much of the development in the town predates the most recent building code.

The entire town is classified as having a low risk for landslides. Town officials did not identify any problems with areas of geologic instability such as sinkholes or subsidence.

Although new construction under the most recent building codes generally will be built to seismic standards, much of the development in the town predates the most recent building code, including local public safety facilities.

Lastly, several major transportation routes into and out of town travel over water at some point. Town officials worry that during an earthquake, access to surrounding communities and hospitals could be hampered or limited by a failure of any of several bridges which stretch over waterways, rivers and brooks.

### *Existing Town-Wide Mitigation for Earthquake Hazards*

a) The town does have shelters and backup facilities (see multi-hazard mitigation below).

b) Massachusetts State Building Code – The State Building Code contains a section on designing for earthquake loads (780 CMR 1612.0). Section 1612.1 states that the purpose of these provisions is "to minimize the hazard to life to occupants of all buildings and non-building structures, to increase the expected performance of higher occupancy structures as compared to ordinary structures, and to improve the capability of essential facilities to function during and after an earthquake". This section goes on to state that due to the complexity of seismic design, the criteria presented are the minimum considered to be "prudent and economically justified" for the protection of life safety. The code also states that absolute safety and prevention of damage, even in an earthquake event with a reasonable probability of occurrence, cannot be achieved economically for most buildings.

c) Section 1612.2.5 sets up seismic hazard exposure groups and assigns all buildings to one of these groups according to a Table 1612.2.5. Group II includes buildings which have a substantial public hazard due to occupancy or

use and Group III are those buildings having essential facilities which are required for post-earthquake recovery, including fire, rescue and police stations, emergency rooms, power-generating facilities, and communications facilities. The town does have an evacuation plan as specified in its Comprehensive Emergency Management Plan (CEMP).

**Landslides**

Map 4 in Appendix A indicates that the entire town of Sharon is classified as low risk for landslides. There are not many steep slopes in the town and local officials state that landslides are not a major threat or occurrence in Sharon. Rather, there are localized issues of erosion during construction, as a result of development, or as a result of clearing vegetation.

***Existing Town-Wide Mitigation for Landslide Hazards***

a) The subdivision regulations do have maximum slope requirements for new roads.

**Existing Multi-Hazard Mitigation Measures**

There are several mitigation measures that impact more than one hazard. These include the Comprehensive Emergency Management Plan (CEMP), the Massachusetts State Building Code and participation in a local Emergency Planning Committee.

***Participation in the Emergency Management Planning Committee (LEPC)***
Sharon has an active LEPC that includes representatives of town departments, local residents and businesses, as well as members of public safety units, the LEPC is currently completing a revision of the town's Emergency Management Plan.

The following describes the measures that are in place to mitigate for multiple hazards:

***Existing Town-Wide Mitigation for Multiple Hazards***

a) *Multi-Department Review of Developments* – Multiple departments, such as Planning, Zoning, Health, Public Works, Water and Sewer, Fire, Police, and Natural Resources, review all subdivision and site plans prior to approval.

b) *Comprehensive Emergency Management Plan (CEMP)* – Every community in Massachusetts is required to have a Comprehensive Emergency Management Plan. These plans address mitigation, preparedness, response and recovery from a variety of natural and man-made emergencies. These plans contain important information regarding flooding, dam failures and winter storms. Therefore, the CEMP is a mitigation measure that is relevant to many of the hazards discussed in this plan.

c) *Enforcement of the State Building Code* – The Massachusetts State Building Code contains many detailed regulations regarding wind loads, earthquake resistant design, flood-proofing and snow loads.

d) *Local Emergency Management Planning Committee (LEPC)* – The LEPC consists of representatives from Public Works, Water and Sewer, Fire, Police, Health, School Transportation, Board of Selectmen, Emergency Management, and local businesses.

e) Emergency Preparedness public education is available on the town's website.

f) The town has a reverse 911 system and names can be added to the database via the town's website.

g) The Police and Fire Stations have backup generators, as do some of the water pumping stations in the community.

h) The town has a Citizen Emergency Response Team (CERT) that provides training, supplies, and public education to neighborhoods.

## Compilation of Existing Mitigation

The following table summarizes the many existing natural hazard mitigation measures already in place in Sharon. Because of the number of entities, public and private, involved in natural hazard mitigation, it is likely that this list is a starting point for a more comprehensive inventory of all measures. Please note that the numbers shown in parentheses correspond to the Hazard Areas of Concern included on the maps in Appendix A.

## Table 14: Existing Natural Hazard Mitigation Measures in Sharon

| Hazard | Area | Mitigation Measure |
|---|---|---|
| **Flood-Related** | Town-Wide | A) Participation in the National Flood Insurance Program<br>B) Annual catch basin cleaning and annual street sweeping<br>C) Drainage system maintenance is performed as needed, and under a general maintenance permit issued by the Natural Resources Commission<br>D) Flood Plain Conservancy District<br>E) Wetlands Protection By-Law<br>F) Massachusetts Stormwater Policy<br>G) Stormwater Requirements in Subdivision Regulations and Site Plan Review<br>H) Open Space Residential Developments allowed<br>I) Protected open space and proactive land preservation programs<br>J) Public Education on stormwater through the NPDES Phase II program |
| | Morse Street south of Massapoag Lake (5) | Existing culverts and drainage pipes, in need of upgrades |
| | Morse Street at Mountain Street (6) | No existing mitigation |
| | Edgehill at Dedham Street (7) | Existing culvert working properly |
| | Saw Mill Road (8) | Existing catch basins, designed and installed improperly |
| | Main Street near Massapoag Brook (9) | Existing culvert on site |
| | Spring Valley Golf Course (13) | No existing mitigation, entirely on private property |
| | School Meadow Brook at Commercial St.(15) | Existing culvert and drainage channel |
| **Dams** | Town-Wide | A) DCR Dam Safety Regulations<br>B) Construction permits required<br>C) Comprehensive Emergency Management Plan addresses dam safety |
| | Town Dam at Massapoag Brook near Billings St. (4) | Existing dam in place with associated culverts and drainage pipes. |

## Table 14: Existing Natural Hazard Mitigation Measures in Sharon

| Hazard | Area | Mitigation Measure |
|---|---|---|
| **Wind-Related** | Town-Wide | A) Tree Maintenance Program by Public Works |
| **Winter-Related** | Town-Wide | A) Standard snow operations, restricted salt<br>B) Overnight parking ban November – April<br>C) Public Education on snow operations and winter maintenance is planned for town website<br>D) Snow and Ice Disposal Bylaw<br>E) Sufficient space for municipal snow storage |
| **Fire-Related** | Town-Wide | A) Open burning permits required<br>B) Fire Department reviews all development plans<br>C) Fire Department provides public education on its website<br>D) Fire Tower on Moose Hill<br>E) Some fire trails in wooded areas |
| **Geologic - *Earthquake*** | Town-Wide | A) Shelters and backup facilities available<br>B) Evacuation plan in CEMP |
| **Geologic - *Landslides*** | Town-Wide | A) Maximum slopes for subdivision roads<br>B) Earth Removal Bylaw |
| **Multi-Hazard** | Town-Wide | A) Multi-department review of developments<br>B) Comprehensive Emergency Management Plan (CEMP)<br>C) Enforcement of State Building Code<br>D) Emergency Preparedness public education on the town website<br>E) Reverse 911<br>F) Police and Fire Stations have backup generators<br>G) Citizen Emergency Response Team (CERT) |

# VI. HAZARD MITIGATION GOALS AND OBJECTIVES

The Sharon Local Multiple Hazard Community Planning Team endorsed the following eight hazard mitigation goals at the January 31, 2008 team meeting:

1. Prevent and reduce the loss of life, injury, public health impacts and property damages resulting from all major natural hazards.

2. Identify and seek funding for measures to mitigate or eliminate each known significant flood hazard area.

3. Integrate hazard mitigation planning as an integral factor in all relevant municipal departments, committees and boards.

4. Prevent and reduce the damage to public infrastructure resulting from all hazards.

5. Encourage the business community, major institutions and non-profits to work with the Town to develop, review and implement the hazard mitigation plan.

6. Work with surrounding communities, state, regional and federal agencies to ensure regional cooperation and solutions for hazards affecting multiple communities.

7. Ensure that future development meets federal, state and local standards for preventing and reducing the impacts of natural hazards.

8. Take maximum advantage of resources from FEMA and MEMA to educate Town staff and the public about hazard mitigation.

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# VII. POTENTIAL MITIGATION MEASURES

## What is Hazard Mitigation?

Hazard mitigation means to permanently reduce or alleviate the losses of life, injuries and property damage resulting from natural and human-made hazards through long-term strategies. These long-term strategies include planning, policy changes, programs, projects and other activities. FEMA currently has three mitigation grant programs: the Hazards Mitigation Grant Program (HMGP), the Pre-Disaster Mitigation program (PDM), and the Flood Mitigation Assistance (FMA) program. See http://www.fema.gov/government/grant/government.shtm for more information.

## Identification of Potential Mitigation Measures

During the local hazard team meetings, officials in Sharon determined possible mitigation measures for the various natural hazards that have impacted or could impact the town. In addition, MAPC solicited suggestions for mitigation measures when it collected hazard information from town officials and from other town plans and studies. MAPC compiled all suggested strategies into a matrix. Local officials then prioritized the measures using the matrix. Prior to choosing priorities, participants reviewed the project Goals and STAPLEE evaluation considerations, such as:

- Is there political support and public support to implement the mitigation measures?
- Can the town provide the necessary maintenance when the mitigation measure is completed?
- Does the cost seem reasonable when considering the size of the problem and likely benefits from mitigation?

The breakdown of high and medium priority measures, along with all other possible measures is provided in the discussions below.

## High Priority Mitigation Measures

A) Dam Stabilization at Massapoag Brook and Billings Street (4)
Initially identified by town officials as a nuisance flooding problems with high severity, but low frequency, the flooding at this site could likely be fixed either with some upgrades to existing culverts, or through a more complete stabilization of the town owned dam in this area. Town officials do not, as yet, have a design or cost estimate for improving this dam. However, given the potentially severe impacts of a dam failure here, it seems to make the most sense to have the town begin planning for a dam upgrade that will both alleviate the infrequent flooding hazard and improve dam safety for the town in the long run.

B) Improved Drainage for Saw Mill Road culverts (8)
Seasonal flooding and flooding caused by high rain events here is due to a poorly designed and installed drainage system. Town officials believe that proper drainage connected to the existing culverts may alleviate the problems that cause flooding in this area. Flooding concerns here are not a high priority, but this project is one that could have an immediate impact.

C) Expansion and maintenance of fire trails and buffer zones in wooded areas
The majority of the town's brush fire and wild fire hazards are in areas that are either difficult to get to or along railway lines and under high tension wires that simply need better maintenance. With an already existing and operational fire tower in the Moose Hill region and a strong relationship with the Department of Conservation and Recreation's Fire Division at F. Gilbert State Park, the most important mitigation measure that could be undertaken is an expansion of the town's existing fire trails and maintenance of buffer zones along railways lines.

**Medium Priority Mitigation Measures**

D) Purchase all-terrain fire fighting vehicle to improve access to wooded areas
A secondary mitigation measure that would aid the Sharon Fire Department's ability to get to brush fires and wild fires in remote areas, would be the purchase of all-terrain fire fighting vehicles that would allow firefighters to get to the source of such fires more quickly and safely.

E) Improved maintenance of trenches and culverts along School Meadow Brook (15)
Previously one of the town's recurring flood hazard areas, the School Meadow Brook area has been improved by a recent dredging of the existing culverts and trenches in the area. An adequate maintenance plan for those drainage structures is an important step to ensuring that this area doesn't become a frequent flood hazard again in the future.

F) Update Hazardous Material Response Plan
Sharon is home to portions of I-95, as well as Routes 1, 1A, 27, and 109, locally sited railroad tracks and several other facilities that have the ability to release hazardous materials. Inclement weather could increase the chance of a chemical spill, which falls into the responsibility of the town's public works and emergency responders. The town already has a hazardous materials response plan, but it needs to update the plan to reflect the most current conditions and latest technologies.

G) Assessment of Historic Structure Natural Hazard Vulnerability
Building upon the town's database of historic structures, a complete analysis should be performed to determine the vulnerability of each structure to flooding, wind, snow, ice, earthquakes, and fire. Many of the buildings are located in flood zones, are not up to earthquake or fire codes, or are susceptible to damage from

high wind events. Techniques for mitigation should be determined, such as flood proofing of structures.

**Measures to Ensure Compliance with the National Flood Insurance Program**

H) Continuation of Open Space Protection and Land Acquisition
Although Sharon already has a significant amount of protected land, further protection of open space in the wake of development is important in order to ensure future development does not increase vulnerability to natural hazards, such as flooding. The town should continue its efforts for open space protection and purchases as prioritized in the draft Open Space Plan and Community Preservation Plan.

**Regulatory Revisions for Stormwater Management**
**The current subdivision and site plan requirements do have basic standards for stormwater management, but they could be updated to reflect more current trends to help prevent flooding from new development and redevelopment. In particular, the regulations could include:**

- Requirements for aggressive and legally-binding operation and maintenance agreements, with enforcement mechanisms, for private drainage facilities.
- Regulatory controls to encourage Low-Impact Development (LID) practices.

I) Maintenance of Existing Infrastructure

Several of the flooding areas identified by local officials were said to be in need of better maintenance. The town should develop and implement a complete maintenance plan for all catch basins, culverts and drainage pipes in existing flood hazard areas.

**Other Potential Mitigation Measures**

A number of additional mitigation measures arose during the course of the project. These additional measures were either considered to be a low priority, a better alternative was deemed a medium or high priority, or they were not considered feasible. However, it is worth recording them in the plan, because they could be revisited in the future. They include:

J) Re-construct culverts on Morse Street south of Massapoag Lake (5)
Recurring flood hazard problems on Morse Street between Capen Hill Road and Massapoag Avenue do not affect homes in the area, thus potential mitigation is deemed to be too costly for the benefit it would provide. There are several culverts that could be upgraded or expanded to alleviate the problems, but town officials estimate this would cost upwards of $100,000 and have decided against it at this time.

K) Expand culvert at Morse and Mountain streets (6)

This hazard area is considered to be a low priority for the town as there are no homes currently in the area of the flooding hazard. The flooding here is confined to roadway flooding, which does present its own challenges. However, since town officials believe that addressing the flooding issues here with the expansion or replacement of the existing culvert will worsen flooding threats downstream and along more heavily traveled roads nearby, the town has decided it is not interested in doing anything to address these problems at this point.

L) Assessment of Municipal Structures for Susceptibly to Snow Loads
The town owns structures that may not be able to withstand snow loads during extreme conditions. A priority for the town is to provide an assessment of facilities that are at risk for collapse from snow loads, and the best mitigation meesures. In some cases the solution may be a structural retrofit, but in other cases it may just be a matter of knowing which buildings to clear snow from.

One other location with flooding problems is the Spring Valley Golf Course. The entire golf course, and all of its associated flooding problems, is contained on private property and the town sees no reason that tax-payer resources should be used to address seasonal flooding issues that only affect this private enterprise.

**Potential Mitigation Summary Table**

The following columns are included in the summary table:

Description of the Mitigation Measure – The description of each mitigation measure is brief.

Priority – The designation of high, medium or low priority was determined by the Local Multiple Hazard Community Planning Team meeting. The designations could change as conditions in the community change.

Lead Implementation – MAPC designated implementation responsibility based on general knowledge of the community. It is likely that most mitigation measures will require that several departments work together and assigning staff is the sole responsibility of the governing body of each community. In some cases, a non-local entity would ideally be the lead implementer.

Time Frame – The time frame was based on a combination of the priority for that measure, the complexity of the measure and whether or not the measure is conceptual, in design, or already designed and awaiting funding. The identification of a likely time frame is not meant to constrain a community from taking advantage of funding opportunities as they arise. “Short-term” is an item that generally would not take more than a year or two to complete, and could conceivably occur within the 5 years of this plan. “Long-term” is a project that will could take more than one to two years to complete, and may not be completed within the five years of this plan.

Estimated Cost – The cost data are estimates that represent a point in time and would need to be adjusted for inflation and for any changes or refinements in the design of a particular mitigation measure. Cost information is approximate only and is either provided by the community or from MAPC staff experience.

Potential Funding Sources – This column attempts to identify possible sources of funding for a specific measure. This information is preliminary and varies depending on a number of factors such as whether a mitigation measure has been studied, evaluated or designed or is still in the conceptual stages. Each grant program and agency has specific eligibility requirements that would need to be taken into consideration. In most instances, the measure will require a number of different funding sources. Identification of a potential funding source in this table does not guarantee that a project will be eligible for or selected for funding. Upon adoption of this plan, the local committee responsible for its implementation should begin to explore the funding sources in more detail.

The best way to determine eligibility for a particular funding source is to review the project with the funding agency. The following websites provide an overview of programs and funding sources.

Army Corps of Engineers (ACOE) – The website for the North Atlantic district office is http://www.nae.usace.army.mil/. The ACOE provides assistance for a number of types of projects including shoreline/streambank protection, flood damage reduction, flood plain management services and planning services.

FEMA – As noted earlier, see http://www.fema.gov/government/grant/government.shtm for more information.

Massachusetts Emergency Management Agency (MEMA) – The grants page http://www.mass.gov/dem/programs/mitigate/grants.htm has a useful table that compares eligible projects for the Hazard Mitigation Grant Program and the Flood Mitigation Assistance Program.

United States Department of Agriculture – The USDA has programs by which communities can get grants for fire fighting needs. See the link below for examples. http://www.rurdev.usda.gov/rhs/

**Table 15**
**Potential Mitigation Measures in Sharon**

| Mitigation Measure | Priority | Lead Implementation | Time Frame | Estimated Cost Range | Potential Funding Sources |
|---|---|---|---|---|---|
| **A) Dam stabilization at Massapoag Brook** | High | Public Works | Short-term | Unknown at this time, needs study and design $50,000 to $100,000 | Town, FEMA |
| **B) Improved drainage for Saw Mill Road** | High | Public Works | Short-term | Unknown at this time, needs study and design $50,000 to $100,000 | Town, FEMA |
| **Expansion and maintenance of fire trails and buffer zones** | High | Fire Department, Public Works | Short-term | Town staff time or outside contractor $50,000 | Town, DHS, public safety or national fire grants |
| **Medium Priority Mitigation Measures** | | | | | |
| **Purchase ATV Fire vehicles** | Medium | Fire Department | Long-term | $50,000 to $85,000 | Town, DHS, public safety or national fire grants |
| **Improve maintenance for culverts, trenches on School Meadow Brook** | Medium | Public Works | Long-term | Unknown at this time, needs study and design $50,000 to $100,000 | Town, FEMA Grants, private |
| C) Update hazardous materials response plan | Medium | Fire Department / Public Works | Long-term | Town staff time | Town |
| D) Assessment of historic structure natural hazard vulnerablity | Medium | Fire Department / Public Works/ Building | Long-term | Town staff time or $5,000 to $10,000 for consultant | Town |
| **Measures to Ensure Compliance with NFIP** | | | | | |
| E) Continuation of Open Space Protection and Land Acquisition | NFIP | Planning/ Public Works | Short-Term | Town staff time | Town or Public Safety Grants |
| **Regulatory Revisions for Stormwater Management** | NFIP | Planning / Natural Resources | Short-Term | Town Staff Time or $5k-10k for consultant | Town, MET grants, EOEA Smart Growth Grants |

| Mitigation Measure | Priority | Lead Implementation | Time Frame | Estimated Cost Range | Potential Funding Sources |
|---|---|---|---|---|---|
| F) Maintenance of Existing Infrastructure | NFIP | Fire Department / Public Works / Building | Short-Term | Town Staff Time or $10k-20k for consultant | Town, FEMA |
| **Othery Mitigation Measures** | | | | | |
| **Reconstruct culvert on Morse Street** | Other | Public Works | Short-term | Unknown at this time, needs study and design $50,000 to $100,000 | Town, FEMA, Grant funding |
| **Expand culvert at Morse and Mountain streets** | Other | Public Works | Short-term | $75,000 to $125,000 | Town, FEMA, grant funding |
| G) Assessment of Municipal Structures for Susceptibly to Snow Loads | Other | Public Works / Building | Short-Term | Town Staff Time or $2k-5k for consultant | Town, FEMA |

**Abbreviations Used in Table 15**

FEMA Mitigation Grants includes:
FMA = Flood Mitigation Assistance Program.
HMGP = Hazard Mitigation Grant Program.
PDM = Pre-Disaster Mitigation Program

ACOE = Army Corps of Engineers.

MHD = Massachusetts Highway Department.

EOT = Executive Office of Transportation.

DCR = Department of Conservation and Recreation

DHS/EOPS = Department of Homeland Security/Emergency Operations

EPA/DEP (SRF) = Environmental Protection Agency/Department of Environmental Protection (State Revolving Fund)

USDA = United States Department of Agriculture

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# VIII. REGIONAL AND INTER-COMMUNITY CONSIDERATIONS

Some hazard mitigation issues are strictly local. The problem originates primarily within the municipality and can be solved at the municipal level. Other issues are inter-community and require cooperation between two or more municipalities. There is a third level of mitigation which is regional and may involve a state, regional or federal agency or three or more municipalities.

**Regional Partners**

In many communities, mitigating natural hazards is more than a local issue. The facilities that serve these communities are complex systems owned and operated by a wide array of agencies, government, and private entities. The planning, construction, operations and maintenance of these facilities are integral to the hazard mitigation efforts of communities. These agencies must be considered the communities' regional partners in hazard mitigation. These agencies also operate under the same constraints as communities do, including budgetary and staffing constraints and numerous competing priorities. In the sections that follow, the plan includes recommendations for activities to be undertaken by these other agencies. Implementation of these recommendations will require that all parties work together to develop solutions.

**Regional Facilities within Sharon**

Major facilities owned, operated and maintained by federal, state, regional or private entities in Sharon include:

- Interstate I-95 and I-495 (Mass Highways)
- State roads Routes 1 and 27(Mass Highways)
- Neponset Reservoir
- Canoe River (MA DCR)
- Massapoag Brook
- Borderland State Park (MA DCR)
- Moose Hill (MA DCR)
- High tension lines
- Freight Rail Lines

**Inter-Community Considerations**

Mitigation measures for the following regional issues should be taken into account as Sharon develops it own local plan:

A) <u>Coordinate and Review Developments on a Regional Basis</u>

As Sharon and the surrounding communities are undergoing development, it is vital that these communities communicate and provide input during the review processes. When addressing housing, transportation, and economic development projects, the

impacts to neighbors must be addressed. The Westwood Station Development in Westwood is a prime example of how one development has the potential to create impacts in Westwood, Sharon, Dedham and Sharon.

B) Long-Term Regional Management Plan To Control Beaver Activity

One regional issue of significance is the widespread effects of beaver dams in the area. Most streams, wetland areas, and ponds in the region have had some degree of beaver activity in the past several years. Much of the localized flooding that occurs is due to beaver activity. The towns will mitigate the problem temporarily by hiring trappers, removing dams, or installing pipes, but a long-term comprehensive approach should be considered.

# IX. PLAN ADOPTION AND MAINTENANCE

## Plan Adoption

The Sharon Hazard Mitigation Plan was adopted by the Board of Selectmen on [insert date]; See Appendix D for documentation. The plan was approved by FEMA on [ADD DATE] for a five-year period that will expire on [ADD DATE].

### Plan Maintenance

MAPC worked with the Sharon Hazard Mitigation Planning Team to prepare this plan. This team will continue to meet on an as-needed basis to function as the local Hazard Mitigation Implementation Team, with one town department or official designated as the coordinator. Additional members could be added to the Hazard Mitigation Implementation Team from businesses, non-profits and institutions.

### Implementation Schedule

Bi-Annual Survey on Progress– The coordinator of the Hazard Mitigation Implementation Team will prepare and distribute a biannual survey in years two and four of the plan. The survey will be distributed to all of the local implementation group members and other interested local stakeholders. The survey will poll the members on any changes or revisions to the plan that may be needed, progress and accomplishments for implementation, and any new hazards or problem areas that have been identified.

This information will be used to prepare a report or addendum to the local hazard mitigation plan. The Hazard Mitigation Implementation Team will have primary responsibility for tracking progress and updating the plan.

Develop a Year Four Update – During the fourth year after initial plan adoption, the coordinator of the Hazard Mitigation Implementation Team will convene the team to begin to prepare for an update of the plan, which will be required by the end of year five in order to maintain approved plan status with FEMA. The team will use the information from the year four biannual review to identify the needs and priorities for the plan update. At this point, the Hazard Mitigation Implementation Team may decide to undertake the update themselves, contract with the Metropolitan Area Planning Council to update the plan or to hire another consultant.

Prepare and Adopt an Updated Local Hazard Mitigation Plan – FEMA's approval of this plan is valid for five years, by which time an updated plan must be approved by FEMA in order to maintain the town's approved plan status and its eligibility for FEMA mitigation grants. Because of the time required to secure a planning grant, prepare an updated plan, and complete the approval and adoption of an updated plan, the local Hazard Mitigation Planning Team should begin the process by the end of

Year 3. This will help the town avoid a lapse in its approved plan status and grant eligibility when the current plan expires.

However the Hazard Mitigation Implementation Team decides to update the plan, the group will need to review the current FEMA hazard mitigation plan guidelines for any changes. The update of the Sharon Hazard Mitigation Plan will be forwarded to MEMA and DCR for review and to FEMA for approval.

**Integration of the Plans with other Planning Initiatives**

Upon approval of the Sharon Hazard Mitigation Plan by FEMA, the Hazard Mitigation Implementation Team will provide all interested parties and implementing departments with a copy of the plan and will initiate a discussion regarding how the plan can be integrated into each department's ongoing work. At a minimum, the plan will be reviewed and discussed with:

Fire / Emergency Management
Police
Public Works / Highway
Engineering
Planning and Community Development
Conservation
Parks and Recreation
Health
Building

Other groups that will be coordinated with include large institutions, Chambers of Commerce, land conservation organizations and watershed groups. The plans will also be posted on a community's website with the caveat that the local coordinator will review the plan for sensitive information that would be inappropriate for public posting. The posting of the plan on a web site will include a mechanism for citizen feedback such as an e-mail address to send comments.

# X. RESOURCES

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# APPENDIX A: NATURAL HAZARDS MAPS

The MAPC GIS (Geographic Information Systems) Lab produced a series of maps for each community. Some of the data came from the Northeast States Emergency Consortium (NESEC). More information on NESEC can be found at http://www.serve.com/NESEC/. Due to the various sources for the data and varying levels of accuracy, the identification of an area as being in one of the hazard categories must be considered as a general classification that should always be supplemented with more local knowledge. The documentation for some of the hazard maps was incomplete as well.

The map series consists of four panels with two maps each plus one map taken from the State Hazard Mitigation Plan.

| | |
|---|---|
| Map 1. | Population Density |
| Map 2. | Potential Development |
| Map 3. | Flood Zones |
| Map 4. | Earthquakes and Landslides |
| Map 5. | Hurricanes and Tornadoes |
| Map 6. | Average Snowfall |
| Map 7. | Composite Natural Hazards |
| Map 8. | Hazard Areas |

***Map1: Population Density*** – This map uses the US Census block data for 2000 and shows population density as the number of people per acre in seven categories with 60 or more people per acre representing the highest density areas.

***Map 2: Potential Development –*** This map shows potential future developments, and critical infrastructure sites. MAPC consulted with town staff to determine areas that were likely to be developed or redeveloped in the future.

***Map 3: Flood Zones*** – The map of flood zones used the FEMA Q3 Flood Zones as its source. For more information, refer to http://www.fema.gov/fhm/fq_q3.shtm.
The definitions of the flood zones are described in more detail at http://www.fema.gov/fhm/fq_term.shtm. The flood zone map for each community also shows critical infrastructure and municipally owned and protected open space.

***Map 4: Earthquakes and Landslides –*** This information came from NESEC. For most communities, there was no data for earthquakes because only the epicenters of an earthquake are mapped.

The landslide information shows areas with either a low susceptibility or a moderate susceptibility to landslides based on mapping of geological formations. This mapping is

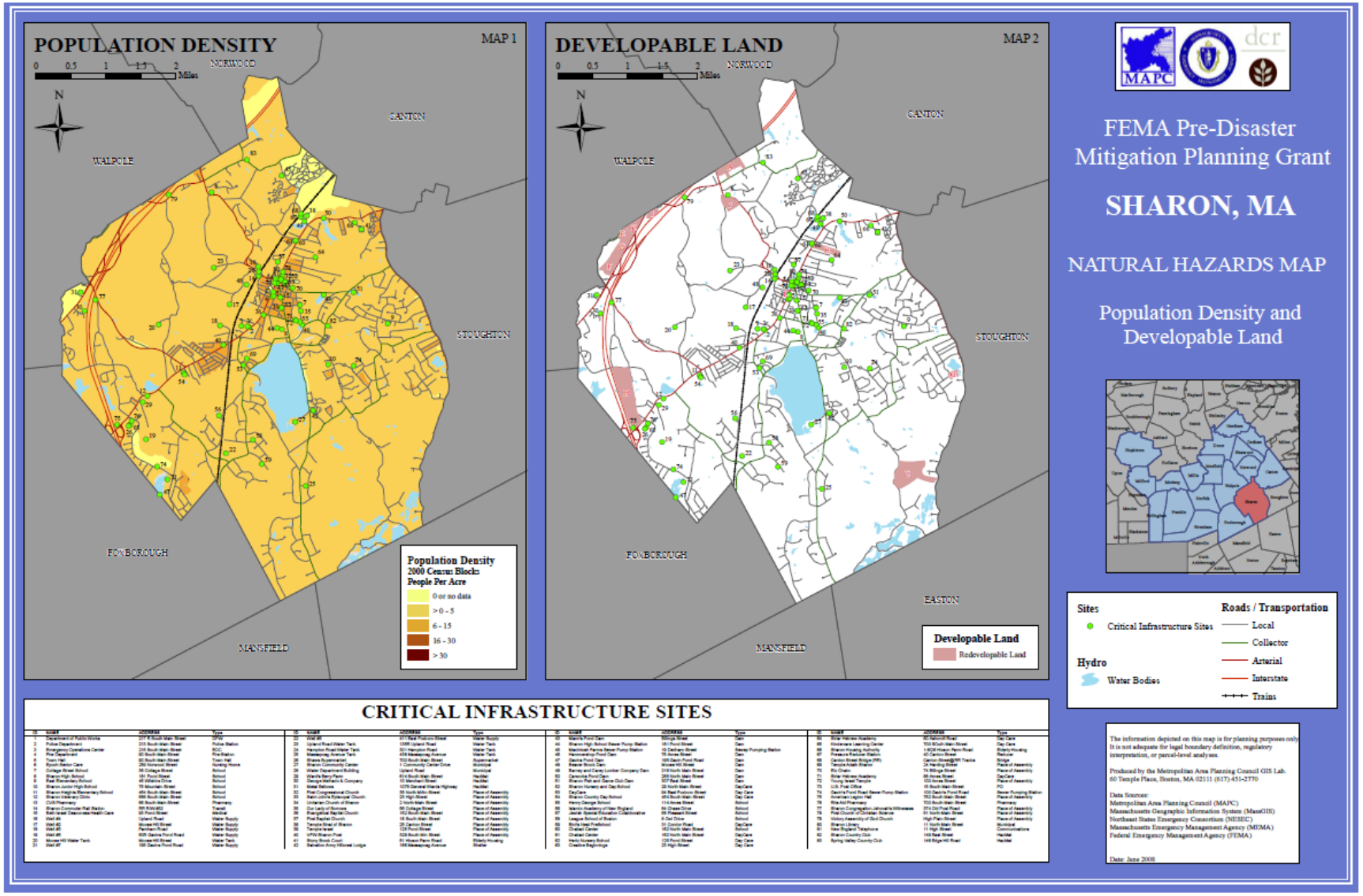
highly general in nature. For more information on how landslide susceptibility was mapped, refer to http://pubs.usgs.gov/pp/p1183/pp1183.html.

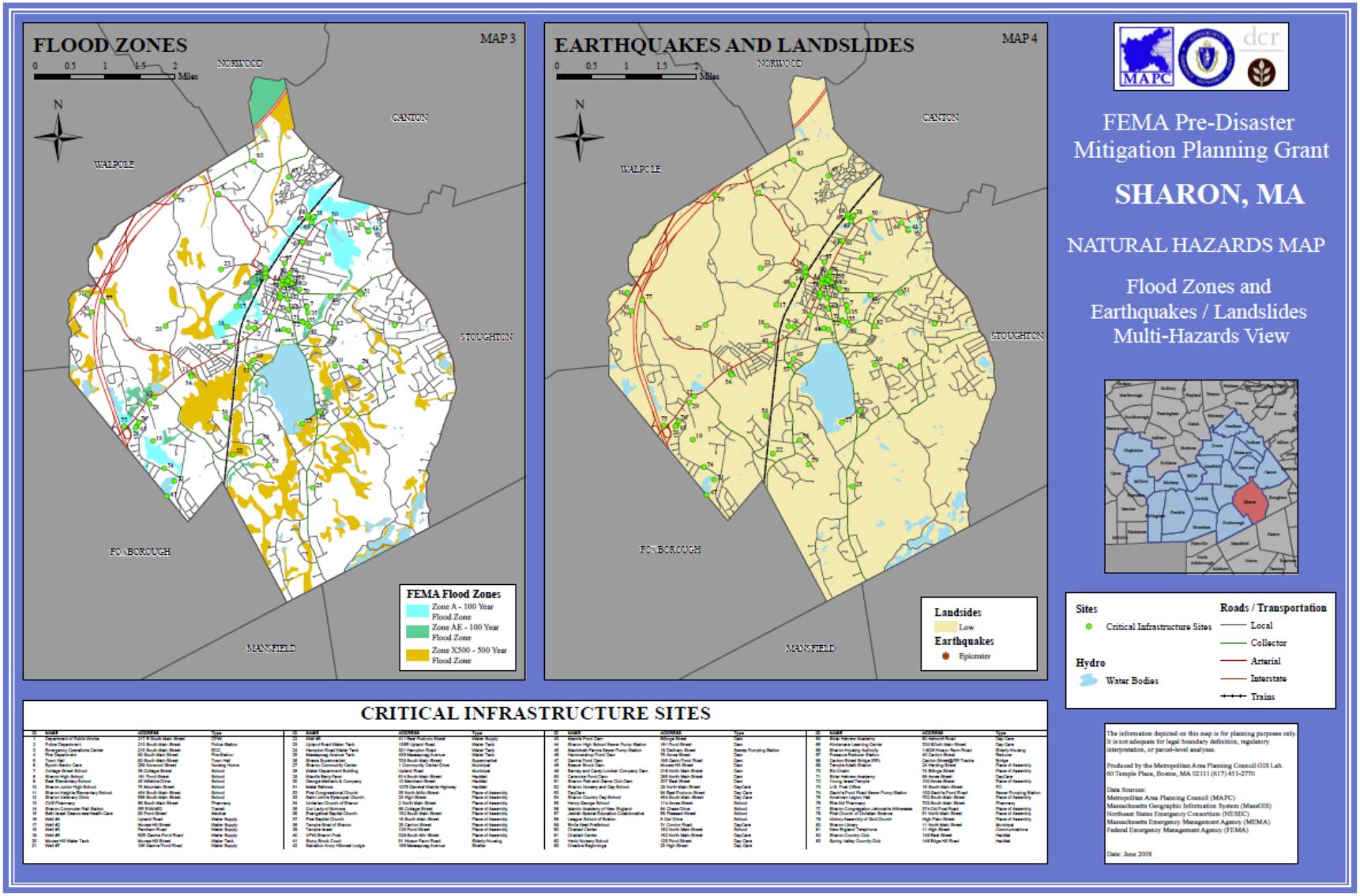
***Map 5: Hurricanes and Tornadoes –*** This map shows a number of different items. The map includes the storm tracks for both hurricanes and tropical storms. This information must be viewed in context. A storm track only shows where the eye of the storm passed through. In most cases, the effects of the wind and rain from these storms were felt in other communities even if the track was not within that community. This map also shows the location of tornadoes with a classification as to the level of damages. What appears on the map varies by community since not all communities experience the same wind-related events. These maps also show the 100 year wind speed.

***Map 6: Average Snowfall –*** This map shows the average snowfall and open space. It also shows storm tracks for nor'easters, if any storms tracked through the community.

***Map 7: Composite Natural Hazards -*** This map shows four categories of composite natural hazards for areas of existing development. The hazards included in this map are 100 year wind speeds of 110 mph or higher, low and moderate landslide risk, FEMA Q3 flood zones (100 year and 500 year) and hurricane surge inundation areas. Areas with only one hazard were considered to be low hazard areas. Moderate areas have two of the hazards present. High hazard areas have three hazards present and severe hazard areas have four hazards present.

***Map 8: Hazard Areas –*** For each community, locally identified hazard areas are overlaid on an aerial photograph dated April 2005. The critical infrastructure sites are also shown. The source of the aerial photograph is Mass GIS.


POPULATION DENSITY
MAP 1
0 0.5 1 1.5 2 Miles
N
NORWOOD
CANTON
WALPOLE
STOUGHTON
FOXBOROUGH
MANSFIELD
Population Density
2000 Census Blocks
People Per Acre
0 or no data
> 0 - 5
6 - 15
16 - 30
> 30
DEVELOPABLE LAND
MAP 2
0 0.5 1 1.5 2 Miles
N
NORWOOD
CANTON
WALPOLE
STOUGHTON
FOXBOROUGH
EASTON
MANSFIELD
Developable Land
Redevelopable Land
MAPC
dcr
FEMA Pre-Disaster
Mitigation Planning Grant
SHARON, MA
NATURAL HAZARDS MAP
Population Density and
Developable Land
Sites
Critical Infrastructure Sites
Hydro
Water Bodies
Roads / Transportation
Local
Collector
Arterial
Interstate
Trains
The information depicted on this map is for planning purposes only. It is not adequate for legal boundary definition, regulatory interpretation, or parcel-level analyses.
Produced by the Metropolitan Area Planning Council GIS Lab.
60 Temple Place, Boston, MA 02111 (617) 451-2770
Data Sources:
Metropolitan Area Planning Council (MAPC)
Massachusetts Geographic Information System (MassGIS)
Northeast States Emergency Consortium (NESEC)
Massachusetts Emergency Management Agency (MEMA)
Federal Emergency Management Agency (FEMA)
Date: June 2008
CRITICAL INFRASTRUCTURE SITES


FLOOD ZONES
MAP 3
0 0.5 1 1.5 2 Miles
N
NORWOOD
CANTON
WALPOLE
STOUGHTON
FOXBOROUGH
MANSFIELD
FEMA Flood Zones
Zone A - 100 Year Flood Zone
Zone AE - 100 Year Flood Zone
Zone X500 - 500 Year Flood Zone
EARTHQUAKES AND LANDSLIDES
MAP 4
0 0.5 1 1.5 2 Miles
N
NORWOOD
CANTON
WALPOLE
STOUGHTON
FOXBOROUGH
MANSFIELD
Landsides
Low
Earthquakes
Epicenter
MAPC
dcr
FEMA Pre-Disaster Mitigation Planning Grant
SHARON, MA
NATURAL HAZARDS MAP
Flood Zones and Earthquakes / Landslides Multi-Hazards View
Sites
Critical Infrastructure Sites
Hydro
Water Bodies
Roads / Transportation
Local
Collector
Arterial
Interstate
Trains
The information depicted on this map is for planning purposes only. It is not adequate for legal boundary definition, regulatory interpretation, or parcel-level analyses.
Produced by the Metropolitan Area Planning Council GIS Lab. 60 Temple Place, Boston, MA 02111 (617) 451-2770
Data Sources:
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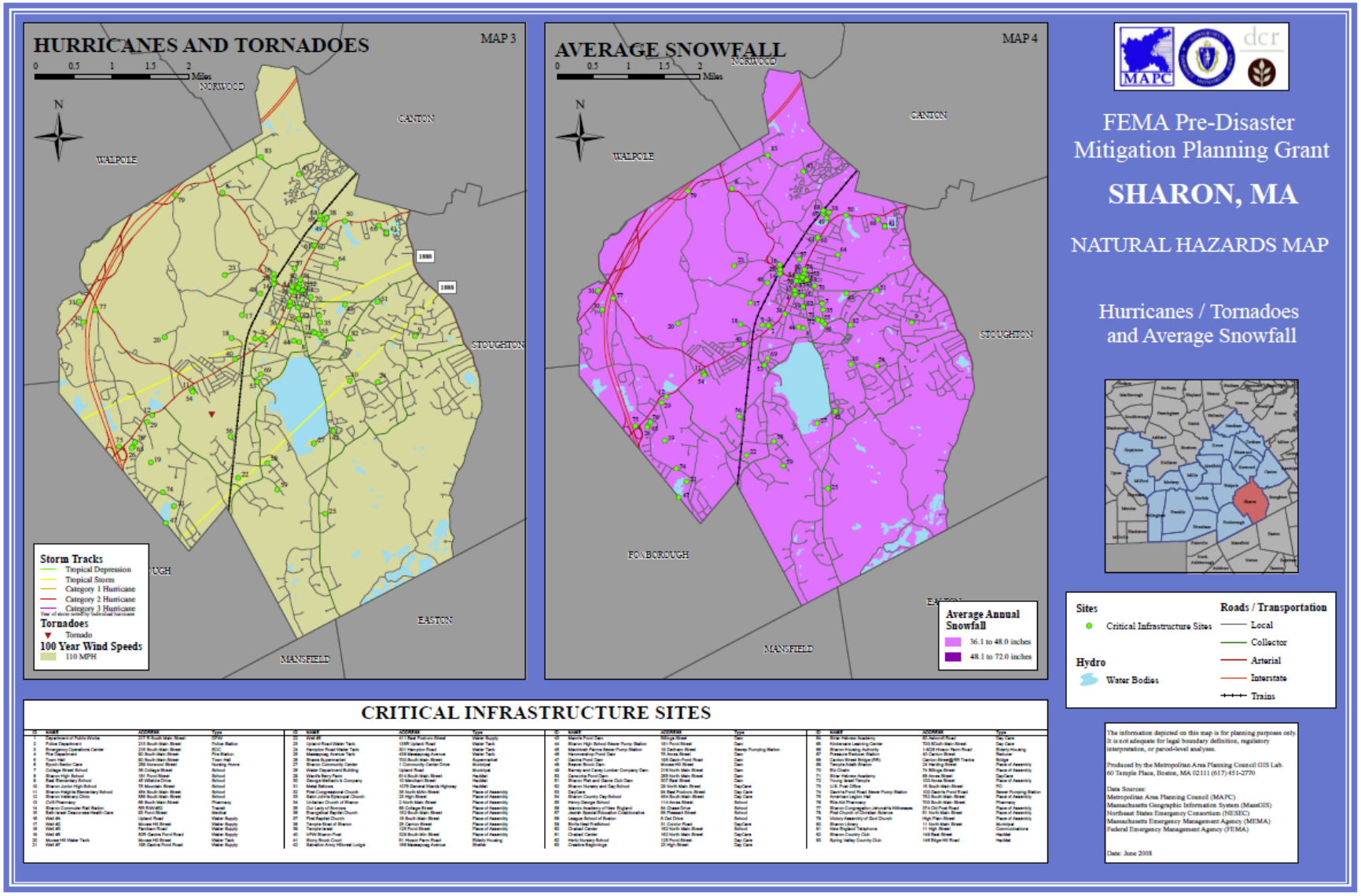
Massachusetts Emergency Management Agency (MEMA)
Federal Emergency Management Agency (FEMA)
Date: June 2008
CRITICAL INFRASTRUCTURE SITES


HURRICANES AND TORNADOES
MAP 3
0 0.5 1 1.5 2 Miles
NORWOOD
CANTON
WALPOLE
STOUGHTON
EASTON
MANSFIELD
Storm Tracks
Tropical Depression
Tropical Storm
Category 1 Hurricane
Category 2 Hurricane
Category 3 Hurricane
Tornadoes
Tornado
100 Year Wind Speeds
110 MPH
AVERAGE SNOWFALL
MAP 4
0 0.5 1 1.5 2 Miles
NORWOOD
CANTON
WALPOLE
STOUGHTON
FOXBOROUGH
MANSFIELD
Average Annual Snowfall
36.1 to 48.0 inches
48.1 to 72.0 inches
MAPC
dcr
FEMA Pre-Disaster Mitigation Planning Grant
SHARON, MA
NATURAL HAZARDS MAP
Hurricanes / Tornadoes and Average Snowfall
Sites
Critical Infrastructure Sites
Hydro
Water Bodies
Roads / Transportation
Local
Collector
Arterial
Interstate
Trains
CRITICAL INFRASTRUCTURE SITES
The information depicted on this map is for planning purposes only. It is not adequate for legal boundary definition, regulatory interpretation, or parcel-level analyses.
Produced by the Metropolitan Area Planning Council GIS Lab.
60 Temple Place, Boston, MA 02111 (617) 451-2770
Data Sources:
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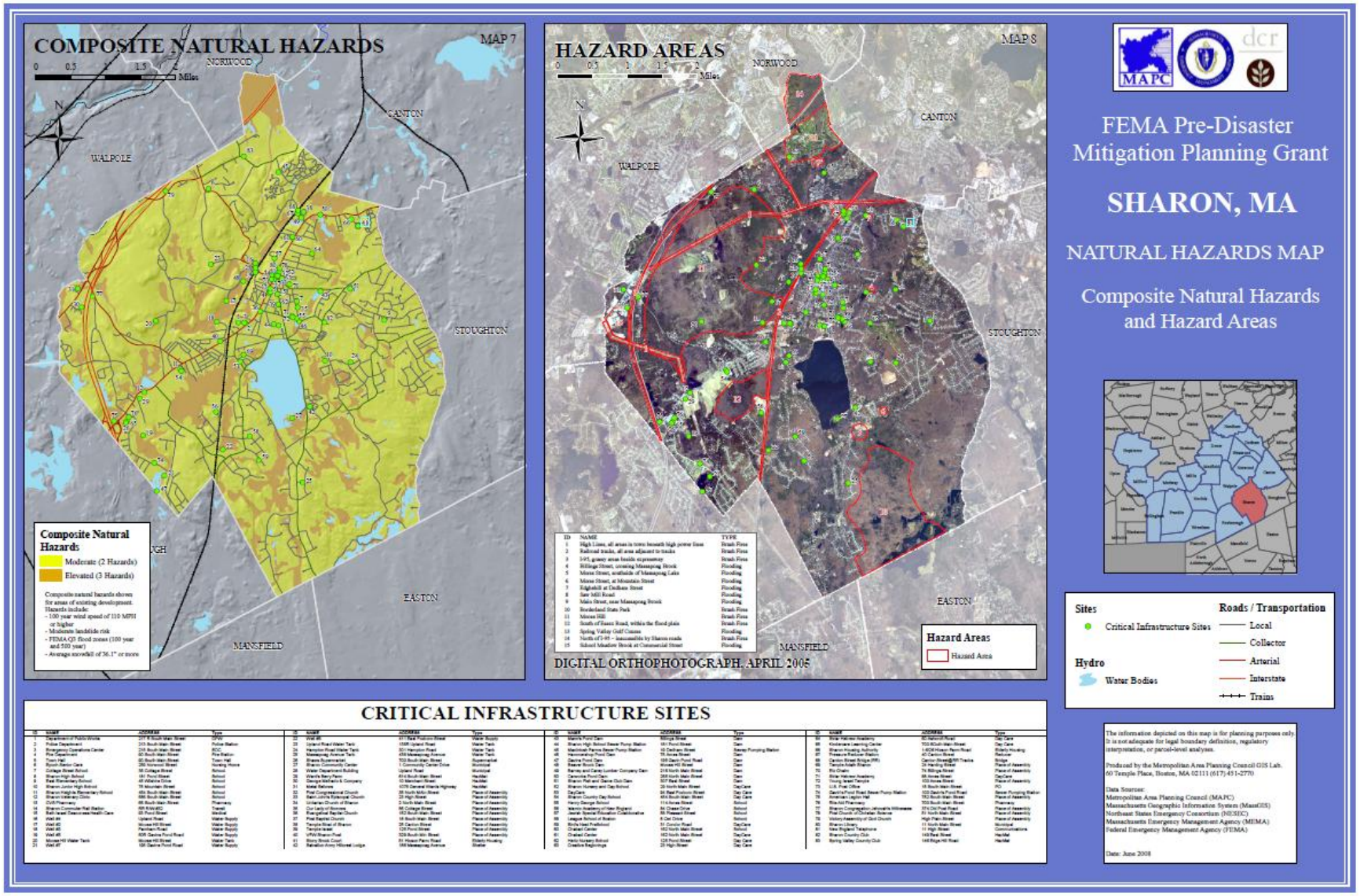
Date: June 2008


COMPOSITE NATURAL HAZARDS
MAP 7
NORWOOD
CANTON
WALPOLE
STOUGHTON
EASTON
MANSFIELD
Composite Natural Hazards
Moderate (2 Hazards)
Elevated (3 Hazards)
HAZARD AREAS
MAP 8
DIGITAL ORTHOPHOTOGRAPH, APRIL 2005
Hazard Areas
Hazard Area
CRITICAL INFRASTRUCTURE SITES
MAPC
dcr
FEMA Pre-Disaster Mitigation Planning Grant
SHARON, MA
NATURAL HAZARDS MAP
Composite Natural Hazards and Hazard Areas
Sites
Critical Infrastructure Sites
Hydro
Water Bodies
Roads / Transportation
Local
Collector
Arterial
Interstate
Trains

# APPENDIX B:

# MEETING AGENDAS FOR:

# METRO BOSTON NORTH/WEST REGIONAL HAZARD MITIGATION COMMUNITY PLANNING TEAM

# AND

# LOCAL MULTIPLE HAZARD COMMUNITY PLANNING TEAM

Ken McBride

Acting Director

dcr

*Priscilla E. Geigis*
*ACTING COMMISSIONER*

MAPC

*Marc D. Draisen*
Executive Director

***METRO SOUTH/WEST PRE-DISASTER MTITGATION PLAN***

***SWAP Regional Hazard Mitigation Team***

*Bellingham*
*Franklin*
*Hopkinton*
*Medway*
*Milford*
*Millis*
*Norfolk*
*Wrentham*

***TRIC Regional Hazard Mitigation Team***

*Canton*
*Dedham*
*Dover*
*Sharon*
*Medfield*
*Needham*
*Sharon*
*Sharon*
*Sharon*
*Westwood*

# The Commonwealth of Massachusetts

*DEVAL PATRICK, GOVERNOR*

***Massachusetts Emergency Management Agency***

400 WORCESTER ROAD, FRAMINGHAM, MA 01702-5399 508-820-2000 FAX 508-820-1404

***Department of Conservation and Recreation***

251 CAUSEWAY STREET, SUITE 600-900, BOSTON, MA 02114-2104 617-626-1250 FAX 617-626-1351

***Metropolitan Area Planning Council***

60 TEMPLE PLACE, 6TH FLOOR, BOSTON, MA 02111 617-451-2770 FAX 617-482-7185

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## Hazard Mitigation Community Planning Team
## Three Rivers Interlocal Council (TRIC)

**First Meeting**

TUESDAY, APRIL 3, 2007 9:30 AM

Norwood Public Safety Building
137 Nahatan Street, Norwood, MA

### AGENDA

**9:30 WELCOME & INTRODUCTIONS *(Please sign contact sheet)***

**9:40 OVERVIEW OF FEDERAL DISASTER MITIGATION ACT & PRE-DISASTER MITIGATION PLANNING**

- *Presentation, Questions & Discussion*
  *--Martin Pillsbury, Manager of Regional Planning, MAPC*

**10:00 GETTING STARTED: THE METRO SOUTH/WEST PRE-DISASTER MITIGATION PLAN – TRIC SUBREGION**

- *Review of Scope of Work & Schedule*
- *Questions & Discussion – Local Issues & Priorities*

**10:30 PREVIEW OF MAPPING AND DATABASES FOR THE PLAN**

- *Examples from the North Shore & Metro Boston PDM Plans*
  *--Alan Bishop, GIS Manager, MAPC*

**10:55 NEXT STEPS / MEETING SCHEDULE**

**11:00 ADJOURN**

Please contact Martin Pillsbury at MAPC if you have any questions:
617-451-2770, ext. 2012 or mpillsbury@mapc.org

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DON BOYCE
Director

dcr

*Richard Sullivan*
*COMMISSIONER*

MAPC

*Marc D. Draisen*
Executive Director

***METRO SOUTH/WEST PRE-DISASTER MTITGATION PLAN***

***SWAP Regional Hazard Mitigation Team***

*Bellingham*
*Franklin*
*Hopkinton*
*Medway*
*Milford*
*Millis*
*Norfolk*
*Wrentham*

***TRIC Regional Hazard Mitigation Team***

*Canton*
*Dedham*
*Dover*
*Sharon*
*Medfield*
*Needham*
*Sharon*
*Sharon*
*Sharon*
*Westwood*

## Hazard Mitigation Community Planning Team
## Three Rivers Interlocal Council (TRIC)

**Second Regional Meeting**

TUESDAY, DECEMBER 11, 2007 10:00 AM
Norwood Civic Center, Willet Room (2nd floor)
165 Nahatan Street, Norwood, MA

### AGENDA

**10:00 WELCOME, INTRODUCTIONS & OVERVIEW OF AGENDA**

- *Martin Pillsbury, Project Manager*

**10:05 REVIEW OF HAZARD MAPPING AND CRITICAL INFRASTRUCTURE DATA COLLECTION**

- *Allan Bishop, GIS Manager, will present an overview of the draft Critical Facilities database and community hazard maps*

**10:45 UPDATE ON LOCAL PLANS**

- *Martin Pillsbury will introduce Joe Domelowicz, MAPC's project planner for the TRIC regional PDM plan*
- *Joe will review next steps in developing the local PDM plans*

**11:00 SETTING GOALS AND OBJECTIVES FOR THE REGIONAL PDM PLAN**

- *Martin Pillsbury will in review goals and objectives and ask the team to decide on priorities for the TRIC communities (see attachment)*

**11:15 NEXT STEPS / MEETING SCHEDULE**

Please contact Martin Pillsbury at MAPC if you have any questions:
617-451-2770, ext. 2012 or mpillsbury@mapc.org

# The Commonwealth of Massachusetts

DON BOYCE
Director

*DEVAL PATRICK, GOVERNOR*

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*Richard Sullivan*
*COMMISSIONER*

*Marc D. Draisen*
Executive Director

***METRO SOUTH/WEST PRE-DISASTER MTITGATION PLAN***

***SWAP Regional Hazard Mitigation Team***
*Bellingham*
*Franklin*
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*Milford*
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*Norfolk*
*Wrentham*

***TRIC Regional Hazard Mitigation Team***
*Canton*
*Dedham*
*Dover*
*Sharon*
*Medfield*
*Needham*
*Sharon*
*Sharon*
*Sharon*
*Westwood*

## Hazard Mitigation Community Planning Team
## Three Rivers Interlocal Council (TRIC)

**Third Regional Meeting**
WEDNESDAY, JULY 9, 2008 10:00 AM
Norwood Civic Center
Willet Room (2nd floor)
165 Nahatan Street, Norwood, MA

### AGENDA

**10:00 WELCOME & INTRODUCTIONS *(Please sign contact sheet)***

**10:05 REVIEW OF THE REGIONAL HAZARD MITIGATION MAP SERIES**

*Martin Pillsbury will present an overview of the regional Hazard Mitigation maps* ***(copies will be distributed on CD-ROM)***

**10:20 REGIONAL GOALS AND OBJECTIVES, ISSUES, RECOMMENDATIONS**

*The team will review goals and objectives and the regional issues to be included in the Regional Hazard Mitigation Plan.*

**11:00 OVERVIEW OF FEMA BENEFIT-COST ANALYSIS FOR GRANTS**

*Brad Stoler will present an overview of FEMA's requirements for Benefit-Cost Analysis for grant applications for mitigation projects.*

**11:25 REVIEW OF NEXT STEPS:**

- Complete remaining local plans and public meetings
- Plan review and approval by MEMA & FEMA
- Plan Adoption by the towns (Selectmen/Town Council)
- Final Approval letter issued by FEMA

**If you have any questions please contact Martin Pillsbury at MAPC: 617-451-2770, ext. 2012 or mpillsbury@mapc.org**

# The Metro Boston South/West Multi-Hazard Mitigation Plan
## First Local Committee Meeting

Town of Sharon, MA December 12, 2007

### First Meeting Agenda

1. Welcome and introductions

2. Review of grant scope of work and progress to date

3. Review aerial photograph
    a. Identify natural hazard areas
        i. Hazard type
        ii. Hazard severity
        iii. Hazard frequency
        iv. Existing mitigation measures
        v. Potential mitigation measures
    b. Identify future/potential development
        i. Type of development
        ii. Classify (existing, under construction, future, potential)
        iii. Zoning
        iv. Number of units/square feet
        v. Developer/owner
        vi. Potential adverse effects

4. Next steps

# The Metro Boston South/West Multi-Hazard Mitigation Plan
## Second Local Committee Meeting

Town of Sharon, MA January 31, 2008

### Second Meeting Agenda

1. Welcome and introductions

2. Review of scope of work and progress to date

3. Review aerial maps of critical natural hazards and potential development and discuss:
    a. Severity and frequency
    b. Existing and potential mitigation measures
    c. Costs & funding
    d. Timeframes
    e. Priorities

4. Develop goals and objectives

5. Next steps

# The Metro Boston South/West Multi-Hazard Mitigation Plan
# Third Local Committee Meeting

Town of Sharon, MA April 1, 2008

**Third Meeting Agenda (meet with Fire Chief)**

1. Welcome and introductions

2. Review of scope of work and progress to date

3. Review aerial maps of critical natural hazards and potential development and discuss:
    a. Severity and frequency
    b. Existing and potential mitigation measures
    c. Costs & funding
    d. Timeframes
    e. Priorities

4. Develop goals and objectives

5. Next steps

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# APPENDIX C:

# DOCUMENTATION OF THE PUBLIC MEETING

**SELECTMEN'S MEETING**
May 26, 2009
7:00 p.m.
90 South Main Street - Sharon Town Hall

## SECTION I. – APPOINTMENTS

1. Reorganization of the Board

2. 7:00 PM – Water Conservation Update and Outreach and Update:
   Ian Cooke, Executive Director of the Neponset River Watershed Association
   and Nancy Fyler:

3. 7:20 PM – Presentation of the Pre-Disaster Mitigation Plan: Joe Domelowicz, Metropolitan Area Planning Council

4. 7:45 PM – Proposed Cell Monopole at the Department of Public Works: Carl Pease

5. 8:00 PM – Paul Snyder: Pole Location Hearing for Verizon

## SECTION II. - GENERAL BUSINESS

6. Consider approval of 2009 Summer Schedule

7. Consider appointing Ben Pinkowitz to the Sacred Heart Reuse Committee

8. Consider awarding Southeastern Regional Services Group contract for Office Supplies, Paper Contract and DPW Supplies

9. Consider approval of banner request by MLS Soccer from June 8th – June 15th (2nd position)

10. Consider approval of PSC Environmental Services for Household Hazardous Waste Day on June 6, 2009

11. Land Being Considered for Purchase on Wolomolopoag Street by the Sharon Water Department

12. Other/New Business

# APPENDIX D:

# DOCUMENTATION OF PLAN ADOPTION BY THE BOARD OF SELECTMEN

# Adoption Resolution

Town of Sharon
Board of Selectmen
90 South Main Street
Sharon, MA 02067

**RESOLUTION**

WHEREAS, the Norfolk County Multi-Hazard Mitigation Plan has been prepared in accordance with FEMA requirements at 44 C.F.R. 201.6; and,

WHEREAS, Town of Sharon, participated in the preparation of a multi-jurisdictional plan, Norfolk County Multi-Hazard Mitigation Plan; and,

WHEREAS, Town of Sharon is a local unit of government that has afforded the citizens an opportunity to comment and provide input in the Plan and the actions in the Plan; and

WHEREAS, Town of Sharon has reviewed the Plan and affirms that the Plan will be updated no less than every five years.

NOW THEREFORE, BE IT RESOLVED by the Board of Selectmen that the Town of Sharon adopts the Norfolk County Multi-Hazard Mitigation Plan as this jurisdiction's Multi-Hazard Mitigation Plan, and resolves to execute the actions in the Plan.

ADOPTED this 6th day of July, 2010 at the meeting of the Board of Selectmen

Walter "Joe' Roach
Chairman Board of Selectmen