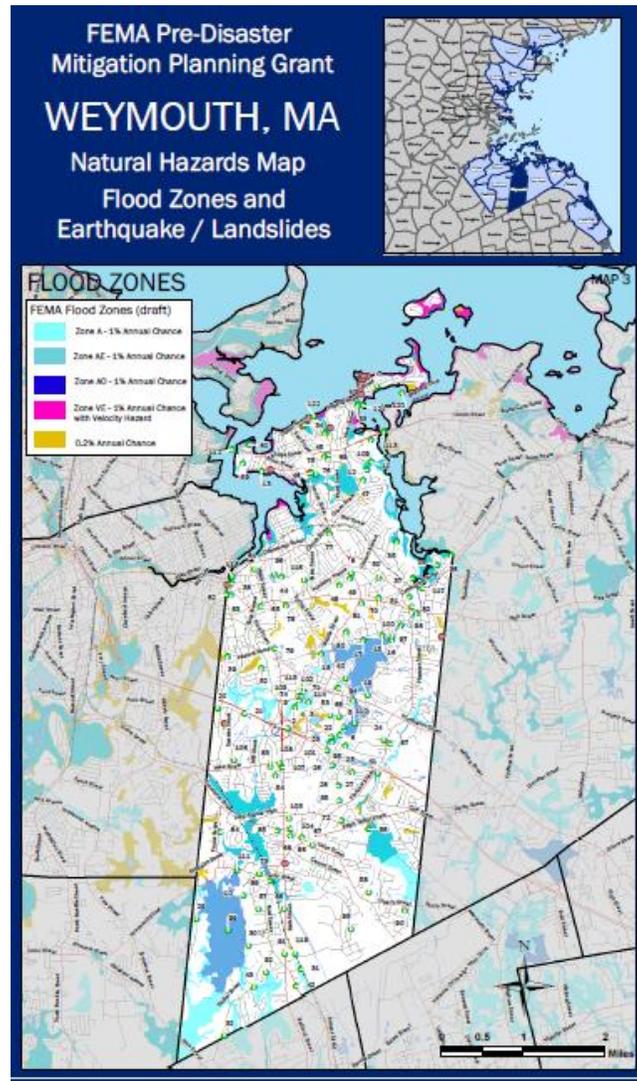


TOWN OF WEYMOUTH HAZARD MITIGATION PLAN 2014 UPDATE



Revised Draft Plan Update for MEMA and FEMA Review
May 15, 2015

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ACKNOWLEDGEMENTS AND CREDITS

This plan was prepared for the Town of Weymouth 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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John Mulveyhill	Emergency Management Director
Jim Clarke	Planning Director
Chip Fontaine	Town Engineer
Braydon Marot	Dept of Public Works, Engineering Division
James McGrath	Dept. of Public Works, Engineering Division
Jeff Bina	Dept. of Public Works
Mary Ellen Schloss	Conservation Administrator

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I. EXECUTIVE SUMMARY

Hazard Mitigation planning is a proactive effort to identify actions that can be taken to reduce the dangers to life and property from natural hazard events. In the communities of the Boston region of Massachusetts, hazard mitigation planning tends to focus most on flooding, the most likely natural hazard to impact these communities. The Federal Disaster Mitigation Act of 2000 requires all municipalities that wish to be eligible to receive FEMA funding for hazard mitigation grants, to adopt a local multi-hazard mitigation plan and update this plan in five year intervals.

Planning Process

Planning for the Hazard Mitigation Plan update was led by the Weymouth Local Hazard Mitigation Planning Team, composed of staff from a number of different Town Departments. This team met on July 11, 2011, November 17, 2011, and October 10, 2013 and discussed where the impacts of natural hazards most affect the Town, goals for addressing these impacts, updates to the Town's existing mitigation measures and new or revised hazard mitigation measures that would benefit the Town.

Public participation in this planning process is important for improving awareness of the potential impacts of natural hazards and to build support for the actions the Town takes to mitigate them. The Town hosted two public meetings, the first on September 20, 2011 with the Planning Board and the second on March 4, 2014, and the draft plan update was posted on the Town's website for public review. Key town stakeholders and neighboring communities were notified and invited to review the draft plan and submit comments.

Risk Assessment

The Weymouth Hazard Mitigation Plan assesses the potential impacts to the Town from flooding, high winds, winter storms, brush fire, and geologic hazards. Flooding, driven by hurricanes, northeasters and other storms, clearly presents the greatest hazard to the Town, most especially in the coastal areas along Fort Point and Fore River Road, as well as inland locations such as Old Swamp River and the Tamarack/Hickory/Daicia area.

The Weymouth Local Hazard Mitigation Planning Team identified nine areas where flooding most frequently occurs, comprising 160 acres, or 1.4% of the Town's land area, and approximately 257 buildings worth an estimated \$70 million.

Hazard Mitigation Goals

The Weymouth Local Hazard Mitigation Planning Team identified the following hazard mitigation goals for the Town:

- Ensure that critical infrastructure sites are protected from natural hazards.
- Protect existing residential and business areas from flooding.

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- Maintain existing mitigation infrastructure in good condition.
- Continue to enforce existing zoning and building regulations.
- Educate the public about zoning and building regulations, with regard to changes in regulations that may affect tear-downs and new construction.
- Work with surrounding communities to ensure regional cooperation and solutions for hazards affecting multiple communities.
- Encourage future development in areas that are not prone to natural hazards.
- Educate the public about natural hazards and mitigation measures.
- Make efficient use of public funds for hazard mitigation.

Hazard Mitigation Strategy

The Weymouth Local Hazard Mitigation Planning Team identified a number of mitigation measures that would serve to reduce the Town’s vulnerability to natural hazard events. The most important of these are physical infrastructure projects including drainage improvement projects at Puritan Road, River Street, Ralph Talbot Street, Derby Street, and Paomet Road; structure elevations along Fort Point Avenue; installation of a slide gate in a culvert at Great Esker Park, debris management for severe wind storms; an earthquake assessment of public buildings, and public education efforts relating to fire prevention.

Overall, the hazard mitigation strategy recognizes that mitigating hazards for Weymouth will be an ongoing process as our understanding of natural hazards and the steps that can be taken to mitigate their damages changes over time. Global climate change and a variety of other factors impact the Town’s vulnerability, and local officials will need to work together across municipal lines and with state and federal agencies in order to understand and address these changes. The Hazard Mitigation Strategy will be incorporated into other related plans and policies.

Plan Review and Update Process

Table 1 Plan Review and Update

Chapter	Reviews and Updates
III – Public Participation	The Local Hazard Mitigation Planning Team placed an emphasis on public participation for the update of the Hazard Mitigation Plan, discussing strategies to enhance participation opportunities at the first local committee meeting. During plan development, the plan was

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	discussed at two public meetings hosted by the Planning Board. The plan was also available on the Town’s website for public comment.
IV – Risk Assessment	MAPC gathered the most recently available hazard and land use data and met with Town staff to identify changes in local hazard areas and development trends. Town staff reviewed critical infrastructure with MAPC staff in order to create an up-to-date list. MAPC also used the most recently available version of HAZUS and assessed the potential impacts of flooding using the latest data.
V - Goals	The Hazard Mitigation Goals were reviewed and endorsed by the Weymouth Local Hazard Mitigation Planning Team.
VI – Existing Mitigation Measures	The list of existing mitigation measures was updated to reflect current mitigation activities in the Town.
VII & VIII – Hazard Mitigation Strategy	Mitigation measures from the 2005 plan were reviewed and assessed as to whether they were completed, on-going, or deferred. The Local Hazard Mitigation Planning Team determined whether to carry forward measures into the 2014 Plan Update or delete them. The Plan Update’s hazard mitigation strategy reflects both new measures and measures carried forward from the 2005 plan. The Committee re-prioritized all of these measures based on current conditions.
IX – Plan Adoption & Maintenance	This section of the plan was updated with a new on-going plan implementation review and five year update process that will assist the Town in incorporating hazard mitigation issues into other Town planning and regulatory review processes and better prepare the Town for the next comprehensive plan update.

As indicated on Table 27, Weymouth made some progress on implementing mitigation measures identified in the 2005 Hazard Mitigation Plan. Several projects have been completed, including an evaluation of seawalls, jetties, and dikes; Mill River improvements, Wessagusset Rd / Wituwamat Rd drainage upgrades, and a study of the River Street seawalls. Other projects are partially complete, including several drainage improvements and storm water improvements, upgrades to dams, and public education. These will be continued in this plan update for the next five year period. Two projects that were not completed will also be continued into this plan update, including drainage improvements to River Street (George Lane Beach) and an earthquake assessment of town buildings. Moving forward into the next five year plan implementation period there will be many more opportunities to incorporate hazard mitigation into the Town’s decision making processes.

Though not formally done in the 2005 Plan, the Town will document any actions taken within this iteration of the Hazard Mitigation Plan on challenges met and actions successfully adopted as part of the ongoing work of the biannual survey and four year update to be conducted by the Hazard Mitigation Implementation Team, as described in Section IX, Plan Adoption and Maintenance.

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II. 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 FEMA funding for hazard mitigation grants, must adopt a local multi-hazard mitigation plan and update this plan in five year intervals. 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 Weymouth and nine other South Shore communities to update their local Hazard Mitigation Plans, which were first adopted as part of a South Shore Regional Hazard Mitigation Plan. Though the multi-jurisdictional hazard mitigation model is no longer being used, the Regional Committee still served as a sounding board to address multi-jurisdictional and regional issues. The local Hazard Mitigation Plan updates produced under this grant are designed to individually meet the requirements of the Disaster Mitigation Act for each community while listing regional concerns and hazards that impact the town or city creating the plan.

What is a Hazard Mitigation Plan?

Natural hazard mitigation planning is the process of determining how to systematically 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 resulting from natural hazards through long-term strategies. These long-term strategies include planning, policy changes, programs, projects, and other activities.

Previous Federal/State Disasters

The Town of Weymouth has experienced 16 natural hazards that triggered federal or state disaster declarations since 1991. These are listed in Table 2 below. The vast majority of these events involved flooding.

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Table 2 Previous Federal/State Disaster Declarations

DISASTER NAME (DATE OF EVENT)	TYPE OF ASSISTANCE	DECLARED AREAS
Hurricane Bob (August 1991)	FEMA Public Assistance Project Grants	Counties of Barnstable, Bristol, Dukes, Essex, Hampden, Middlesex, Plymouth, Nantucket, Norfolk, Suffolk
	Hazard Mitigation Grant Program	Counties of Barnstable, Bristol, Dukes, Essex, Hampden, Middlesex, Plymouth, Nantucket, Norfolk, Suffolk (16 projects)
No-Name Storm (October 1991)	FEMA Public Assistance Project Grants	Counties of Barnstable, Bristol, Dukes, Essex, Middlesex, Plymouth, Nantucket, Norfolk
	FEMA Individual Household Program	Counties of Barnstable, Bristol, Dukes, Essex, Middlesex, Plymouth, Nantucket, Norfolk
	Hazard Mitigation Grant Program	Counties of Barnstable, Bristol, Dukes, Essex, Middlesex, Plymouth, Nantucket, Norfolk, Suffolk (10 projects)
March Blizzard (March 1993)	FEMA Public Assistance Project Grants	All 14 Counties
January Blizzard (January 1996)	FEMA Public Assistance Project Grants	All 14 Counties
May Windstorm (May 1996)	State Public Assistance Project Grants	Counties of Plymouth, Norfolk, Bristol (27 communities)
October Flood (October 1996)	FEMA Public Assistance Project Grants	Counties of Essex, Middlesex, Norfolk, Plymouth, Suffolk
	FEMA Individual Household Program	Counties of Essex, Middlesex, Norfolk, Plymouth, Suffolk
	Hazard Mitigation Grant Program	Counties of Essex, Middlesex, Norfolk, Plymouth, Suffolk (36 projects)

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DISASTER NAME (DATE OF EVENT)	TYPE OF ASSISTANCE	DECLARED AREAS
1997	Community Development Block Grant-HUD	Counties of Essex, Middlesex, Norfolk, Plymouth, Suffolk
June Flood (June 1998)	FEMA Individual Household Program	Counties of Bristol, Essex, Middlesex, Norfolk, Suffolk, Plymouth, Worcester
	Hazard Mitigation Grant Program	Counties of Bristol, Essex, Middlesex, Norfolk, Suffolk, Plymouth, Worcester (19 projects)
(1998)	Community Development Block Grant-HUD	Counties of Bristol, Essex, Middlesex, Norfolk, Suffolk, Plymouth, Worcester
March Flood (March 2001)	FEMA Individual Household Program	Counties of Bristol, Essex, Middlesex, Norfolk, Suffolk, Plymouth, Worcester
	Hazard Mitigation Grant Program	Counties of Bristol, Essex, Middlesex, Norfolk, Suffolk, Plymouth, Worcester (16 projects)
February Snowstorm (Feb 17-18, 2003)	FEMA Public Assistance Project Grants	All 14 Counties
January Blizzard (January 22-23, 2005)	FEMA Public Assistance Project Grants	All 14 Counties
Hurricane Katrina (August 29, 2005)	FEMA Public Assistance Project Grants	All 14 Counties
May Rainstorm/Flood (May 12-23, 2006)	Hazard Mitigation Grant Program	Statewide
April Nor'easter (April 15-27, 2007)	Hazard Mitigation Grant Program	Statewide
Weymouth Fire (June 27, 2008)	SBA Loan	Town of Weymouth
Flooding (March, 2010)	FEMA Public Assistance FEMA Individuals and Households Program SBA Loan	Bristol, Essex, Middlesex, Suffolk, Norfolk, Plymouth, Worcester

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DISASTER NAME (DATE OF EVENT)	TYPE OF ASSISTANCE	DECLARED AREAS
	Hazard Mitigation Grant Program	Statewide
Tropical Storm Irene (August 27-28, 2011)	FEMA Public Assistance	Statewide
Severe snowstorm and Flooding (February 8-09, 2013)	FEMA Public Assistance; Hazard Mitigation Grant Program	Statewide

Source: database provided by MEMA)

FEMA Funded Mitigation Projects

Town of Weymouth has received funding from FEMA for six mitigation projects under the Flood Mitigation Assistance (FMA) and Hazard Mitigation Grant Program (HMGP). These projects totaled \$788,589.32, with \$593,464.66 covered by FEMA grants and \$195,124.50 by local funding. The projects are summarized in Table 3 below.

Table 3 FEMA-Funded Mitigation Projects

Grant	Project Title	Scope of Work	Total Cost	Federal Funding	Local Funding
FMA 00-04	Flood Mitigation Plan (FMA)	Develop a comprehensive flood mitigation plan for the community.	\$10,134.00	\$7,600.00	\$2,534.00
FMA 01-08	Wituwamat Rd/Wessagusset Rd. Flood Mitigation Study (FMA)	Study flood problems at Wessagusset and Witawamut Rd and determination of priority projects to mitigate flooding.	\$25,000.00	\$18,750.00	\$6,250.00
FMA 01-09	Wolcott St./Fort Point Rd. drain check valve (FMA)	Replace existing metal check valve at end of drain outfall pipe and install with "duck" bill type check valve	\$10,500.00	\$7,875.00	\$2,625.00
FMA 04-01	Wessagussett Drainage Improvement Program (FMA)		\$341,695.16	\$256,271.41	\$85,423.75
HMGP 1224-14	Wessagussett Road Drain Improvement	Install concrete structure with a tide flapper gate valve and	\$59,565.00	\$46,697.00	\$12,868.00

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	(HMGP)	sealed manhole cover. Retrofit one manhole.			
FMA	Wessagussett Drainage Improvement Program (FMA)	Remove and replace 10 existing drain structures. Remove and replace existing drain lines, replacing a portion with larger diameter lines.	\$341,695.16	\$256,271.25	\$85,423.75

(Source: database provided by MEMA)

Community Profile

Weymouth is the second oldest town in the Commonwealth, behind Plymouth, and the site of the first town meeting. Established in 1622 and incorporated in 1635, the town was a fishing and agricultural community for almost two hundred years. Today, Weymouth is primarily a residential suburb of Quincy and Boston with a population of 54,000. As a coastal community, Weymouth provides many recreational activities. The town offers an extensive program in water safety and swimming instruction at George Lane Beach, and boaters enjoy the waters of Quincy and Hingham Bays. Weymouth is located in eastern Massachusetts, 12 miles southeast of Boston and 42 miles northeast of Providence.

Compared to other municipalities, Weymouth has been almost completely developed in terms of land area. But, that has not, and will not, prevent the redevelopment of sites with new uses or infill development on the few sites that remain. Some examples of this are the redevelopment of Mammoth Mart into Lechmere's, which itself was redeveloped into Wal-Mart; Stetson Shoe being redeveloped into non-industrial use as Stetson Place, an office complex; and the transformation of the former Nike Missile Base into Webb State Park. The most obvious example of this trend continuing is in the redevelopment of the Naval Air Station into the Southfield development.

The Town of Weymouth is governed by a city form of government with a Mayor and a Town Council. Weymouth is served by Routes 3, 18 & 53. It also enjoys commuter rail access to Boston.

The town maintains a website at <http://www.weymouth.ma.us/>

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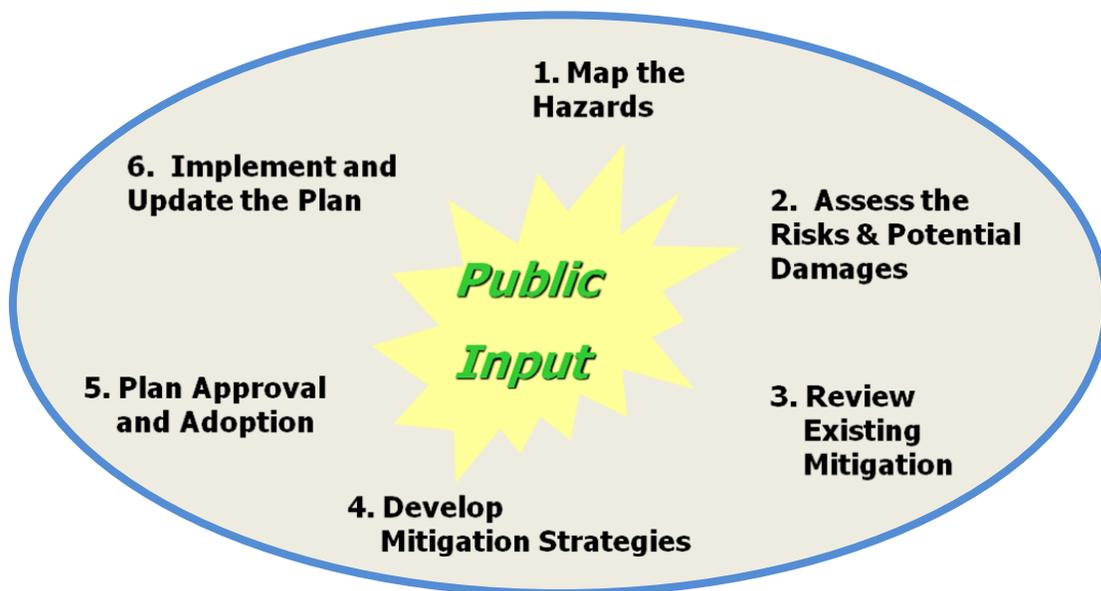
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III. PLANNING PROCESS AND PUBLIC PARTICIPATION

MAPC employs a six step planning process based on FEMA’s hazard mitigation planning guidance focusing on local needs and priorities but maintaining a regional perspective matched to the scale and nature of natural hazard events. Public participation is a central component of this process, providing critical information about the local occurrence of hazards while also serving as a means to build a base of support for hazard mitigation activities. MAPC supports participation by the general public and other plan stakeholders through Regional and Local Hazard Mitigation Planning Teams, two public meetings hosted by the local Planning Board, posting of the plan to the Town’s website, and invitations sent to neighboring communities, Town boards and commissions, the local chamber of commerce, and other local or regional entities to review the plan and provide comment.

Planning Process Summary

The six-step planning process outlined below is based on the guidance provided by FEMA in the Local Multi-Hazard Mitigation Planning Guidance. Public participation is a central element of this process, which attempts to focus on local problem areas and identify needed mitigation measures based on where gaps occur in the existing mitigation efforts of the municipality. By working on municipal hazard mitigation plans in groups of neighboring cities and towns, MAPC is able to identify regional opportunities for collaboration and facilitate communication between communities. In plan updates, the process described below allows staff to bring the most recent hazard information into the plan, including new hazard occurrence data, changes to a municipality’s existing mitigation measures, and progress made on actions identified in previous plans.



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- Map the Hazards – MAPC relies on data from a number of different federal, state, and local sources in order to map the areas with the potential to experience natural hazards. This mapping represents a multi-hazard assessment of the municipality and is used as a set of base maps for the remainder of the planning process. A particularly important source of information is the knowledge drawn from local municipal staff on where natural hazard impacts have occurred, which is collected. These maps can be found in Appendix B.

- Assess the Risks & Potential Damages – Working with local staff, critical facilities, infrastructure, vulnerable populations, and other features are mapped and contrasted with the hazard data from the first step to identify those that might represent particular vulnerabilities to these hazards. Land use data and development trends are also incorporated into this analysis. In addition, MAPC develops estimates of the potential impacts of certain hazard events on the community. . MAPC drew on the following resources to complete the plan:
 - Town of Weymouth, General Ordinances
 - Town of Weymouth, Zoning Ordinance
 - MA Coastal Hazards Commission, Preparing For the Storm: Recommendations for Management of Risk from Coastal Hazards in Massachusetts, May 2007.
 - FEMA, Local Mitigation Plan Review Guide; October 1, 2011
 - FEMA, Flood Insurance Rate Maps for Norfolk County, MA, 2012
 - Metropolitan Area Planning Council, Geographic Information Systems Lab.
 - Metropolitan Area Planning Council, Regional Plans and Data.
 - Massachusetts StormSmart Coasts, website: <http://ma.stormsmartcoasts.org/>
 - New England Seismic Network, Boston College Weston Observatory, website: <http://aki.bc.edu/index.htm>
 - Northeast States Emergency Consortium, website: <http://www.nesec.org/>

- Review Existing Mitigation – Municipalities in the Boston Metropolitan Region have an active history in hazard mitigation as many have adopted flood plain zoning districts, wetlands protection programs, and other measures as well as enforcing the State building code, which has strong provisions related to hazard resistant building requirements. All current municipal mitigation measures must be documented.

- Develop Mitigation Strategies – MAPC works with the local municipal staff to identify new mitigation measures, utilizing information gathered from the hazard identification, vulnerability assessments, and the community’s existing mitigation efforts to determine where additional work is necessary to reduce the potential damages from hazard events. Additional information on the development of hazard mitigation strategies can be found in Chapter VII.

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- **Plan Approval & Adoption** – Once a final draft of the plan is complete it is sent to MEMA for the state level review and, following that, to FEMA for approval. Typically, once FEMA has approved the plan the agency issues a conditional approval (Approval Pending Adoption), with the condition being adoption of the plan by the municipality. More information on plan adoption can be found in Chapter IX and documentation of plan adoption can be found in Appendix D.
- **Implement & Update the Plan** – Implementation is the final and most important part of any planning process. Hazard Mitigation Plans must also be updated on a five year basis making preparation for the next plan update an important on-going activity. Chapter IX includes more detailed information on plan implementation.

Weymouth’s Participation in the Regional Committee

On January 15, 2010 a letter was sent notifying the communities of the first meeting of the South Shore Regional Committee and requesting that the Chief Elected Official designate a minimum of two municipal employees and/or officials to represent the community. The Town of Weymouth appointed John Mulveyhill, Emergency Management Director, as its designee on the regional committee.

The regional committee serves as an opportunity for neighboring communities to discuss hazard mitigation issues of shared concern. In addition, as the same group of MAPC staff is working on each community’s plan, these issues of shared concern, and other issues that may arise between neighboring communities, are discussed in greater detail in local committee meetings and resulting actions are reflected in the identified mitigation measures, as noted in Chapter VIII. The South Shore Regional Committee met on February 9, 2010 and was attended by representatives from the neighboring cities and towns of Hull, Randolph, Quincy, Braintree, Weymouth, Hingham, Cohasset, Scituate and Marshfield. At that meeting, representatives from each of the ten South Shore communities were re-introduced to the following items:

- A) The Massachusetts State Hazard Mitigation Plan and the FEMA hazard mitigation planning and grant process;
- B) The concept of each community engaging staff and the public to update its current Natural Hazard Mitigation Plan;
- C) FEMA plan overview and requirements and plan eligibility;
- D) Review of the overall scope of work and plan revision schedule
- E) Questions and discussion of local issues, inter-community and South Shore Region hazard mitigation issues and how to address.
- F) Re-introduction to identifying and mapping municipal Critical Facilities, municipal Areas of Concern, Inter-Community Areas of Concern, and Regional Shared areas of Concern.
- G) Municipal representatives were also briefed on the importance of trying to encourage diversified public participation in the planning process, and were asked to contact

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major employers, business owners, schools and non-profit organizations to participate in the process.

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 Hazard Mitigation Planning Team for Weymouth. MAPC briefed the local representatives as to the desired composition of that team as well as the need for public participation in the local planning process.

The Local Hazard Mitigation Planning Team Meetings

On July 11, 2011, November 17, 2011, and October 10, 2013, MAPC facilitated meetings of the Weymouth Hazard Mitigation Planning Committee. The meetings were organized by John Mulveyhill, Emergency Management Director and Jim Clarke, Planning Director. The purpose of the first meeting was to introduce the PDM program, develop hazard mitigation goals, and to gather information on local hazard mitigation issues and sites or areas related to these. The second meeting focused on verifying information gathered by MAPC staff and discussion of existing mitigation practices, the status of mitigation measures identified in the 2005 hazard mitigation plan, and potential mitigation measures. The third meeting concluded with prioritization of proposed mitigation measures as well as measures carried forward from the previous plan. Table 4 lists the attendees at each meeting of the team. The agendas for these meetings are included in Appendix A.

Table 4	
Attendance at the Weymouth Hazard Mitigation Planning Committee Meetings	
Name	Representing
<i>July 11, 2011</i>	
Jeff Bina	Department of Public Works
Jim Clarke	Planning
Chip Fontaine	Town Engineer
John Mulveyhill	Emergency Management
<i>November 17, 2011</i>	
Jeff Bina	Department of Public Works
Jim Clarke	Planning
Chip Fontaine	Town Engineer
John Mulveyhill	Emergency Management
<i>October 10, 2013</i>	
Jim Clarke	Planning
Jim McGrath	Department of Public Works, Engineering
John Mulveyhill	Emergency Management
Mary Ellen Schloss	Conservation Administrator

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Public Meetings

Public participation in the hazard mitigation planning process is important, both for plan development and for later implementation of the plan. Residents, business owners, and other community members are an excellent source for information on the historic and potential impacts of natural hazard events and particular vulnerabilities the community may face from these hazards. Their participation in this planning process also builds understanding of the concept of hazard mitigation, potentially creating support for mitigation actions taken in the future to implement the plan. To gather this information and educate residents on hazard mitigation, the Town hosted two public meetings, one during the planning process and one after a complete draft plan is available for review.

Natural hazard mitigation plans unfortunately rarely attract much public involvement in the Boston region, unless there has been a recent hazard event. One of the best strategies for overcoming this challenge is to include discussion of the hazard mitigation plan on the agenda of an existing board or commission. With this strategy, the meeting receives widespread advertising and a guaranteed audience of the board or commission members plus those who attend the meeting. These board and commission members represent an engaged audience that is informed and up to date on many of the issues that relate to hazard mitigation planning in the locality and will likely be involved in plan implementation, making them an important audience with which to build support for hazard mitigation measures. In addition, these meetings frequently receive press coverage and are televised, expanding the audience that has the opportunity to hear the presentation and provide comment by phoning or emailing local staff.

The public had an opportunity to provide input to the Weymouth hazard mitigation planning process during a meeting of the Planning Board, on September 20, 2011 held in the McCulloch Building. The draft plan update was presented at a Planning Board meeting held on March 4, 2014. Both meetings were publicized as regular meetings of the Planning Board according to the Massachusetts Public Meeting Law. The attendance list for each meeting can be found in Table 5. In addition, the draft plan update was made available on the Town’s website for public review.

**Table 5
Attendance at Public Meetings**

Name	Representing
<u>First Public Meeting (9/20/11)</u>	
Walter Flynn, Chair	Weymouth Planning Board
Sandra Williams, Vice-Chair	Weymouth Planning Board
Dave Chandler	Weymouth Planning Board
Mary Akoury	Weymouth Planning Board
Paul Hurley	Weymouth Planning Board
James Clarke	Planning Director
Robert Luongo	Principal Planner
James Freas	MAPC

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Second Public Meeting (3/4/14)

Walter Flynn, chairman	Weymouth Planning Board
Sandra Williams	Weymouth Planning Board
Mary Akoury	Weymouth Planning Board
James Clarke	Planning Director
John Mulveyhill	Emergency Management Director
Martin Pillsbury	MAPC

Local Stakeholder Involvement

The local Hazard Mitigation Planning Team was encouraged to reach out to local stakeholders that might have an interest in the Hazard Mitigation Plan including neighboring communities, agencies, businesses, nonprofits, and other interested parties. Notice was sent to the following organizations and neighboring municipalities inviting them to review the Hazard Mitigation Plan and submit comments to the Town:

- City of Quincy
- Town of Braintree
- Town of Holbrook
- Town of Hingham
- Town of Rockland
- South Shore Tri-Town Development Corporation
- South Shore Chamber of Commerce
- South Shore Hospital
- Fore River Watershed Association
- Back River Watershed Association

Town Web Site

The draft Weymouth Hazard Mitigation Plan Update was posted on the Town’s website for the second public meeting and for two weeks afterwards. Members of the public could access the draft document and submit comments or questions to the Town. No comments on the draft plan were received during the public review process

Planning Timeline

January 15, 2010	Letter to the participating municipalities requesting appointments to the South Shore regional Hazard Mitigation Committee
February 16, 2010	Meeting of the South Shore Regional Committee
July 11, 2011	1st Meeting of the Weymouth Hazard Mitigation Committee
September 20, 2011	1st Public Meeting with the Planning Board
November 17, 2011	2nd meeting of the Weymouth Hazard Mitigation Committee
October 10, 2013	3rd meeting of the Weymouth Hazard Mitigation Committee
March 4, 2014	2nd Public Meeting with the Planning Board
March 31, 2014	Draft Plan Update submitted to MEMA
August 11, 2014	Revised Draft Plan Update submitted to MEMA
September 25, 2014	Revised Draft Plan Update re-submitted to MEMA and FEMA
May 14, 2015	Revised Draft Plan Update submitted to MEMA

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IV. RISK ASSESSMENT

The risk assessment analyzes the potential natural hazards that could occur within the Town of Weymouth as well as the relationship between those hazards and current land uses, potential future development, and critical infrastructure. This section also includes a vulnerability assessment that estimates the potential damages that could result from certain large scale natural hazard events.

Update Process

In order to update Weymouth’s risk assessment, MAPC gathered the most recently available hazard and land use data and met with Town staff to identify changes in local hazard areas and development trends. MAPC also used the most recently available version of HAZUS (described below).

Overview of Hazards and Impacts

The Massachusetts Hazard Mitigation Plan provides an in-depth overview of natural hazards in Massachusetts. Previous state and federal disaster declarations since 1991 are summarized in Table 2.

Table 6 summarizes the hazard risks for Weymouth. This evaluation takes into account the frequency of the hazard, historical records, and variations in land use. This analysis is based on the vulnerability assessment in the Massachusetts State Hazard Mitigation Plan . The statewide assessment was modified to reflect local conditions in Weymouth using the definitions for hazard frequency and severity listed below Table 6.

Table 6 - Hazard Risks Summary

Hazard	Frequency		Severity	
	Massachusetts	Weymouth	Massachusetts	Weymouth
Flooding	High	High	Serious	Minor
Dam failures	Very Low	Very Low	Extensive	Serious
Coastal Hazards	High	High	Serious	Serious
Winter storms	High	High	Minor	Minor
Hurricanes	Medium	Medium	Serious	Serious
Tornadoes	Medium	Low	Serious	Serious
Thunderstorms	High	High	Minor	Minor
Brush fires	Medium	Medium	Minor	Minor
Earthquakes	Very Low	Very Low	Serious	Serious
Landslides	Low	Low	Minor	Minor
Extreme Temperatures	Medium	Medium	Minor	Minor
Drought	Low	Low	Minor	Minor

Source, Massachusetts State Hazard Mitigation Plan, 2013, modified for Weymouth

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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 1% per year)
Low frequency: events that occur from once in 50 years to once in 100 years (1% to 2% per year);
Medium frequency: events that occur from once in 5 years to once in 50 years (2% to 20% per year);
High frequency: events that occur more frequently than once in 5 years (Greater than 20% per year).

Severity

Minor: Limited and scattered property damage; limited damage to public infrastructure and essential services not interrupted; limited injuries or fatalities.

Serious: Scattered major property damage; some minor infrastructure damage; essential services are briefly interrupted; some injuries and/or fatalities.

Extensive: Widespread major property damage; major public infrastructure damage (up to several days for repairs); essential services are interrupted from several hours to several days; many injuries and/or fatalities.

Catastrophic: Property and public infrastructure destroyed; essential services stopped; numerous injuries and fatalities.

Flood Related Hazards

Flooding was the most prevalent serious natural hazard identified by local officials in Weymouth. Flooding is generally caused by hurricanes, nor'easters, severe rainstorms, and thunderstorms. Sea level rise has the potential to exacerbate these issues over time.

Regionally Significant Floods

There have been a number of major floods that have affected the South Shore region over the last fifty years. Significant historic flood events in Weymouth have included:

- March 1968
- The blizzard of 1978 - Storm surge flooding associated with northeast wind, heavy ocean tide surge, heavy wet snowfall and long storm duration. The result was severe flooding along the ocean frontage. Considered a 500-year storm. Flooding 4-5 feet deep of salt water for 3-4 days resulting in approximately 80 homes flooding and families relocated. Damage estimate of \$150,000, established through interviews with storm cleanup crews and residents affected by flooding
- January 1979
- April 1987
- October 1991 ("The Perfect Storm") - Severe storm surge with high winds and tidal flooding associated with northeast wind push. Heavy rains and tides caused flooding along the coastal area. Asphalt street and parking areas undermined and damage. This was considered to be a 100-year storm. Damage estimate of \$30,000, established through interviews with storm cleanup crews and residents affected by flooding.

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- Blizzard of 1992 - Severe storm surge with high winds and tidal flooding accompanied with heavy snowfall and ice. Storm surge and high winds caused coastal flooding along coastal areas. Considered a 100-year storm. Flooding 1-2 feet of salt water caused flooding of approx. 25 homes. Damage estimate of \$75,000, based on interviews with storm cleanup crews and residents affected by flooding.
- October 1996
- June 1998
- March 2001
- April 2004
- May 2006
- April 2007
- March 2010
- December 2010

Local town-specific data for previous flooding occurrences are not collected by the Town of Weymouth. The best available local data is for Norfolk County through the National Climatic Data Center (see Table 7). Norfolk County, which includes the Town of Weymouth, experienced 45 flood events from 1996 –2014. No deaths or injuries were reported and the total reported property damage in the county was \$26.2 million dollars. Of that total, \$24.9 million is attribute to the two major events of March 2010.

Table 7 Norfolk County Flood Events, 1996-2014

Location	Date	Type	Deaths	Injuries	Property Damage
WESTERN NORFOLK	01/27/1996	Flood	0	0	0.00K
NORFOLK	09/18/1996	Flood	0	0	0.00K
WESTERN NORFOLK	10/21/1996	Flood	0	0	0.00K
WESTERN NORFOLK	05/12/1998	Flood	0	0	0.00K
WESTERN NORFOLK	06/13/1998	Flood	0	0	570.00K
WESTERN NORFOLK	06/15/1998	Flood	0	0	0.00K
EASTERN NORFOLK	03/05/2001	Flood	0	0	0.00K
WESTERN NORFOLK	03/22/2001	Flood	0	0	0.00K
WESTERN NORFOLK	03/22/2001	Flood	0	0	0.00K
WESTERN NORFOLK	04/01/2001	Flood	0	0	0.00K
PLYMOUTH / PART OF NORFOLK	03/28/2005	Flood	0	0	0.00K
WESTERN NORFOLK	10/15/2005	Flood	0	0	30.00K
WESTERN NORFOLK	10/15/2005	Flood	0	0	40.00K
PLYMOUTH / PART OF NORFOLK	10/15/2005	Flood	0	0	200.00K
WESTERN NORFOLK	10/15/2005	Flood	0	0	60.00K
EASTERN NORFOLK	10/15/2005	Flood	0	0	40.00K

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PLYMOUTH / PART OF NORFOLK	10/15/2005	Flood	0	0	140.00K
PLYMOUTH / PART OF NORFOLK	10/25/2005	Flood	0	0	35.00K
NORFOLK	05/13/2006	Flood	0	0	5.00K
NORFOLK	06/07/2006	Flood	0	0	20.00K
NORFOLK	06/07/2006	Flood	0	0	0.00K
NORFOLK	06/07/2006	Flood	0	0	0.00K
NORFOLK	10/28/2006	Flood	0	0	8.00K
NORFOLK	11/24/2006	Flood	0	0	0.00K
NORFOLK	03/02/2007	Flood	0	0	5.00K
NORFOLK	04/18/2007	Flood	0	0	5.00K
NORFOLK	02/13/2008	Flood	0	0	10.00K
NORFOLK	07/02/2008	Flood	0	0	5.00K
NORFOLK	08/15/2008	Flood	0	0	3.00K
NORFOLK	05/24/2009	Flood	0	0	0.00K
NORFOLK	06/27/2009	Flood	0	0	15.00K
NORFOLK	03/14/2010	Flood	0	0	16.640M
NORFOLK	03/29/2010	Flood	0	0	8.320M
NORFOLK	04/01/2010	Flood	0	0	0.00K
NORFOLK	07/24/2010	Flood	0	0	20.00K
NORFOLK	08/05/2010	Flood	0	0	0.00K
NORFOLK	08/25/2010	Flood	0	0	8.00K
NORFOLK	08/28/2011	Flood	0	0	0.00K
NORFOLK	08/15/2012	Flood	0	0	0.00K
NORFOLK	10/29/2012	Flood	0	0	0.00K
NORFOLK	06/07/2013	Flood	0	0	0.00K
NORFOLK	07/29/2013	Flood	0	0	0.00K
NORFOLK	08/09/2013	Flood	0	0	15.00K
NORFOLK	10/22/2014	Flood	0	0	0.00K
NORFOLK	10/23/2014	Flood	0	0	0.00K
TOTAL			0	0	26.2 M

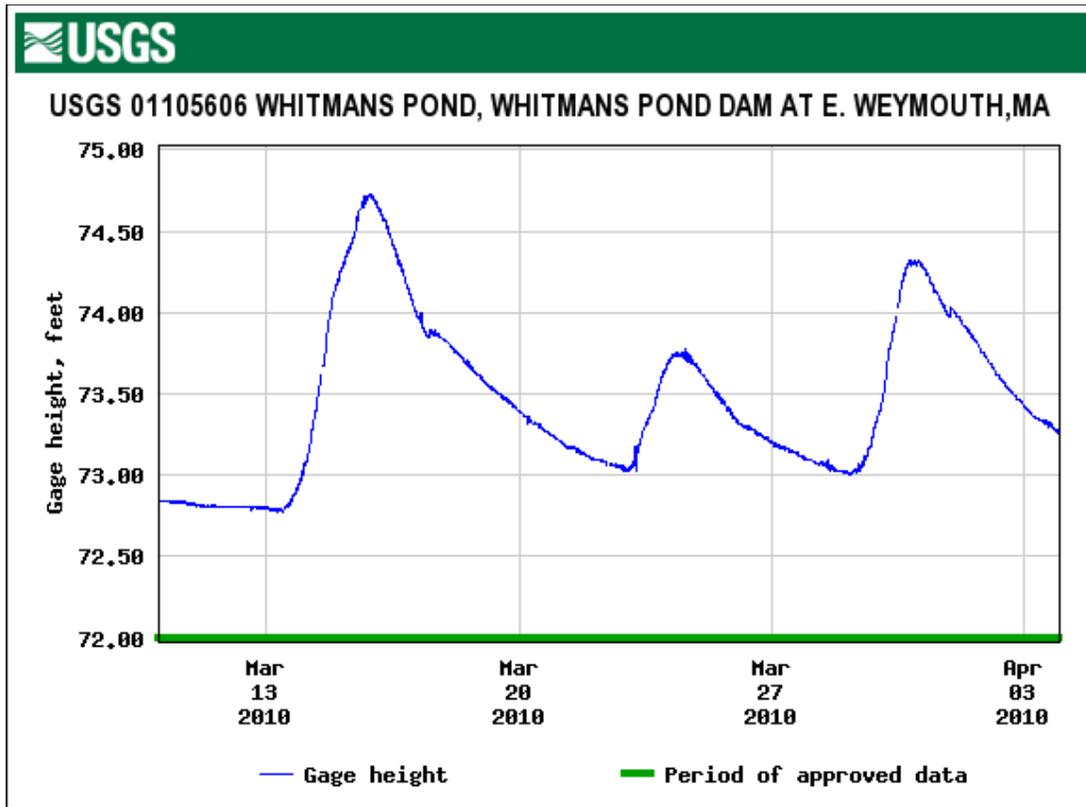
Source: NOAA, National Climatic Data Center

The most severe flooding since the previous plan occurred during March 2010, when a total of 14.83 inches of rainfall accumulation was recorded by the National Weather Service (NWS). The weather pattern that consisted of early springtime prevailing westerly winds that moved three successive storms, combined with tropical moisture from the Gulf of Mexico, across New England. Torrential rainfall caused March 2010 to be the wettest month on record. One indication of the extent of flooding is the gage height at the nearest USGS streamflow gaging station, which is at the Whitman's Pond

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Dam in neighboring Weymouth. The USGS gage height, shown in Figure 1, exceeded 74.5 feet on March 17, 2010 and exceeded 74.0 feet on March 31, 2010. Normal gage height in March is about 72.5 feet.

Figure 1 Whitman's Pond Dam Gage Height, March-April 2010



Source, US Geological Service,

Overview of Town-Wide Flooding

The Town of Weymouth is subject to two kinds of flooding; coastal flooding where wind and tide leads to flooding along the shore and tidal waterways and inland flooding where the rate of precipitation or amount of water overwhelms the capacity of natural and structured drainage systems to convey water causing it to overflow the system. These two types of flooding are often combined as inland flooding is prevented from draining by the push of wind and tide driven water. Both types of flooding can be caused by major storms, known as northeasters and hurricanes. Northeasters can occur at any time of the year but they are most common in winter. Hurricanes are most common in the summer and early fall. Northeasters cover a larger area than hurricanes although the winds are not as high. They also generally last long enough to include at least one high tide, which causes the most severe flooding. Large rain storms or snowfalls can also lead to inland flooding.

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Potential Flood Hazard Areas

Information on potential flood hazard areas was taken from two sources. The first was the National Flood Insurance Rate Maps. The FIRM flood zones are shown on Map 3 in Appendix B and their definitions are listed below.

In addition, information on areas subject to flooding was provided by local officials. The Locally Identified Areas of Flooding described below were identified by Town staff as areas where flooding is known to occur. These areas do not necessarily coincide with the flood zones from the FIRM maps. They may be areas that flood due to inadequate drainage systems or other local conditions rather than location within a flood zone. The numbers correspond to the numbers on Map 8, "Hazard Areas".

Flood Insurance Rate Map Zone Definitions

Zone A (1% annual chance) - 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 (1% annual chance) - 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 X500 (.2% annual chance) - Zone X500 is the flood insurance rate zone that correspond to the 500-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.

Zone VE (1% annual chance) - 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.

Locally Identified Areas of Flooding

- 1) Gaslight/Fountain Lane: Chronic flooding because of poor drainage.
- 2) Plymouth River @ Route 53: Culvert under the state owned highway is undersized.
- 3) Carolyn Road: Poor drainage and obstructions in the stream lead to flooding in this area.
- 4) Old Swamp River: Flooding impacts yards, homes and streets in this area.
- 5) Tamarack/Hickory/Dacia: Low slope in the stream and development of this relatively flat area coupled with limited drainage and ledge preventing ground absorption of stormwater leads to flooding in this area.
- 6) Fort Point Road: Tidal flooding associated with astronomical high tides and storm events.
- 7) Fore River Avenue: Broken sea wall here allows flooding during storms.

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- 8) Wituwamat Road: Tidal flooding. Previous mitigation funds were used to install flapper valves, which has served to limit the number of flood events in this area.
- 9) Saltwater Creek: Inadequate drain associated with the State highway here leads to flooding of area; also tidal flooding.

Repetitive Loss Structures

There are 27 repetitive loss structures in Weymouth, an increase from the 21 structures identified in the 2005 plan. 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/business/nfip/replps.shtm>. Table 8 summarizes the number and type of repetitive loss structures located within both the FEMA designated flood zones and the locally identified flood zones.

Table 8 Repetitive Loss Properties Summary

Flood Zone	Single Family Residential Structures	Multi-Family Residential Structures	Commercial, Industrial, or Institutional Structures	Total Repetitive Loss Properties
FEMA Zone A	10	0	0	10
FEMA Zone VE	4	0	0	4
FEMA .2% annual chance	0	0	0	0
Total: FEMA Flood Zones*	14	0	0	14
Gaslight/Fountain Ln	0	0	0	0
Plymouth River at Route 53	0	0	0	0
Carolyn Road	0	0	0	0
Old Swamp River	0	0	0	0
Tamarack/ Hickory/ Dacia	0	0	0	0
Fort Point Road	14	0	0	14
Fore River Ave.	0	0	0	0
Wituwamat Road	4	0	0	4
Saltwater Creek	0	0	0	0
Total: Locally Identified Flooding*	18	0	0	18

* Note totals for repetitive loss properties in FEMA flood zones and locally identified areas of flooding do not necessarily match the total number of repetitive loss properties in the community as there is considerable overlap between the two types of flood area and not all repetitive loss properties are located in an identified flood zone.

Source: Department of Conservation and Recreation, Repetitive Loss data as of 4-24-14

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The number of repetitive loss properties, losses, and total claims in Weymouth since 1979 are summarized in Table 9. The claims total \$853,336 for the town.

Table 9 Summary of Repetitive Losses and Claims

	Single Family Residential	Other Residential	Non- Residential	Total
Number of Properties	22	1	4	27
Number of Losses	66	2	10	78
Total Claims	\$771,709	\$33,393	\$48,233	\$853,335

Source: Department of Conservation and Recreation, Repetitive Loss data as of 4-24-14

Coastal Hazards

Sea wall failure and coastal erosion are related issues increasingly impacting towns along the South Shore. Rising sea levels have led to increased rates of erosion along beaches and coastlines and the undermining of sea walls, some of which are many decades old. Sea walls protect the buildings behind them from storm damage and their failure can lead to increased property damage. Similarly, intact beaches with dunes dissipate wave energy, protecting buildings behind them. As the beaches erode away, this protection is lost. In some cases, sea walls can accelerate beach erosion.

There are several areas along the Weymouth coastline that are subject to slight to moderate coastal erosion. These are the result of normal wave action, storm surge, and possibly commuter boat wake action. The north facing lower neck of Webb State Park is subject to erosion, possibly exacerbated by the Hingham commuter boat wake action. The bank is eight to ten feet high and the erosion has reached to the walking trail in several locations. The state DCR should determine what course of action is appropriate to address this issue.

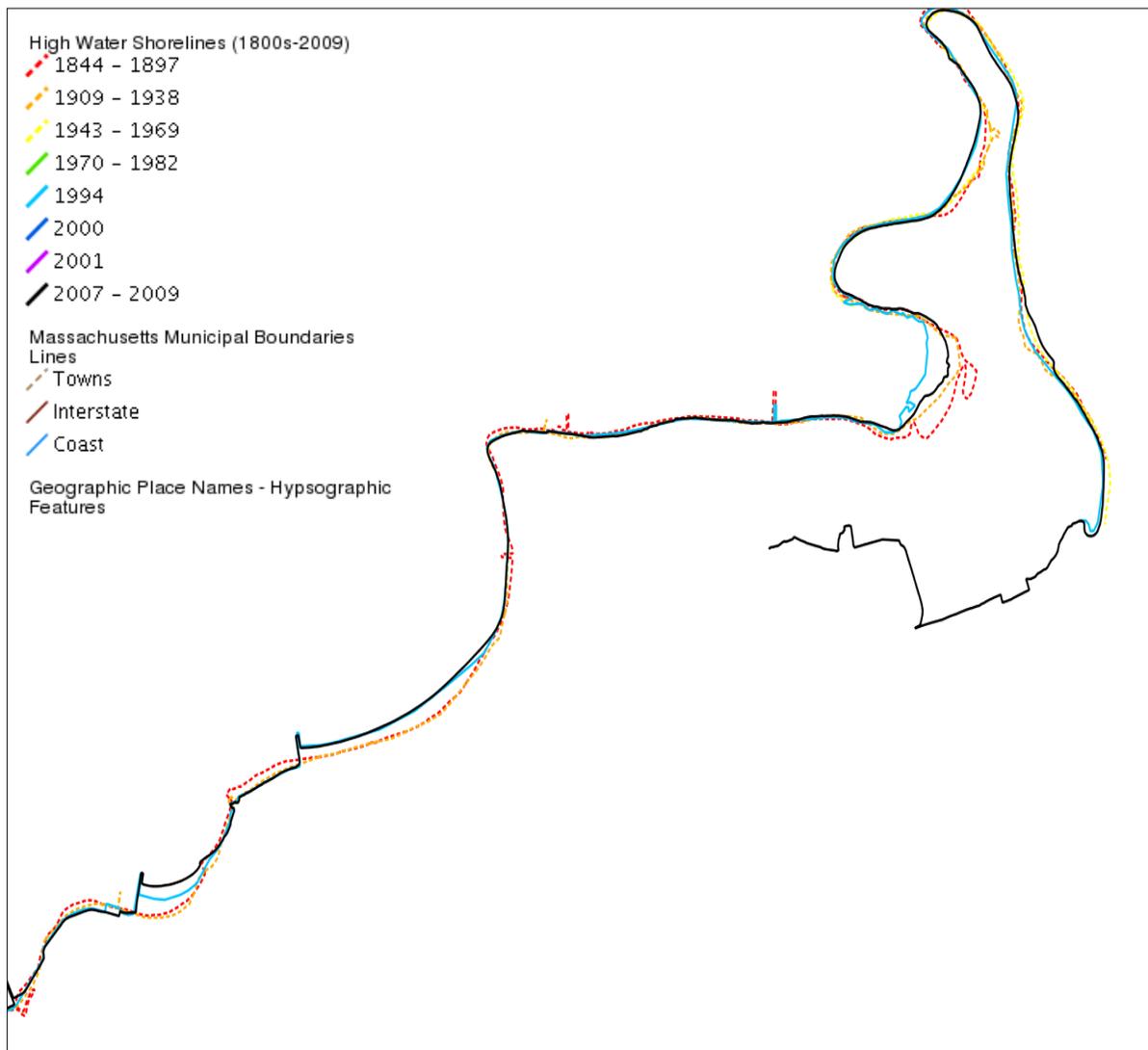
Along King’s Cove on the Fore River, there are two developed properties and one undeveloped town-owned parcel on Bridge Street located near the top of a steep, eroding coastal bank. The toe of the slope is subject to wave action. The bank, which is over 20 feet high, contains a significant amount of fill and debris, as well as large-diameter trees, some of which have toppled or are in danger of toppling. The building on one of these properties was destroyed by fire in the spring of 2014. The owner and his consultants are incorporating coastal bank stabilization into their Conservation Commission application to rebuild.

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In some areas of town, thin ribbons of salt marsh line the coast and form a fragile barrier of protection between Weymouth's coastal rivers and its landward infrastructure. These salt marshes are vulnerable to coastal erosion and sea level rise, and to damage by docks, piers and other human activity. Specific examples of this are seen along River Street on the Back River, south of Bluff Road and Anna Road on the Fore River, and along Idlewell Boulevard on the Fore River.

While the town does not have records quantifying shoreline erosion, the extent of erosion over time is demonstrated by the shoreline change maps published by the Massachusetts Office of Coastal Zone Management. The segment of the map displaying Weymouth's shoreline is shown in Figure 2.

Figure 2 Historical Shoreline Change in Weymouth from 1844-2009



Source: MA CZM Shoreline Change Project

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Weymouth has approximately 13 miles of coastline and a complex system of storm protection comprised of seawalls, jetties and drainage infrastructure. According to the Massachusetts Coastal Infrastructure Inventory and Assessment there are 25 coastal structures in Weymouth which provide significant protection. The distribution of structures by type and condition is summarized in Table 10.

Table 10 Inventory of Coastal Structures in Weymouth

Primary Structure	Total	Structure Condition					Length (ft)
		A	B	C	D	F	
Seawall/Bulkhead	13		7	4	2		9,106
Revetment	6		5	1			3,210
Groin/Jetty	6		2	2	1	1	1,340
Total	25		14	7	3	1	13,656

Source: MA Coastal Infrastructure Inventory and Assessment, Oct. 2009

Key to Structure Condition in Table 9

- A Excellent - Like new condition.
- B Good – Minor problems, superficial in nature
- C Fair – Structure is sound but may have minor deterioration
- D Poor – Advanced levels of deterioration; risk of damage and possible failure
- F Critical – Conditions may warrant emergency stabilization

Much of the currently existing coastal protection system was constructed in the 1950s and is in poor repair, as indicated by the structure condition ratings in Table 10. Of particular concern to the Town is a broken section of sea wall in the Fore River Avenue area which is leading to flooding during storms, and the seawall at Fort Point Road also needs repairs. The Town has been making repairs and upgrades to its storm protection infrastructure for a number of years. The town is currently in the second phase of a four phase project to make repairs and upgrades.

The Fort Point Road and Fore River Avenue seawalls are approximately 3100 and 900 linear feet in length, respectively, and are believed to be in the range of 60 to 80 years old and are currently in a serious state of deterioration. In January 2011, the DPW hired Bourne Consulting Engineers (BCE) to perform studies, draft a seawall options report, meet with residents and town officials and prepare permit applications with various state agencies for seawall improvements. This was paid for with a grant of \$100,000 from MADCR Division of Waterways. The study identified structural changes to improve flood protection (raising the height of seawalls and expanded revetments) but CZM wants the Town to investigate the feasibility of soft solutions and, if appropriate, incorporate them within the project. These soft solutions can include, but are not limited to, beach nourishment, berms and dunes, bio-engineered products, and even vegetation planting.

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A site visit in 2013 by the Massachusetts Environmental Policy Act (MEPA) office identified more concerns regarding the Fort Point Road design than the one at Fore River Avenue so the two sites that were previously combined as one project were split into two separate projects and the previously submitted MEPA application was withdrawn. At a meeting with state agencies at the MEPA offices on September 4, 2013, MA Coastal Zone Management (CZM) strongly recommended that the Town evaluate an additional option for shore protection using gravel/cobble beach nourishment with no expansion of the stone revetment. It was made clear such an analysis was required for any permitting.

Figure 3- Seawalls at Fort Point Road and Fore River Avenue



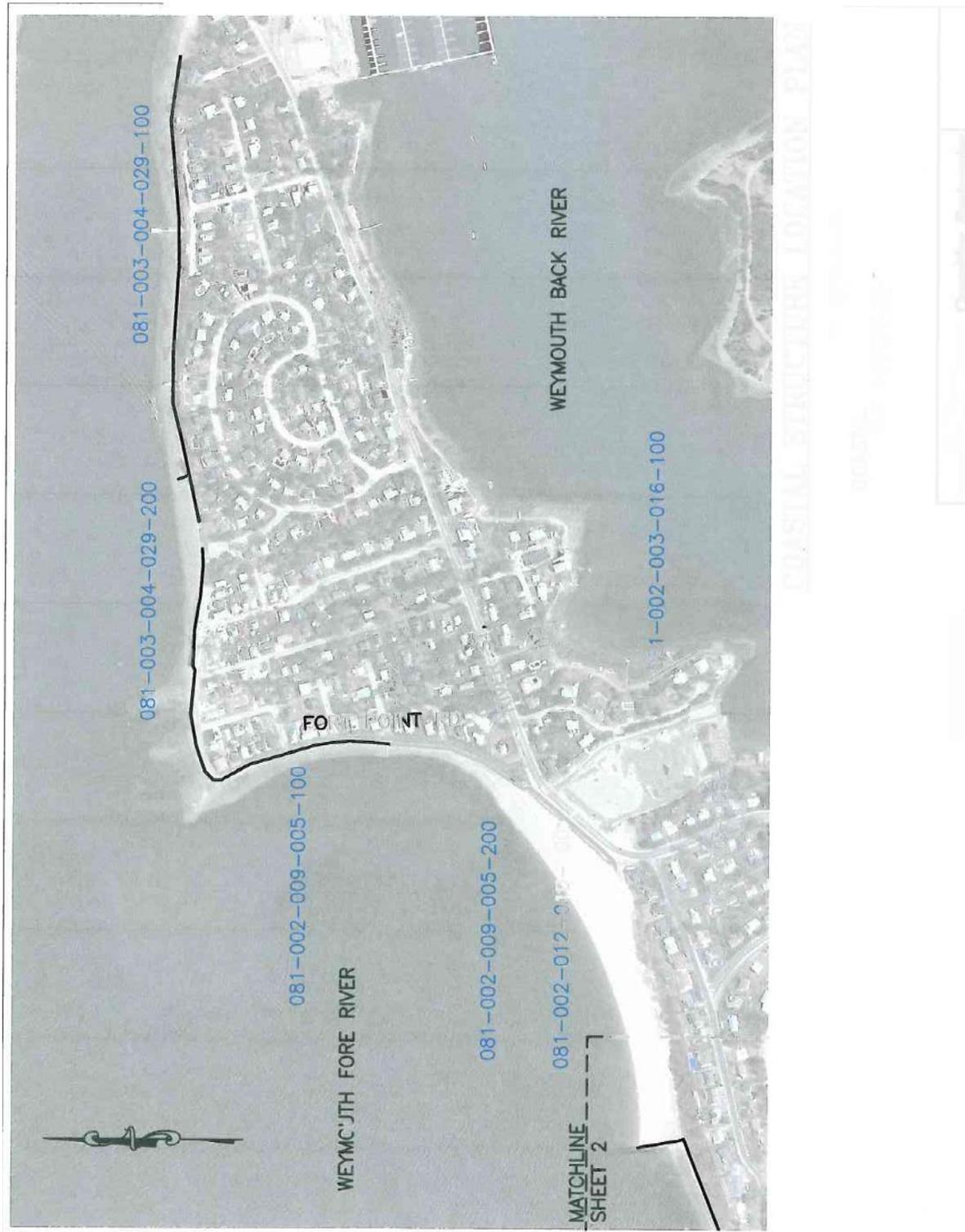
Source: MA Coastal Infrastructure Inventory and Assessment, Oct. 2009

The Town has spent 80% of its engineering budget of \$100,000 designing new walls and revetments of various heights. The proposed investigation and design of soft solutions has an engineering estimate of \$30,140. The Town recently applied to a FY14 Green Infrastructure for Coastal Resilience Pilot Grants Program through CZM, and was recently awarded \$22,605 to pay for the additional analysis.

The Town recently executed a contract amendment with BCE, who brought in their sub-consultant, Applied Coastal Research and Engineering (ACRE) to do the evaluation of the soft options (cobble/gravel beach nourishment). The initial draft of the ACRE study and report have just been received and review by BCE and the Town is pending.

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Figure 4 - Weymouth Coastal Infrastructure, Fort Point Road



Source: MA Coastal Infrastructure Inventory and Assessment, Oct. 2009

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Dams and Dam Failure

Dam failure can occur as a result of structural failure, independent of a hazard event, or as the result of the impacts of a hazard event such as flooding associated with storms or an earthquake. In the event of a dam failure, the energy of the water stored behind even a small dam can cause loss of life and property damage if there are people or buildings downstream. The number of fatalities from a dam failure depends on the amount of warning provided to the population and the number of people in the area in the path of the dam’s floodwaters.

Dam failure is a highly infrequent occurrence but a severe incident could result in loss of lives and significant property damage. Since 1984, three dams have failed in or very near to Massachusetts, one of which resulted in a death. There have been no recorded dam breaches in Weymouth.

According to data provided by the Massachusetts Department of Conservation and Recreation and the town, there are three dams located in Weymouth, and one located in Braintree upstream of Weymouth. These are listed in Table 11 and described below.

Table 11 DCR Dam Inventory for Weymouth

Dam Name	River Impounded	Name Owner	Hazard Potential Classification
Iron Hill Dam	Weymouth Back River	Weymouth DPW	High Hazard
Whitmans Pond Dam	Weymouth Back River	Weymouth DPW	High Hazard
Great Pond Dam	Mill River	Weymouth DPW	Significant Hazard
Smelt Brook Dam (located in Braintree)	Smelt Brook	Weymouth/Braintree Regional Recreation - Conservation District	High Hazard

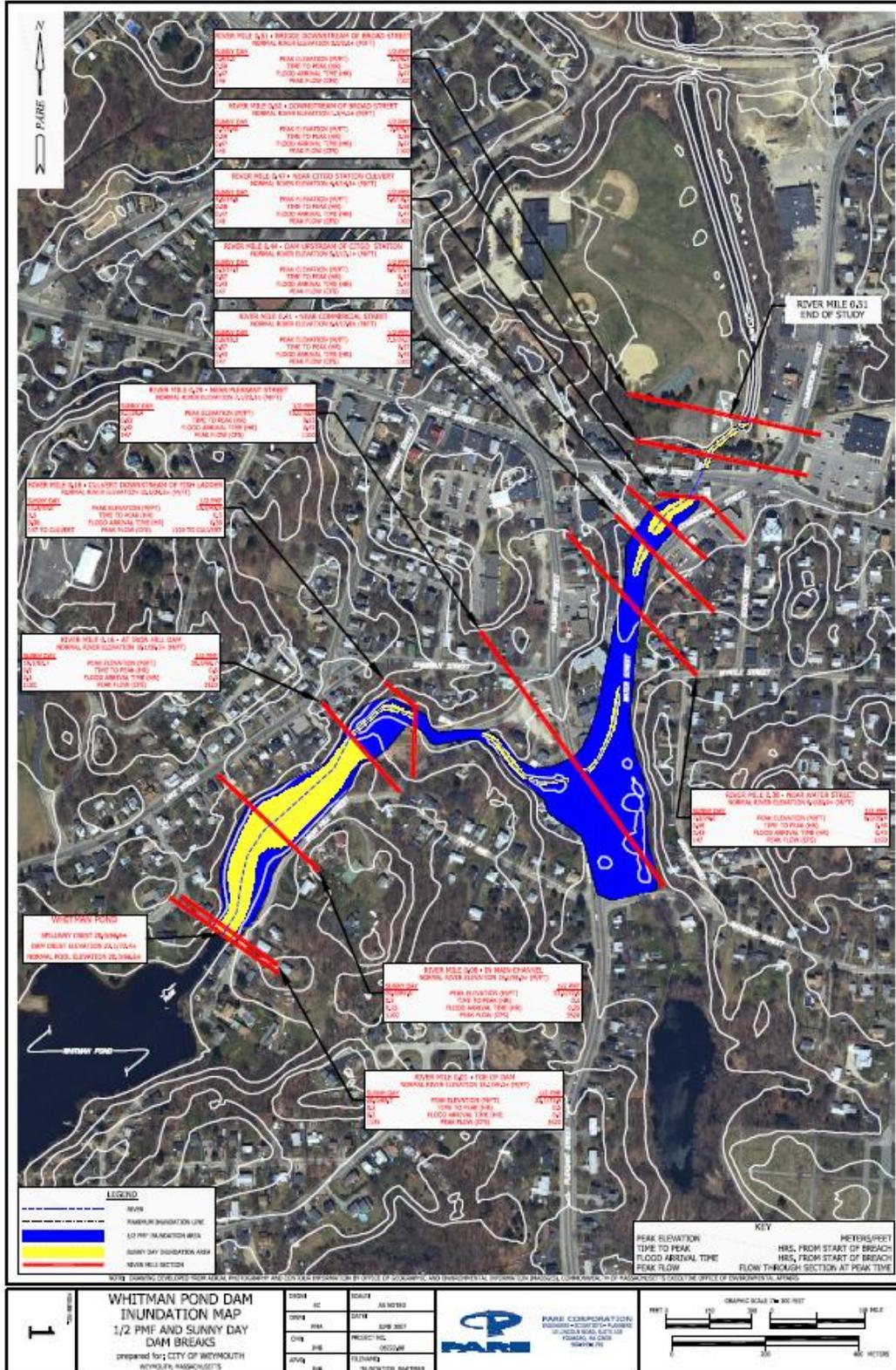
Source: MA Department of Conservation and Recreation, Office of Dam Safety

Both the Whitmans Pond Dam and the Great Pond Dam are part of the Weymouth public water supply system, impounding the town's two drinking water reservoirs. The DCR Office of Dam Safety has classified the Whitmans Pond Dam as high hazard (see Figure 5), and the Great Pond Dam as significant hazard. The Iron Hill Dam is also owned by the Weymouth DPW, but is a flood control dam located on the Weymouth Back River immediately downstream of the Whitmans Pond Dam. DCR classified it as high hazard.

The Weymouth/Braintree Regional Recreation-Conservation District owns and operates the Pond Meadow Dam which impounds the Smelt Brook in Braintree. It is listed here because it is located upstream of Weymouth, and is jointly owned by the two-town district. DCR classifies it as high hazard.

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Figure 5 - Whitman's Pond Dam Inundation Map



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DCR defines dam hazard classifications as follows:

- High Hazard:** Dams located where failure or mis-operation will likely cause loss of life and serious damage to homes(s), industrial or commercial facilities, important public utilities, main highways(s) or railroad(s).
- Significant Hazard:** Dams located where failure or mis-operation may cause loss of life and damage home(s), industrial or commercial facilities, secondary highway(s) or railroad(s) or cause interruption of use or service of relatively important facilities.
- Low Hazard:** Dams located where failure or mis-operation may cause minimal property damage to others. Loss of life is not expected.

Wind Related Hazards

Wind-related hazards include hurricanes and tornadoes as well as high winds during severe rainstorms and thunderstorms. As with many communities, falling trees that result in downed power lines and power outages are an issue in Weymouth. Information on wind related hazards can be found on Map 5 in Appendix B

Hurricanes

Since 1900, 39 tropical storms have impacted New England (NESEC). Massachusetts has experienced approximately 32 tropical storms, nine Category 1 hurricanes, five Category 2 hurricanes and one Category 3 hurricane. A hurricane or storm track is the line that delineates the path of the eye of a hurricane or tropical storm. There have been two recorded storm tracks through Weymouth, a tropical depression in 1876 and a Tropical Storm in 1888. The Town experiences the impacts of hurricanes and tropical storms regardless of whether the storm track passes through the town, and numerous hurricanes have affected the communities of eastern Massachusetts (see Table 12) The hazard mapping indicates that the 100 year wind speed is 110 miles per hour (see Appendix B).

Table 12 Hurricane Records for Massachusetts, 1938 - 2012

Hurricane Event	Date
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 Diane	August 17-19, 1955
Hurricane Donna	September 12, 1960
Hurricane Gloria	September 27, 1985
Hurricane Bob	August 19, 1991
Hurricane Earl	September 4, 2010
Tropical Storm Irene	August 28, 2011
Hurricane Sandy	October 29-30, 2012

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Hurricane intensity is measured according to the Saffir/Simpson scale, which categorizes hurricane intensity linearly based upon maximum sustained winds, barometric pressure, and storm surge potential. These are combined to estimate potential damage. The following gives an overview of the wind speeds, surges, and range of damage caused by different hurricane categories:

Scale No. (Category)	Winds(mph) Storm	Surge (ft)	Potential Damage
1	74 – 95	4 - 5	Minimal
2	96 – 110	6 - 8	Moderate
3	111 – 130	9 - 12	Extensive
4	131 – 155	13 - 18	Extreme
5	> 155	>18	Catastrophic

Source: NOAA

Given its location on the coast, the Town is highly vulnerable to hurricanes. A hurricane is a violent wind and rainstorm with wind speeds of 74-200 miles per hour. A hurricane is strongest as it travels over the ocean and is particularly destructive to coastal property as the storm hits the land. Hurricanes generally occur between June and November.

Tornados

A tornado is a violent windstorm characterized by a twisting, funnel-shaped cloud. These events are spawned by thunderstorms and occasionally by hurricanes, and may occur singularly or in multiples. They develop when cool air overrides a layer of warm air, causing the warm air to rise rapidly. Most vortices remain suspended in the atmosphere. Should they touch down, they become a force of destruction. Evacuation of high-risk areas may be required on short notice. Sheltering and mass feeding efforts may be required along with debris clearance, search and rescue, and emergency fire and medical services.

The frequency of tornadoes in eastern Massachusetts is low; on average, there are six tornadoes that touchdown somewhere in the Northeast region every year. The strongest tornado in Massachusetts history was the Worcester Tornado in 1953 (NESEC). In June 2011 a tornado in the Springfield area caused significant damage and resulted in 4 deaths. The most recent tornado event in Eastern Massachusetts was the July 28, 2014 tornado on the North Shore in Revere. There have been no recorded tornados within the Weymouth Town limits.

Tornado damage severity is measured by the Fujita Tornado Scale, in which wind speed is not measured directly but rather estimated from the amount of damage. As of February 01, 2007, the National Weather Service began rating tornados using the Enhanced Fujita-

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scale (EF-scale), which allows surveyors to create more precise assessments of tornado severity. The EF-scale is summarized below:

Fujita Scale			Derived		Operational EF Scale	
F Number	Fastest ¼ mile (mph)	3-second gust (mph)	EF Number	3-second gust (mph)	EF Number	3-second gusts (mph)
0	40-72	45-78	0	65-85	0	65-85
1	73-112	79-117	1	86-109	1	86-110
2	113-157	118-161	2	110-137	2	111-135
3	158-207	162-209	3	138-167	3	136-165
4	208-260	210-261	4	168-199	4	166-200
5	261-318	262-317	5	200-234	5	Over -200

Source: Massachusetts State Hazard Mitigation Plan, 2013

Tornado impacts are relatively localized compared to severe storms and hurricanes. Damages from any tornado in Weymouth would greatly depend on the track of the tornado. Generally the northern portion of the town is more densely developed and would likely be subject to more damage in the event of a tornado.

Severe Thunderstorms

While less severe than the other types of storms discussed, thunderstorms can lead to localized damage and represent a hazard risk for communities. Generally defined as a storm that includes thunder, which always accompanies lightning, a thunderstorm is a storm event featuring lightning, strong winds, and rain and/or hail. Thunderstorms sometime give rise to tornados. On average, these storms are only around 15 miles in diameter and last for about 30 minutes. A severe thunderstorm can include winds of close to 60 mph and rain sufficient to produce flooding. The town's entire area is potentially subject to severe thunderstorms. The town does not keep records of thunderstorms, but estimates that at least six to eight occur each year.

The best available data on previous occurrences of thunderstorms in Weymouth is the National Climatic Data Center (NCDC). Between n the years 1995 and 2014 NCDC records show 24 thunderstorm events in Norfolk County in Weymouth and surrounding towns (Table 13). These storms resulted in a total of \$155,000 in property damages. There were no injuries or deaths reported.

Table 13 Norfolk County Thunderstorm Events, 1995-2014

LOCATION	BEGIN_DATE	EVENT_TYPE	MAGNITUDE	DEATHS	INJURIES	DAMAGE
NORFOLK CO.	4/4/1995	Thunderstorm	53	0	0	0
NORFOLK CO.	7/15/1995	Thunderstorm	55	0	0	0
NORFOLK CO.	10/28/1995	Thunderstorm	0	0	0	0
NORFOLK CO.	5/21/1996	Thunderstorm	63	0	0	0

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NORFOLK CO.	7/6/1999	Thunderstorm	70	0	0	0
NORFOLK CO.	7/24/1999	Thunderstorm	50	0	0	0
NORFOLK CO.	4/9/2000	Thunderstorm	61	0	0	0
NORFOLK CO.	6/2/2000	Thunderstorm	50	0	0	0
NORFOLK CO.	6/27/2000	Thunderstorm	50	0	0	0
NORFOLK CO.	7/18/2000	Thunderstorm	50	0	0	0
NORFOLK CO.	8/10/2001	Thunderstorm	50	0	0	5,000
NORFOLK CO.	7/15/2002	Thunderstorm	62	0	0	25,000
NORFOLK CO.	7/23/2002	Thunderstorm	50	0	0	5,000
NORFOLK CO.	8/5/2005	Thunderstorm	50	0	0	5,000
NORFOLK CO.	8/14/2005	Thunderstorm	50	0	0	15,000
NORFOLK CO.	5/21/2006	Thunderstorm	51	0	0	15,000
NORFOLK CO.	7/21/2006	Thunderstorm	50	0	0	10,000
NORFOLK CO.	6/28/2007	Thunderstorm	50	0	0	5,000
NORFOLK CO.	7/2/2008	Thunderstorm	50	0	0	2,000
NORFOLK CO.	7/2/2008	Thunderstorm	54	0	0	15,000
NORFOLK CO.	5/24/2009	Thunderstorm	50	0	0	1,000
NORFOLK CO.	6/20/2010	Thunderstorm	50	0	0	25,000
NORFOLK CO.	6/24/2010	Thunderstorm	50	0	0	2,000
NORFOLK CO.	6/23/2012	Thunderstorm	50	0	0	25,000
TOTAL				0	0	\$155,000

Source: NOAA, National Climatic Data Center Magnitude refers to maximum wind speed.

Severe thunderstorms are a town-wide hazard for Weymouth. The town's vulnerability to severe thunderstorms is similar to that of Nor'easters. High winds can cause falling trees and power outages, as well as obstruction of key routes and emergency access. Heavy precipitation may also cause localized flooding, both riverine and urban drainage related.

Based on the record of previous occurrences, severe thunderstorms in Weymouth are high frequency events as defined by the 2013 Massachusetts State Hazard Mitigation Plan. This hazard may occur more frequently than once in 5 years (greater than 20% per year).

Winter Storms

Winter storms are the most common and most familiar of the region's hazards that affect large geographic areas. The majority of blizzards and ice storms in the region cause more inconvenience than they do serious property damage, injuries, or deaths. However, periodically, a storm will occur which is a true disaster, and necessitates intense large-scale emergency response. Occasionally winter storms can also hinder the tidal exchange in tidally restricted watersheds and result in localized flooding within these areas. Ice build-up at gate structures can also damage tide gates and increase the hazard potential as a result of malfunctioning tide gates. The Town of Weymouth has a strict policy

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governing school and business closings, road uses, parking, and other factors that could facilitate the management of a serious winter storm emergency.

In Massachusetts, northeast coastal storms known as nor'easters occur 1-2 times per year. Winter storms are a combination hazard because they often involve wind, ice and heavy snow fall. The average annual snowfall for most of the Town is in the range of 48 - 72 inches.

The Northeast Snowfall Impact Scale (NESIS) developed by Paul Kocin of The Weather Channel and Louis Uccellini of the National Weather Service (Kocin and Uccellini, 2004) characterizes and ranks high impact northeast snowstorms. These storms have large areas of 10 inch snowfall accumulations and greater. NESIS has five categories: Extreme, Crippling, Major, Significant, and Notable. NESIS scores are a function of the area affected by the snowstorm, the amount of snow, and the number of people living in the path of the storm. The largest NESIS values result from storms producing heavy snowfall over large areas that include major metropolitan centers. The NESIS categories are summarized below:

Category	NESIS	Value Description
1	1–2.499	Notable
2	2.5–3.99	Significant
3	4–5.99	Major
4	6–9.99	Crippling
5	10.0+	Extreme

Source: Massachusetts State Hazard Mitigation Plan, 2013

The most significant winter storm in recent history was the “Blizzard of 1978,” which resulted in over 3 feet of snowfall and multiple day closures of roadways, businesses, and schools. In Weymouth severe winter storms have occurred in the following years:

Blizzard of 1978	February 1978
Blizzard	March 1993
Blizzard	January 1996
Severe Snow Storm	March 2001
Severe Snow Storm	December 2003
Severe Snow Storm	January 2004
Severe Snow Storm	January 2005
Severe Snow Storm	April, 2007
Severe Snow Storm	December 2010
Severe Snow Storm	January 2011
Blizzard of 2013	February 2013

Eastern Massachusetts experienced a record year for snowfall in 2008. By the end of the February 2008, Logan International Airport broke a new February record for total precipitation. In March 2008, much of eastern Massachusetts exceeded the highest

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snowfall records. The above-average snowfall that season increased groundwater and surface water levels to a high level, and contributed to flooding experienced in spring 2008.

Snowfall in winter 2010-11 has also approached the record mark with 60.3 inches measured at Logan for the season as of the end of January. Snow came in a series of severe storms, some of which included flooding in the South Shore area. Information on winter storm related hazards can be found on Map 6 in Appendix B.

The Town's overall vulnerability to winter storms is primarily related to restrictions to travel on roadways, temporary road closures, school closures, and potential restrictions on emergency vehicle access. A secondary vulnerability is power outages due to fallen trees and utility lines.

Fire Related Hazards

A wildfire is any uncontrolled fire that occurs on lands in a suburban or a wilderness area. A wildfire differs greatly from other fires by its potentially extensive size, the speed at which it can spread out from its original source, its potential to unexpectedly change direction, and its ability to jump gaps such as roads, rivers and firebreaks. Wildfire season can begin in March and usually ends in late November. The majority of wildfires typically occur in April and May, when most vegetation is void of any appreciable moisture, making them highly flammable. Once "green-up" takes place in late May to early June, the fire danger usually is reduced somewhat. Some structures that are surrounded by dry vegetation that has not been suitably cleared may be at higher risk.

From January 2009 through July 2014, the Weymouth Fire Department responded to a total of 272 outside fires under the description of "Natural Vegetation Fires, Forest, Woods or Wild land Fires, Brush or Brush/Grass Fires, and Grass Fires" The responses average about 67 per calendar year. The extent of the largest wildfire was six (6) acres burned in the Great Esker Park in 2014.

The impact of wildfire hazards in Weymouth is indicated by the degree of losses caused. Of these 272 incidents, 42 resulted in property damage ranging from \$50 to \$2000, with total damages for all events of \$7250 (see Table 14 below).

Within the past year there were no wildfires that resulted in significant property damage. The most common cause of wildfires is the careless disposal of smoking materials. The following areas of Town were identified as having the highest potential for brush fires. The numbers correspond to the numbers on Map 8, "Hazard Areas" in Appendix B.

- 10) Bradford Torrey Wildlife Sanctuary
- 11) Avalon
- 12) Cavern Rock
- 13) House Rock Park

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14) Great Esker Park

Table 14 - Wildfire Losses by Type, January 1, 2009 – August 1, 2014

<u>Incident Type</u>	<u>Fire District</u>	<u>\$ Loss</u>
Grass fire	Box 1001	\$500
Grass fire Total Dollar Loss: \$500		
Brush or brush-and-grass mixture fire	Box 2002	\$500
Brush or brush-and-grass mixture fire Total Dollar Loss: \$500		
Natural vegetation fire, other	Box 5007 Box 3004	\$200 \$400
Natural vegetation fire, other Total Dollar Loss: \$600		
Brush or brush-and-grass mixture fire	Box 3005	\$100
Brush or brush-and-grass mixture fire Total Dollar Loss: \$100		
Forest, woods or wildland fire	Box 2003	\$600
Forest, woods or wildland fire Total Dollar Loss: \$600		
Brush or brush-and-grass mixture fire	Box 2003	\$500
Brush or brush-and-grass mixture fire	Box 3004	\$300
	Box 1001	\$400
Brush or brush-and-grass mixture fire Total Dollar Loss: \$1,200		
Natural vegetation fire, other	Box 1001	\$100
Natural vegetation fire, other Total Dollar Loss: \$100		
Grass fire	Box 5008	\$100
Grass fire Total Dollar Loss: \$100		
Natural vegetation fire, other	Box 3011 Box 2002	\$300 \$250
Natural vegetation fire, other Total Dollar Loss: \$550		
Forest, woods or wildland fire	Box 2003	\$50
Forest, woods or wildland fire Total Dollar Loss: \$50		
Brush or brush-and-grass mixture fire	Box 2002	\$100
Brush or brush-and-grass mixture fire	Box 1001	\$100
Brush or brush-and-grass mixture fire	Box 3011	\$500
	Box 3004	\$2,000
Brush or brush-and-grass mixture fire Total Dollar Loss: \$2,700		

Geologic Hazards

Geologic hazards include earthquakes, landslides, sinkhole, subsidence, and unstable soils such as fill, peat, and clay. Although new construction under the most recent building codes generally will be built to seismic standards, there are still many structures which pre-date the most recent building code. Information on geologic hazards in Weymouth can be found on Map 4 in Appendix B.

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Earthquakes

Damage in an earthquake stems from ground motion, surface faulting, and ground failure in which weak or unstable soils, such as those composed primarily of saturated sand or silts, liquefy. The effects of an earthquake are mitigated by distance and ground materials between the epicenter and a given location. An earthquake in New England affects a much wider area than a similar earthquake in California due to New England’s solid bedrock geology (NESEC). According to the Boston College Weston Observatory, in most parts of New England, there is a one in ten chance that a potentially damaging earthquake will occur in a 50 year time period.

According to the State Hazard Mitigation Plan, New England experiences an average of five earthquakes per year. From 1668 to 2007, 355 earthquakes were recorded in Massachusetts (NESEC). 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, including a magnitude 5.0 earthquake in 1727 and a 6.0 earthquake that struck in 1755 off the coast of Cape Anne. More recently, a pair of damaging earthquakes occurred near Ossipee, NH in 1940, and a 4.0 earthquake centered in Hollis, Maine in October 2012 was felt in the Boston area. Historical records of some of the more significant earthquakes in the region are shown in Table 15.

Table 15 Historical Earthquakes in Massachusetts or Surrounding Area

Location	Date	Magnitude
MA - Cape Ann	11/10/1727	5
MA - Cape Ann	12/29/1727	NA
MA – Cape Ann	2/10/1728	NA
MA – Cape Ann	3/30/1729	NA
MA – Cape Ann	12/9/1729	NA
MA – Cape Ann	2/20/1730	NA
MA – Cape Ann	3/9/1730	NA
MA - Boston	6/24/1741	NA
MA - Cape Ann	6/14/1744	4.7
MA - Salem	7/1/1744	NA
MA - Off Cape Ann	11/18/1755	6
MA – Off Cape Cod	11/23/1755	NA
MA - Boston	3/12/1761	4.6
MA - Off Cape Cod	2/2/1766	NA
MA - Offshore	1/2/1785	5.4
MA – Wareham/Taunton	12/25/1800	NA
MA - Woburn	10/5/1817	4.3
MA - Marblehead	8/25/1846	4.3
MA - Brewster	8/8/1847	4.2
MA - Boxford	5/12/1880	NA

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MA - Newbury	11/7/1907	NA
MA - Wareham	4/25/1924	NA
MA – Cape Ann	1/7/1925	4
MA – Nantucket	10/25/1965	NA
MA – Boston	12/27/74	2.3
VA –Mineral	8/23/11	5.8
MA - Nantucket	4/12/12	4.5
ME - Hollis	10/17/12	4.0

Source: Boston HIRA

One measure of earthquake risk is ground motion, which is measured as maximum peak horizontal acceleration, expressed as a percentage of gravity (1 g). The range of peak ground acceleration in Massachusetts is from 10g to 20g, with a 2% probability of exceedance in 50 years. Weymouth is in the middle part of the range for Massachusetts, at 14g, making it a relatively moderate area of earthquake risk within the state, although the state as a whole is considered to have a low risk of earthquakes compared to the rest of the country.

The closest recorded earthquake epicenter was at the Braintree/Quincy border, south-west of the route three interchange with route 93. This quake occurred in 1979 and had a magnitude of 2.2, which is close to the smallest quake normally felt by people. There have been no recorded earthquake epicenters within Weymouth.

Although New England has not experienced a damaging earthquake since 1755, seismologists state that a serious earthquake occurrence is possible. There are five seismological faults in Massachusetts, but there is no discernible pattern of previous earthquakes along these fault lines. Earthquakes occur without warning and may be followed by aftershocks. Most older buildings and infrastructure were constructed without specific earthquake resistant design features.

Seismologists use a Magnitude scale (Richter Scale) to express the seismic energy released by each earthquake. The typical effects of earthquakes in various ranges is summarized below.

Richter Magnitudes	Earthquake Effects
Less than 3.5	Generally not felt, but recorded
3.5- 5.4	Often felt, but rarely causes damage
Under 6.0	At most slight damage to well-designed buildings. Can cause major damage to poorly constructed buildings over small regions.
6.1-6.9	Can be destructive in areas up to about 100 km. across where people live.
7.0- 7.9	Major earthquake. Can cause serious damage over larger areas.
8 or greater	Great earthquake. Can cause serious damage in areas several hundred meters across.

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Source: Nevada Seismological Library (NSL), 2005

Earthquakes are a hazard with multiple impacts beyond the obvious building collapse. Buildings may suffer structural damage which may or may not be readily apparent. Earthquakes can cause major damage to roadways, making emergency response difficult. Water lines and gas lines can break, causing flooding and fires. Another potential vulnerability is equipment within structures. 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.

Landslides

According to the USGS, “The term landslide includes a wide range of ground movement, such as rock falls, deep failure of slopes, and shallow debris flows. Although gravity acting on an over steepened slope is the primary reason for a landslide, there are other contributing factors.” Among the contributing factors are: erosion by rivers or ocean waves over steepened slopes; rock and soil slopes weakened through saturation by snowmelt or heavy rains; earthquakes create stresses that make weak slopes fail; and excess weight from accumulation of rain or snow, and stockpiling of rock or ore, from waste piles, or from man-made structures.

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. Typically, a landslide occurs when the condition of a slope changes from stable to unstable. Natural precipitation such as heavy snow accumulation, torrential rain and run-off may saturate soil creating instability enough to contribute to a landslide. The lack of vegetation and root structure that stabilizes soil and human activity can destabilize hilly terrain.

There is no universally accepted measure of landslide extent but it has been represented as a measure of the destructiveness. The table below summarizes the estimated intensity for a range of landslides. For a given landslide volume, fast moving rock falls have the highest intensity while slow moving landslides have the lowest intensity.

Estimated Volume (m ³)	Expected Landslide Velocity		
	Fast moving landslide (Rock fall)	Rapid moving landslide (Debris flow)	Slow moving landslide (Slide)
<0.001	Slight intensity		
<0.5	Medium intensity		
>0.5	High intensity		
<500	High intensity	Slight intensity	
500-10,000	High intensity	Medium intensity	Slight intensity
10,000 – 50,000	Very high intensity	High intensity	Medium intensity
>500,000		Very high intensity	High intensity
>>500,000			Very high intensity

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Source: *A Geomorphological Approach to the Estimation of Landslide Hazards and Risks in Umbria, Central Italy*, M. Cardinali et al, 2002

Roughly half of the Town has been classified as having a low risk for landslides, and the remainder moderate. The area south of Route 3 is classified as "Low landslide incidence (less than 1.5 % of the area is involved in landsliding)." The area north of Route 3 is classified as "Moderate susceptibility to landsliding and low incidence." (see Map 4, Appendix B). Although most of Weymouth is at minimal risk of a landslide one potential area that could be subject to risk is the coastal bank section on the Fore River along Regatta Road. The elevation change from sea level to Regatta Road is fifty feet. There have been no natural landslides in this area and as long as the vegetation is maintained on the bank, the risk should be minimal. There are approximately a dozen homes located along the high bank section of Regatta Road. The extent of a potential landslide in this area could affect up to approximately five acres. The town does not have records of any damages caused by landslides in Weymouth.

Based on past occurrences and the Massachusetts Hazard Mitigation Plan, landslides are of Low frequency, events that can occur less frequently than once in 50 to 100 years (a 1% to 2% chance of occurring each year).

Extreme Temperatures

There is no universal definition for extreme temperatures. The term is relative to the usual weather in the region based on climatic averages. Extreme heat, for this climatic region, is usually defined as a period of 3 or more consecutive days above 90 °F, which may be accompanied by high humidity.

Weymouth has four well-defined seasons. The seasons have several defining factors, with temperature one of the most significant. Extreme temperatures can be defined as those, which are far outside of the normal seasonal ranges for Massachusetts. The average temperatures for Massachusetts are: Winter (Dec-Feb) Average = 31.8°F and Summer (Jun-Aug) Average = 71°F. Extreme temperatures are a town-wide hazard.

Extreme Cold

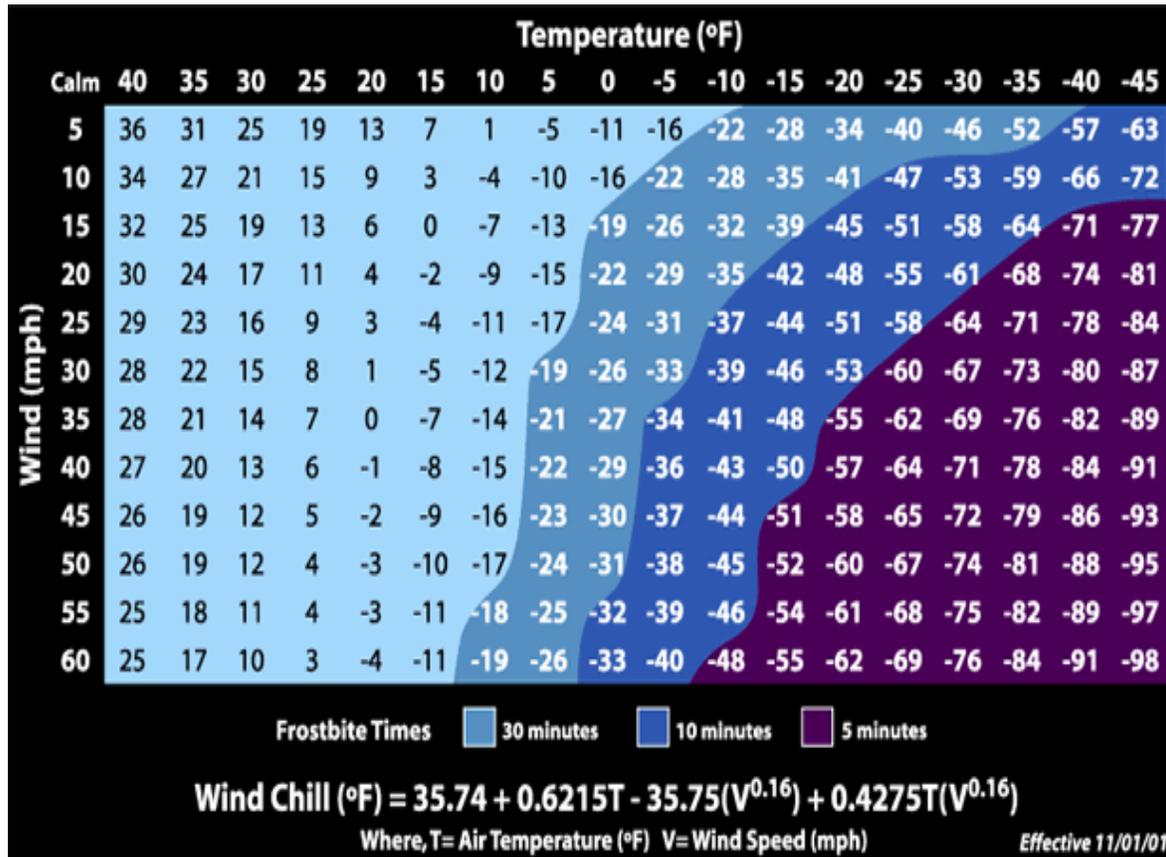
For extreme cold, temperature is typically measured using Wind Chill Temperature Index, which is provided by the National Weather Service (NWS). The latest version of the index was implemented in 2001 and it meant to show how cold conditions feel on unexposed skin. The index is provided in Figure 6 below.

Extreme cold is also relative to the normal climatic lows in a region. Temperatures that drop decidedly below normal and wind speeds that increase can cause harmful wind-chill factors. The wind chill is the apparent temperature felt on exposed skin due to the combination of air temperature and wind speed.

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Extreme cold is a dangerous situation that can result in health emergencies for susceptible people, such as those without shelter or who are stranded or who live in homes that are poorly insulated or without heat.

Figure 6. Wind Chill Temperature Index and Frostbit Risk



The Town of Weymouth does not collect data for previous occurrences of extreme cold. The best available local data are for Norfolk County, through the National Climatic Data Center (NCDC). There is one extreme cold event on record in February 2007, which caused one death and no injuries or property damage.

Table 16 – Norfolk County Extreme Cold and Wind Chill Occurrences

Date	Type	Deaths	Injuries	Property Damage
02/03/2007	Extreme Cold/wind Chill	1	0	0.00K

Source: NOAA, National Climatic Data Center

Extreme Heat

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While a heat wave for Massachusetts is defined as three or more consecutive days above 90°F, another measure used for identifying extreme heat events is through a Heat Advisory from the NWS. These advisories are issued when the heat index (Figure 7) is forecast to exceed 100 degree Fahrenheit (F) for 2 or more hours; an excessive heat advisory is issued if forecast predicts the temperature to rise above 105 degree F.

Figure 7. Heat Index Chart

		Temperature (°F)															
		80	82	84	86	88	90	92	94	96	98	100	102	104	106	108	110
Relative Humidity (%)	40	80	81	83	85	88	91	94	97	101	105	109	114	119	124	130	136
	45	80	82	84	87	89	93	96	100	104	109	114	119	124	130	137	
	50	81	83	85	88	91	95	99	103	108	113	118	124	131	137		
	55	81	84	86	89	93	97	101	106	112	117	124	130	137			
	60	82	84	88	91	95	100	105	110	116	123	129	137				
	65	82	85	89	93	98	103	108	114	121	128	136					
	70	83	86	90	95	100	105	112	119	126	134						
	75	84	88	92	97	103	109	116	124	132							
	80	84	89	94	100	106	113	121	129								
	85	85	90	96	102	110	117	126	135								
	90	86	91	98	105	113	122	131									
95	86	93	100	108	117	127											
100	87	95	103	112	121	132											
Category		Heat Index					Health Hazards										
Extreme Danger		130 °F – Higher					Heat Stroke or Sunstroke is likely with continued exposure.										
Danger		105 °F – 129 °F					Sunstroke, muscle cramps, and/or heat exhaustion possible with prolonged exposure and/or physical activity.										
Extreme Caution		90 °F – 105 °F					Sunstroke, muscle cramps, and/or heat exhaustions possible with prolonged exposure and/or physical activity.										
Caution		80 °F – 90 °F					Fatigue possible with prolonged exposure and/or physical activity.										

Extreme heat poses a potentially greater risk to the elderly, children, and people with certain medical conditions, such as heart disease. However, even young and healthy individuals can succumb to heat if they participate in strenuous physical activities during hot weather. Hot summer days can also worsen air pollution. With increased extreme heat, urban areas of the Northeast are likely to experience more days that fail to meet air quality standards.

The Town of Weymouth does not collect data on excessive heat occurrences. The best available local data are for Norfolk County, through the National Climatic Data Center. From 1999 - 2011, there have been a total of 16 excessive heat events, with two reported deaths, no injuries, and no property damage resulting from excessive heat (see Table 17).

Table 17 – Norfolk County Extreme Heat Occurrences

DATE	LOCATION	DEATHS	INJURIES	DAMAGE
6/7/1999	EASTERN NORFOLK	0	0	0
6/7/1999	SUFFOLK/PART OF NORFOLK	0	0	0
7/5/1999	SUFFOLK/PART OF NORFOLK	2	0	0
7/16/1999	EASTERN NORFOLK)	0	0	0

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7/17/1999	SUFFOLK/PART OF NORFOLK	0	0	0
7/17/1999	EASTERN NORFOLK	0	0	0
7/18/1999	EASTERN NORFOLK	0	0	0
9/7/1999	EASTERN NORFOLK	0	0	0
9/8/1999	SUFFOLK/PART OF NORFOLK	0	0	0
7/6/2010	EASTERN PLYMOUTH	0	0	0
7/6/2010	WESTERN NORFOLK	0	0	0
7/6/2010	SUFFOLK (ZONE)	0	0	0
7/6/2010	EASTERN NORFOLK	0	0	0
7/22/2011	EASTERN PLYMOUTH	0	0	0
7/22/2011	SUFFOLK	0	0	0
7/22/2011	WESTERN NORFOLK	0	0	0
TOTAL		2	0	0

Source: NOAA, National Climatic Data Center

Extreme temperature events are projected to be medium frequency events based on past occurrences, as defined by the Massachusetts State Hazard Mitigation Plan, 2013. Both extreme cold and hot weather events occur between once in ten years to once in 100 years, or a 1 percent to 10 percent chance of occurring each year.

Drought

Drought is a temporary irregularity in precipitation and differs from aridity since the latter is restricted to low rainfall regions and is a permanent feature of climate. Drought is a period characterized by long durations of below normal precipitation. Drought conditions occur in virtually all climatic zones yet its characteristics vary significantly from one region to another, since it is relative to the normal precipitation in that region. Drought can affect agriculture, water supply, aquatic ecology, wildlife, and plant life.

In Massachusetts, droughts are caused by the prevalence of dry northern continental air and a decrease in coastal- and tropical-cyclone activity. During the 1960's, a cool drought occurred because dry air from the north caused lower temperatures in the spring and summer of 1962-65. The northerly winds drove frontal systems to sea along the Southeast Coast and prevented the Northeastern States from receiving moisture (U.S. Geological Survey). This is considered the drought of record in Massachusetts.

Average annual precipitation in Massachusetts is 44 inches per year, with approximately 3 to 4 inch average amounts for each month of the year. Regional monthly precipitation ranges from zero to 17 inches. Statewide annual precipitation ranges from 30 to 61 inches. Thus, in the driest calendar year (1965), the statewide precipitation total of 30 inches was 68 percent of average.

Although Massachusetts is relatively small, it has a number of distinct regions that experience significantly different weather patterns and react differently to the amounts of

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precipitation they receive. The DCR precipitation index divides the state into six regions: Western, Central, Connecticut River Valley, Northeast, Southeast, and Cape and Islands. Weymouth is located in the Northeast Region. In Weymouth drought is a potential town-wide hazard.

Five levels of drought have been developed to characterize drought severity: Normal, Advisory, Watch, Warning, and Emergency. These drought levels are based on the conditions of natural resources and are intended to provide information on the current status of water resources. The levels provide a basic framework from which to take actions to assess, communicate, and respond to drought conditions. They begin with a normal situation where data are routinely collected and distributed, move to heightened vigilance with increased data collection during an advisory, to increased assessment and proactive education during a watch. Water restrictions might be appropriate at the watch or warning stage, depending on the capacity of each individual water supply system. A warning level indicates a severe situation and the possibility that a drought emergency may be necessary. A drought emergency is one in which mandatory water restrictions or use of emergency supplies is necessary. Drought levels are used to coordinate both state agency and local response to drought situations.

As dry conditions can have a range of different impacts, a number of drought indices are available to assess these various impacts. Massachusetts uses a multi-index system that takes advantage of several of these indices to determine the severity of a given drought or extended period of dry conditions. Drought level is determined monthly based on the number of indices which have reached a given drought level. Drought levels are declared on a regional basis for each of six regions in Massachusetts. County by county or watershed-specific determinations may also be made.

A determination of drought level is based on seven indices:

1. Standardized Precipitation Index (SPI) reflects soil moisture and precipitation.
2. Crop Moisture Index: (CMI) reflects soil moisture conditions for agriculture.
3. Keetch Byram Drought Index (KBDI) is designed for fire potential assessment.
4. Precipitation Index is a comparison of measured precipitation amounts to historic normal precipitation.
5. The Groundwater Level Index is based on the number of consecutive month's groundwater levels are below normal (lowest 25% of period of record).
6. The Stream flow Index is based on the number of consecutive months that stream flow levels are below normal (lowest 25% of period of record).
7. The Reservoir Index is based on the water levels of small, medium and large index reservoirs across the state, relative to normal conditions for each month.

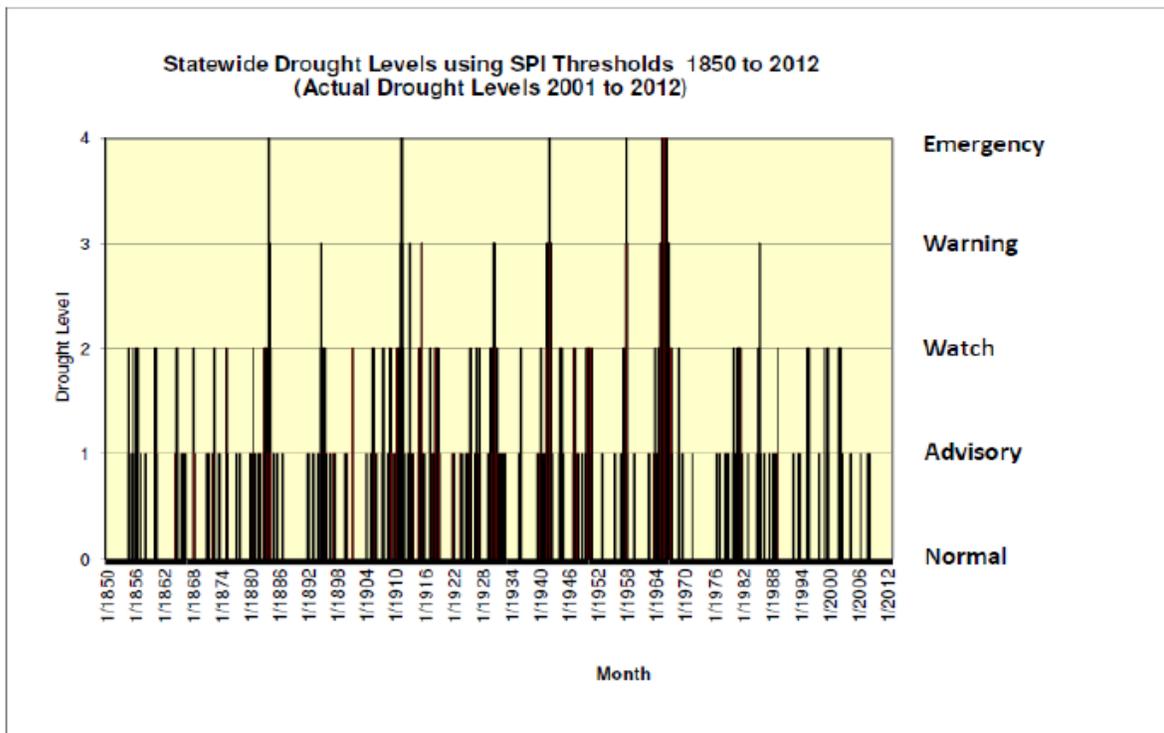
Determinations regarding the end of a drought or reduction of the drought level focus on two key drought indicators: precipitation and groundwater levels. These two factors have the greatest long-term impact on stream flow, water supply, reservoir levels, soil moisture and potential for forest fires.

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Previous Occurrences

Weymouth does not collect data relative to drought events. Because drought tends to be a regional natural hazard, this plan references state data as the best available data for drought. The statewide scale is a composite of six regions of the state, Regional composite precipitation values are based on monthly values from six stations, and three stations in the smaller regions (Cape Cod/Islands and West). Because the statewide analysis may result in a muting of more extensive local drought impacts, this drought history summary will likely underestimate the spatial frequency of droughts (i.e., droughts may occur more frequently in individual regions than depicted in the statewide analysis).

Figure 8 - Statewide Drought Levels using SPI Thresholds 1850 – 2012



(Source: Mass. State Drought Management Plan 2013)

Figure 8 depicts the incidents of drought levels' occurrence in Massachusetts from 1850 to 2012 using the Standardized Precipitation Index (SPI) parameter alone. On a monthly basis, the state would have been in a Drought Watch to Emergency condition 11 percent of the time between 1850 and 2012. Table 18 summarizes the chronology of major droughts since the 1920's.

Drought Emergency

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Drought emergencies have been reached infrequently, with 5 events occurring in the period between 1850 and 2012: in 1883, 1911, 1941, 1957, and 1965-1966. The 1965-1966 drought period is viewed as the most severe drought to have occurred in modern times in Massachusetts because of its long duration. On a monthly basis over the 162-year period of record, there is a one percent chance of being in a drought Emergency.

Drought Warning

Drought Warning levels not associated with drought Emergencies have occurred four times, in 1894, 1915, 1930, and 1985. On a monthly basis over the 162-year period of record, there is a two percent chance of being in a drought Warning level.

Drought Watch

Drought Watches not associated with higher levels of drought generally have occurred in three to four years per decade between 1850 and 1950. In the 1980s, there was a lengthy drought Watch level of precipitation between 1980 and 1981, followed by a drought Warning in 1985. A frequency of drought Watches at a rate of three years per decade resumed in the 1990s (1995, 1998, 1999). In the 2000s, Drought Watches occurred in 2001 and 2002. The overall frequency of being in a drought Watch is 8 percent on a monthly basis over the 162-year period of record.

Table 18 - Chronology of major droughts in Massachusetts

Date	Area affected	Recurrence interval (years)	Remarks
1929-32	Statewide	10 to >50	Water-supply sources altered in 13 communities. Multistate.
	Statewide	15 to >50	More severe in eastern and extreme western Massachusetts. Multistate.
1957-59	Statewide	5 to 25	Record low water levels in observation wells, northeastern Massachusetts.
1961-69	Statewide	35 to >50	Water-supply shortages common. Record drought. Multistate.
1980-83	Statewide	10 to 30	Most severe in Ipswich and Taunton River basins; minimal effect in Nashua River basin. Multistate.
1985-88	Housatonic River basin	25	Duration and severity unknown. Streamflow showed mixed trends elsewhere.

Probability of Future Occurrences

The state has experienced Emergency Droughts five times between 1850 and 2012. Even given that regional drought conditions may occur at a different interval than state data

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indicates, droughts remain primarily regional and state phenomena in Massachusetts. Emergency Drought conditions over the 162 period of record in Massachusetts are a Low Frequency natural hazard event that can occur from once in 50 years to once in 100 years (1% to 2% chance per year), as defined by the Massachusetts State Hazard Mitigation Plan, 2013.

Land Use and Development Trends

Existing Land Use

The most recent land use statistics available from the state are from aerial photography done in 2005. Table 19 shows the acreage and percentage of land in 10 categories. If the three residential categories are aggregated, residential uses make up 43.89% of the area of the town (5,006.89 acres). The highest percentage is High Density Residential, which comprises 23.46% or 2,675.99 acres.

Table 19 - 2005 Land Use

Land Use Type	Acres	Percent
High Density Residential	2,675.99	23.46%
Medium Density Residential	1,921.72	16.85%
Low Density Residential	409.18	3.59%
Non-Residential, Developed	820.80	7.20%
Commercial	542.55	4.76%
Industrial	134.04	1.17%
Transportation	375.72	3.29%
Agriculture	7.96	0.07%
Undeveloped	2,464.63	21.60%
Undeveloped Wetland	2,055.20	18.02%
Total	11,407.78	100%

For more information on how the land use statistics were developed and the definitions of the categories, please go to <http://www.mass.gov/mgis/lus.htm>.

Economic Elements

Weymouth's most important economic assets include the Libbey Industrial Park, businesses at Finnell Drive, the South Shore Hospital, and retail areas at Middle Street and Main Street as well as Middle Street and Washington Street.

Historic, Cultural, and Natural Resource Areas

The town has five National Register Historic Districts and seven individual sites on the National Register of historic Places. Other places of historic note include the Abigail Adams Birthplace, the Holbrooke House, home to the Weymouth Historical Society, and the Emery Estate, a 26 acre town owned property with a home modeled on Mount Vernon. There are numerous glacial features in the town, including the Great Esker Park, one of the largest intact eskers in the United States and House Rock Park, location of a

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large perched rock. Other natural features include the Herring Run in East Weymouth and the Smelt Run in Weymouth Landing. The Weymouth Back River, bordered almost extensively by protected open space is a designated Area of Critical Concern (ACEC).

Development Trends

Most of the larger and more easily developed parcels in Weymouth have already been developed or protected as conservation land, limiting new development to small subdivisions. Extensive wetlands and floodplains limit the land available for development. The significant exception to this trend is the South Field development on the former South Weymouth Naval Air Station. Spanning portions of three towns, this development is planned to include nearly 3,000 new homes, as well as retail and office space. To date about 500 homes have been developed on the site.

Development trends throughout the metropolitan region are tracked by MAPC's Development Database, which provides an inventory of new development over the last decade. The database tracks both completed developments and those currently under construction. The database includes 20 developments in the Town of Weymouth since 2005, of which 11 are completed and 9 were under construction in 2015.

The database also includes several attributes of the new development, including housing units, employment, and commercial space. The 20 developments in Weymouth include a total of 4,274 housing units, 828,130 square feet of commercial space, and will provide 1,240 jobs in the community (see Table 20).

In order to characterize any change in the town's vulnerability associated with new developments, a GIS mapping analysis was conducted which overlaid the development sites with the FEMA Flood Insurance Rate Map. The analysis shows that a portion of one of the 11 sites developed since 2005 is in the AE Zone, however the building footprint is not within the portion of the site in the flood hazard zone. One development site under construction is within the A zone. However, due to the Town's Floodplain Zoning District, any development in this zone must comply with regulatory provisions including design requirements for floodplains, residential first floor at least one foot above the 100 year flood elevation, no building or filling in the floodway, and a Special Permit from the Zoning Board of Appeals.

Potential Future Development

MAPC consulted with town staff to determine areas that are likely to be developed in the future, defined for the purposes of this plan as a ten year time horizon. These areas are shown on Map 2, "Potential Development" and are described below. The letter for each site corresponds to the letters on Map 2.

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- A) South Field – Approximately 3,000 homes and 2 million square feet of commercial and industrial space are planned as part of a mixed-use residential development on the 1,300 acre former Naval Air Station. To date about 500 homes have been constructed.
- B) Alexan – 242 condos
- C) Meredith Way – 29 single family homes.
- D) Washington Street – Industrial development.
- E) Finnell Street – Industrial Development

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Table 20 Summary of Weymouth Developments 2005-2015

DEVELOPMENTS COMPLETED 2005-2014	HOUSING UNITS	EMPLOYMENT	COMMERCIAL (SQ FEET)	PROJECT TYPE
Neighborhood Housing Services	6			Affordable rental housing
TD Bank-754 Main Street			2,980	New branch bank
Gardrer Teerace	3			
South Shore Hospital		833	275,000	Medical/hospital
1350 Washington Street		13	12,500	Commercial
Fulton School	63			Residential
1535 Commercial Street	20			Residential
1502 Main		18	18,200	Commercial
Columbian Street		168	55,500	Commercial
Performance Drive		208	68,500	Commercial/medical
0 Pond Street	20			Residential
SUBTOTAL Construction Complete	112	1,240	432,680	
UNDER CONSTRUCTION/PLANNED				
Clapp Memorial	21			Residential
Maggiore Companies	0			Three story, 52 bed facility
South Shore Hospital -Emerson Expansion	0		62,450	Extending 40 feet and 2 new floors
Southfield	3855			Residential/commercial/ industrial
Alexan	242			Residential
110 Main	0		15,000	Commercial
Main & Winter	0		275,000	Commercial
Tirrell St	44			Residential
45 Rockway	0		43,000	Commercial
SUBTOTAL Under Construction	4162		395,450	
TOTAL ALL PROJECTS	4,274	1,240	828,130	

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Future Development in Hazard Areas

Table 21 shows the relationship of these parcels to two of the mapped hazards. This information is provided so that planners can ensure that development proposals comply with flood plain zoning and that careful attention is paid to drainage issues.

Table 21: Relationship of Potential Development to Hazard Areas		
Parcel	Landslide risk	Flood Zone
South Field	Low	0.2266% in A
Alexan	Low	No
Meredith Way	Moderate	No
Washington Street	Moderate	13.8422% in A
Finnell	Moderate	1.6176% in A

Critical Infrastructure in Hazard Areas

Critical infrastructure includes facilities that are important for disaster response and evacuation (such as emergency operations centers, fire stations, water pump stations, etc.) and facilities where additional assistance might be needed during an emergency (such as nursing homes, elderly housing, day care centers, etc.). There are 120 facilities identified in Weymouth. These are listed in Table 22 and are shown on the maps in Appendix B.

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Explanation of Columns in Table 22.

Column 1: ID #: The first column in Table 10 is an ID number which appears on the maps that are part of this plan. See Appendix B.

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

Column 3: Type: The third column indicates what type of site it is.

Column 4: Landslide Risk: The fourth column indicates the degree of landslide risk for that site. This information came from NESEC. 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>.

Column 5: FEMA Flood Zone: The fifth column addresses the risk of flooding. A "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 maps). If there is an entry in this column, it indicates the type of flood zone.

Column 6: Locally-Identified Flood Area: The locally identified areas of flooding were identified by town staff as areas where flooding occurs. These areas do not necessarily coincide with the flood zones from the FIRM maps. They may be areas that flood due to inadequate drainage systems or other local conditions rather than location within a flood zone. The numbers correspond to the numbers on Map 8, "Hazard Areas"

Column 7: Snowfall. Areas designated "low" receive an annual average of 36.1 to 48.0 inches of snow. Areas designated "high" receive an annual average of 48.1 to 72 inches of snow, as shown on Map 6 in Appendix B.

Column 8: Hurricane Surge Areas. The final column indicates whether or not the site is located within a hurricane surge area and the potential degree of inundation in the event of a hurricane. Hurricane surge areas are shown on Map 8 in Appendix B. The following explanation of hurricane surge areas was taken from the US Army Corps of Engineers web site:

"Hurricane storm surge is an abnormal rise in sea level accompanying a hurricane or other intense storm. Along a coastline a hurricane will cause waves on top of the surge. Hurricane Surge is estimated with the use of a computer model called SLOSH. SLOSH stands for Sea Lake and Overland Surge from Hurricanes. The SLOSH models are created and run by the National Hurricane Center. There are about 40 SLOSH models from Maine to Texas.

The SLOSH model results are merged with ground elevation data to determine areas that will be subject to flooding from various categories of hurricanes. Hurricane categories are defined by the Saffir-Simpson Scale." See <http://www.sam.usace.army.mil/hesdata/General/hestasks.htm>

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**Table 22
Critical Infrastructure and Relationship to Hazard Areas**

ID	Name of Site	Type of Site	Landslide Risk	FEMA Flood Zone	Locally Identified Flood Area	Snowfall	Hurricane Surge Area
1	Main Street Well	Well	Moderate	No	No	High	0
2	Circuit Ave Well	Well	Moderate	No	No	High	0
3	Winter Street Well #2	Well	Moderate	No	No	High	0
4	Winter Street Well #1	Water Pumping Station	Moderate	No	No	High	0
5	Washington Street Pump Station	Water Pumping Station	Moderate	No	No	High	0
6	Libbey Industrial Park Well	Well	Moderate	No	No	High	0
7	Prospect Hill Booster Pump	Water Pumping Station	Moderate	No	No	Low	0
8	Town Hall	Municipal Office	Moderate	No	No	High	0
9	Arthur J Bilodeau Water Treatment Plant	Water Treatment Facility	Moderate	No	No	High	0
10	Great Pond Water Treatment Plant	Water Treatment Facility	Low	No	No	High	0
11	ES-16	Sewer Pumping Station	Moderate	No	No	Low	0
12	ES-15	Sewer Pumping Station	Moderate	AE	No	Low	4
13	ES-17	Sewer Pumping Station	Moderate	VE	No	Low	1
14	ES-24	Sewer Pumping Station	Moderate	No	No	High	0
15	ES-23	Sewer Pumping Station	Moderate	No	No	High	0
16	ES-27	Sewer Pumping Station	Moderate	No	No	High	0
17	ES-28	Sewer Pumping Station	Moderate	No	No	High	0
18	ES-26	Sewer Pumping Station	Moderate	No	No	High	0
19	ES-10	Sewer Pumping Station	Moderate	No	No	High	0
20	ES-8	Sewer Pumping Station	Moderate	No	No	High	0
21	ES-9	Sewer Pumping Station	Moderate	No	No	High	0

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**Table 22
Critical Infrastructure and Relationship to Hazard Areas**

ID	Name of Site	Type of Site	Landslide Risk	FEMA Flood Zone	Locally Identified Flood Area	Snowfall	Hurricane Surge Area
22	ES-22	Sewer Pumping Station	Moderate	No	No	High	0
23	Pri	Sewer Pumping Station	Moderate	No	No	High	0
24	ES-21	Sewer Pumping Station	Moderate	No	No	High	0
25	ES-30 / Libbey Industrial Parkway Pump Station	Sewer Pumping Station	Moderate	No	No	High	0
26	Pri	Sewer Pumping Station	Low	No	No	High	0
27	Pri	Sewer Pumping Station	Low	No	No	High	0
28	Pri	Sewer Pumping Station	Low	No	No	High	0
29	ES-14	Sewer Pumping Station	Low	No	No	High	0
30	ES-7	Sewer Pumping Station	Low	No	No	Low	0
31	ES-18	Sewer Pumping Station	Low	No	No	Low	0
32	ES-20	Sewer Pumping Station	Low	No	No	Low	0
33	PS-4	Sewer Pumping Station	Moderate	AE	No	Low	2
34	PS-3 Wituwamat Rd	Sewer Pumping Station	Moderate	AE	Wituwamat Road	Low	1
35	PS-12 Emerson St.	Sewer Pumping Station	Moderate	AE	No	High	2
36	PS-25 Alton Terr.	Sewer Pumping Station	Moderate	AE	No	High	4
37	PS-2 Wharf St.	Sewer Pumping Station	Moderate	AE	No	High	4
38	PS-1 Weymouth Landing	Sewer Pumping Station	Moderate	0.2 PCT ANNUAL CHANCE FLOOD HAZARD	No	High	0
39	PS-6 Healy Road	Sewer Pumping Station	Moderate	No	No	High	0

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**Table 22
Critical Infrastructure and Relationship to Hazard Areas**

ID	Name of Site	Type of Site	Landslide Risk	FEMA Flood Zone	Locally Identified Flood Area	Snowfall	Hurricane Surge Area
40	PS-5 Seaver Road	Sewer Pumping Station	Moderate	No	No	High	0
41	PS-13 Pine St.	Sewer Pumping Station	Low	No	Old Swamp River	High	0
42	PS-19 Pond St.	Sewer Pumping Station	Low	No	No	Low	0
43	PS-11 Thicket St.	Sewer Pumping Station	Low	No	No	Low	0
44	ES-31 Roosevelt Rd	Sewer Pumping Station	Moderate	No	No	High	0
45	WESSAGUSSETT SCHOOL	School	Moderate	No	No	High	4
46	Elden M. Johnson School	School	Moderate	No	No	High	0
47	John F. McCulloch School	School	Moderate	No	No	Low	0
48	Academy Avenue School	School	Moderate	No	No	High	0
49	Abigail Adams Intermediate School	School	Moderate	No	No	High	0
50	Maria Weston Chapman Middle School	School	Moderate	No	No	High	0
51	Lawrence W. Pingree School	School	Moderate	No	No	High	0
52	Frederick C. Murphy School	School	Moderate	No	No	High	0
53	William Seach School	School	Moderate	No	No	High	0
54	Thomas V. Nash Jr. School	School	Low	No	No	High	0
55	Weymouth High School	School	Low	No	No	High	0
56	Ralph Talbot School	School	Low	No	No	High	0
57	Fulton School Residences	Elderly Housing	Low	No	No	High	0
58	Hamilton Elementary School	School	Low	No	No	High	0
59	Fore River Power Plant	Power Generation Plant	Moderate	No	No	Low	0
60	MWRA Sewer Pumping Station	Sewer Pumping Station	Moderate	No	No	Low	0
61	Police Station	Police Station	Moderate	No	No	High	0

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**Table 22
Critical Infrastructure and Relationship to Hazard Areas**

ID	Name of Site	Type of Site	Landslide Risk	FEMA Flood Zone	Locally Identified Flood Area	Snowfall	Hurricane Surge Area
62	Elizabeth Catherine Rest Home	Nursing Home	Moderate	No	No	High	0
63	Elizabeth Catherine Rest Home	Nursing Home	Moderate	No	No	High	0
64	Pope Nursing Home	Nursing Home	Moderate	No	No	High	0
65	Colonial Nursing Home of Weymouth	Nursing Home	Moderate	No	No	High	0
66	MediPlex Nursing Home	Nursing Home	Moderate	No	No	High	0
67	Whittaker Nursing Home	Nursing Home	Low	No	No	High	0
68	South Shore Hospital	Hospital	Low	No	No	High	0
69	Station 1	Fire Station	Moderate	No	No	High	0
70	Central Fire Station 2	Fire Station	Moderate	No	No	High	0
71	Station 3	Fire Station	Moderate	No	No	High	0
72	Station 5	Fire Station	Low	No	No	High	0
73	Hollis Facility - empty	Municipal Office	Low	No	No	High	0
74	DPW Building	DPW Facility	Moderate	No	No	High	0
75	Unknown	Child Care	Moderate	No	No	High	4
76	Unknown	Child Care	Moderate	No	No	High	0
77	Just Right Child Care	Child Care	Moderate	No	No	High	0
79	Ferry	Child Care	Moderate	No	No	High	0
80	Weymouth Housing Authority	Child Care	Moderate	No	No	High	0
81	South Shore Daycare Services	Child Care	Moderate	No	No	High	0
82	Congregational Church	Child Care	Moderate	No	No	High	0
83	First Baptist Church of Weymouth	Child Care	Low	No	No	High	0
84	UNK	Child Care	Low	No	No	High	0
85	Church of the Holy Nativity	Child Care	Low	No	No	High	0

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**Table 22
Critical Infrastructure and Relationship to Hazard Areas**

ID	Name of Site	Type of Site	Landslide Risk	FEMA Flood Zone	Locally Identified Flood Area	Snowfall	Hurricane Surge Area
86	Union Congregational Society	Child Care	Low	No	No	High	0
87	Kinder Care Learning Center	Child Care	Moderate	No	No	High	0
88	UNK	Child Care	Low	No	No	High	0
89	Early Childhood Preschool	Child Care	Low	No	No	High	0
90	UNK	Child Care	Low	No	No	Low	0
91	Early Childhood Preschool	Child Care	Low	No	No	Low	0
92	UNK	Child Care	Low	No	No	Low	0
93	UNK	Child Care	Low	No	No	Low	0
94	Mill Brook	Dam	Moderate	No	No	High	0
95	Old Swamp River	Dam	Moderate	AE	No	High	0
96	Cranberry Pond	Dam	Moderate	No	No	High	0
97	Fish Ladders	Dam	Moderate	No	No	High	0
98	Herring Brook 1	Dam	Moderate	AE	No	High	0
99	Weymouth Great Pond Water Supply	Water Supply	Low	A	No	High	0
100	WHITMANS POND DAM	Dam	Moderate	A	No	High	0
101	Sewer Pumping Station	Sewer Pumping Station	Moderate	AE	No	High	0
102	DPW Building	Emergency Operations Center	Moderate	No	No	High	0
103	DPW Building	Hazardous Materials	Moderate	No	No	High	0
104	Cancer Treatment	Medical Facility	Low	No	No	High	0
105	South Shore Hospital Outpatient Services	Medical Facility	Low	No	No	High	0
106	Dialysis	Medical Facility	Low	No	No	High	0
107	Stetson Building	Medical Facility	Low	No	No	High	0

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**Table 22
Critical Infrastructure and Relationship to Hazard Areas**

ID	Name of Site	Type of Site	Landslide Risk	FEMA Flood Zone	Locally Identified Flood Area	Snowfall	Hurricane Surge Area
108	Dialysis Center	Medical Facility	Low	No	No	High	0
109	Medical Facility	Medical Facility	Moderate	No	No	Low	0
110	Water Supply South Cove	Water Supply	Moderate	A	No	High	0
111	Weymouth Great Pond Dam	Dam	Low	A	No	High	0
112	Fore River Bridge	Bridge	No	VE	No	High	0
113	Back River Bridge	Bridge	No	AE	No	High	0
114	Police Dept. Communication Tower	Communication Tower	Moderate	No	No	High	0
115	DPW Communication Tower	Communication Tower	Moderate	No	No	High	0
116	Emergency Management Communication Tower	Communication Tower	Moderate	No	No	High	0
117	East Weymouth Commuter Rail Station	Transportation Facility	Moderate	No	No	High	0
118	Weymouth Landing Commuter Rail Station	Transportation Facility	Moderate	No	No	High	0
119	South Weymouth Commuter Rail Station	Transportation Facility	Low	No	No	Low	0
120	Harbormaster	Municipal Facility	No	VE	No	High	0
121	State Boat Ramp	Water Related Facility	No	VE	No	High	0
122	Wessagussett Yacht Club	Water Related Facility	Moderate	VE	No	Low	0

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Vulnerability Assessment

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 (multiple-hazards) is a computer program developed by FEMA to estimate losses due to a variety of natural hazards. The following overview of HAZUS-MH is taken from the FEMA website. For more information on the HAZUS-MH software, go to <http://www.fema.gov/plan/prevent/hazus/index.shtm>

“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 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 Town of Weymouth, 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 to allow for a comparison between different types of disasters. Therefore,

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this analysis should be considered to be a starting point for understanding potential damages from the hazards. If interested, communities can build a more accurate database and further test disaster scenarios.

Estimated Damages from Hurricanes

The HAZUS software was used to model potential damages to the community from a 100 year and 500 year hurricane event; storms that are .01% and .005% likely to happen in a given year and roughly equivalent to a Category 2 and Category 4 hurricane. The damages caused by these hypothetical storms were modeled as if the storm track passed directly through the Town, bringing the strongest winds and greatest damage potential.

Though there are no recorded instances of a hurricane equivalent to a 500 year storm passing through Massachusetts, this model was included in order to present a reasonable “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 frequent storms.

Table 23 - Estimated Damages from Hurricanes

	100 Year	500 Year
Building Characteristics		
Estimated total number of buildings	18,233	18,233
Estimated total building replacement value (Year 2002 \$)	\$4,981,486,000	\$4,981,486,000
Building Damages		
# of buildings sustaining minor damage	2,686	6,393
# of buildings sustaining moderate damage	530	3308
# of buildings sustaining severe damage	19	654
# of buildings destroyed	11	400
Population Needs		
# of households displaced	112	1,191
# of people seeking public shelter	26	267
Debris		
Building debris generated (tons)	9,313.38	51,852.16
Tree debris generated (tons)	7,933.62	29,166.84
# of truckloads to clear building debris	372	2079
Value of Damages (Thousands of dollars)		
Total property damage	\$63,177.77	\$497,492.30
Total losses due to business interruption	\$7,532.68	\$68,552.76

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Estimated Damages from Earthquakes

The HAZUS earthquake module allows users to define an earthquake magnitude and model the potential damages caused by that earthquake as if its epicenter had been at the geographic center of the study area. For the purposes of this plan, two earthquakes were selected: magnitude 5.0 and a magnitude 7.0. Historically, major earthquakes are rare in New England, though a magnitude 5 event occurred in 1963.

Table 24
Estimated Damages from Earthquakes

	Magnitude 5.0	Magnitude 7.0
Building Characteristics		
Estimated total number of buildings	12,233	12,233
Estimated total building replacement value (Year 2002 \$)	\$4,981,486,000	\$4,981,486,000
Building Damages		
# of buildings sustaining slight damage	2,794	1,736
# of buildings sustaining moderate damage	842	5,985
# of buildings sustaining extensive damage	121	5,354
# of buildings completely damaged	15	4,921
Population Needs		
# of households displaced	129	8,020
# of people seeking public shelter	70	4,370
Debris		
Building debris generated (tons)	30,000	1,080,000
# of truckloads to clear debris (@ 25 tons/truck)	1,162	43,000
Value of Damages (Millions of dollars)		
Total property damage	\$229.32	\$3,398.24
Total losses due to business interruption	\$20.38	\$591.22

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Estimated Damages from Flooding

MAPC did not use HAZUS-MH to estimate flood damages in Weymouth. In addition to technical difficulties with the software, the riverine module is not a reliable indicator of flooding in areas where inadequate drainage systems contribute to flooding even when those structures are not within a mapped flood zone. In lieu of using HAZUS, MAPC developed a methodology to give a rough approximation of flood damages.

Weymouth is 17.93 square miles or 11,475.2 acres. Approximately 159.94 acres have been identified by local officials as areas of flooding. This amounts to 1.38 % of the land area in Weymouth. The number of structures in each flood area was estimated by applying the percentage of the total land area to the number of structures (18,233) in Weymouth; the same number of structures used by HAZUS for the hurricane and earthquake calculations. HAZUS uses a value of \$273,213 per structure for the building replacement value. This was used to calculate the total building replacement value in each of the flood areas. 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 \$7,023,905 to \$35,119,543. These calculations are not based solely on location within the floodplain or a particular type of storm (i.e. 100 year flood).

Flood damage estimates are summarized in Table 25.

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**Table 25
Estimated Damages from Flooding**

ID	Flood Hazard Area	Approximate Area in Acres	% of Total Land Area in Weymouth	Estimated Number of Structures	Replacement Value	Low Estimate of Damages	High Estimate of Damages
1	Gaslight/Fountain Lane	12.85	0.11	20	5,479,642	547,964.19	2,739,820.95
2	Plymouth River at Rt 53	9.75	0.09	16	4,483,343	448,334.34	2,241,671.68
3	Carolyn Road	8.60	0.08	15	3,985,194	398,519.41	1,992,597.05
4	Old Swamp River	18.15	0.16	29	7,970,388	797,038.82	3,985,194.10
5	Tamarack/Hickory/Dacia	34.51	0.30	55	14,944,478	1,494,447.79	7,472,238.94
6	Fort Point Road	30.31	0.27	49	13,450,030	1,345,003.01	6,725,015.05
7	Fore River Avenue	18.88	0.17	31	8,468,537	846,853.75	4,234,268.73
8	Wituwamat Road	15.22	0.13	24	6,475,940	647,594.04	3,237,970.21
9	Saltwater Creek	11.66	0.10	18	4,981,493	498,149.26	2,490,746.31
	TOTALS	159.94	1.40	257	\$70,239,046	\$7,023,905	\$35,119,523

V. HAZARD MITIGATION GOALS

The Weymouth Local Hazard Mitigation Planning Team reviewed and discussed the goals from the 2005 Hazard Mitigation Plan for the Town of Weymouth. These goals were found to continue to be reflective of the Town's priorities and concerns relative to natural hazard mitigation.

The following nine goals were endorsed by the Committee for the update of the Weymouth Hazard Mitigation Plan:

- Ensure that critical infrastructure sites are protected from natural hazards.
- Protect existing residential and business areas from flooding.
- Maintain existing mitigation infrastructure in good condition.
- Continue to enforce existing zoning and building regulations.
- Educate the public about zoning and building regulations, with regard to changes in regulations that may affect tear-downs and new construction.
- Work with surrounding communities to ensure regional cooperation and solutions for hazards affecting multiple communities.
- Encourage future development in areas that are not prone to natural hazards.
- Educate the public about natural hazards and mitigation measures.
- Make efficient use of public funds for hazard mitigation.

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VI. EXISTING MITIGATION MEASURES

Existing Hazard Mitigation Measures

The existing protections in the Town of Weymouth are a combination of zoning, land use, and environmental regulations, infrastructure maintenance and drainage improvement projects, and preventative measures such as public education. Infrastructure maintenance generally addresses localized drainage clogging problems, while large scale capacity problems may require pipe replacement or invert elevation modifications. These more expensive projects are subject to the capital budget process and lack of funding is one of the biggest obstacles to completion of some of these.

The Town's existing mitigation measures are listed by hazard type here and are summarized in Table 26 below.

Existing Multi-Hazard Mitigation Measures

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, hurricanes, tornadoes, dam failures, earthquakes, and winter storms. Therefore, the CEMP is a mitigation measure that is relevant to all of the hazards discussed in this plan.

Communications Equipment – Weymouth has full coverage of the Town with emergency services radio. Since the 2005 plan new radios were acquired for the Police and Fire Departments and Department of Public Works (using UHF), as well as the Emergency Management Agency (using UHF and VHF). All the town's radios are interoperable according to NIMS standards. Incident command units are available through Plymouth County and MEMA.

Emergency Power Generators – The Town has the following emergency generators:

- Emergency Management has 3 portable generators: 2-3Kw and 1-6Kw
- The Fire Department has 2.5 Kw generators on each Engine
- DPW has portable generators for the sewer pump stations
- Health Department has a 5 Kw generator in the shelter supplies trailer

The following is a list of items that are on the Town Hall emergency generator in case of power failure.

- The server room with the computer management equipment.
- Fire alarm system for the building.
- Lights thru out the building (not including all lights).
- Boiler-heating system.

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- Heaters for outside gutters.
- Elevator.
- Mayor’s office lights and outlets.
- Outlet in health department for vaccine refrigerator.
- The Verizon cell tower.

Massachusetts State Building Code – The Massachusetts State Building Code contains many detailed regulations regarding wind loads, earthquake resistant design, flood-proofing, and snow loads. The town has adopted the state building code.

Local Emergency Management Planning Committee (LEPC) – The LEPC meets as necessary and is composed of Town Department heads appointed by the Mayor. The LEPC has achieved full certification status.

Existing Flood Hazard Mitigation Measures

National Flood Insurance Program (NFIP) – Weymouth participates in the NFIP with 598 policies in force as of the February 28, 2015. 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 following information is provided for the Town of Weymouth:

Flood insurance policies in force (as of February 28, 2015)	598
Coverage amount of flood insurance policies	\$78,241,500
Premiums paid	\$362,864
Total losses (all losses submitted regardless of the status)	250
Closed losses (Losses that have been paid)	180
Open losses (Losses that have not been paid in full)	6
CWOP losses (Losses that have been closed without payment)	64
Total payments (Total amount paid on losses)	\$1,390,629.64

Since the 2005 plan, the policies in force have increased by 294 and the total losses have increased by 20. The total payments, in the 2005 plan were \$623,187.33, which more than doubled to \$1,390,629.64 by 2014..

The Town complies with the NFIP by enforcing floodplain regulations, maintaining up-to-date floodplain maps, and providing information to property owners and builders regarding floodplains and building requirements.

Public Works Operations/Maintenance Activities – The Public Works Department actively maintains the Town’s storm drain system. The following specific activities serve

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to maintain the capability of the drainage system through the reduction of sediment and litter build up and proper maintenance and repair.

- Street sweeping is conducted annually.
- Catch basins are cleaned to prevent sedimentation.
- DPW cleans inlet grates of culverts to remove debris prior to major storms
- Roadway winter treatments: Minimal use of sand to reduce siltation.
- Continued repair and rehabilitation of drainage systems.

Town of Weymouth Master Plan – The Master Plan was drafted in 2001. While it is much broader-based and focuses on all aspects of development in the Town, recommendations and policies affecting flooding are included. The plan focuses more on policies and strategies than on detailed recommendations.

Weymouth Open Space Plan – The Town recently completed a new plan, and was reviewed by the state and conditionally approved in 2012. The plan will be in effect for seven years. The plan identifies current open space areas, as well as properties that could be acquired for open space, which serve a number of different purposes including mitigation of flooding and storm damage.

Town of Weymouth Flood Hazard Mitigation Plan - The Town commissioned Bourne Consulting Engineering to write the Plan in 2001. The plan identified critical drainage problems and outlines a number of capital projects that would address town-wide flooding. Action has been undertaken on multiple project sites since the plan was originally written.

Floodplain District Zoning: Zoning is intended to protect the public health and safety through the regulation of land use. The Weymouth Floodplain District is an overlay district that includes all special flood hazard areas designated as Zone A, AE, -AO, or VE on the Flood Insurance Rate Maps (FIRM) prepared and issued by the Federal Emergency Management Agency (FEMA). In June 2012 the town amended the Floodplain District Zoning, Article XII A, to adopt the new FIRM maps.

The following is a summary of the requirements to be met within the Floodplain District:

- a. Uses within the district are subject to the provision of the State Building Code entitled “Design Requirements for Floodplains and Coastal High Hazard Areas”
- b. All new construction and substantial improvements to residential structures must have the first habitable floor at least one foot above the 100 year flood elevation.
- c. In the VE Zone, new structures are prohibited and existing structures shall not be enlarged seaward of the mean high tide.
- d. No building, filling or other encroachments shall be permitted in the floodway.

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- e. Any proposal for new construction subject to the floodplain overlay district shall require a special permit from the Board of Zoning Appeals.

Stormwater Ordinance – The purpose of the Weymouth Stormwater Ordinance is to prevent and reduce flooding, protect water quality, increase groundwater recharge, reduce erosion and sedimentation, promote environmentally sensitive site design practices, ensure long-term maintenance of stormwater controls, and help the Town meet Federal requirements under Phase II of the National Pollutant Discharge Elimination System (Clean Water Act). Flood prevention is emphasized in this ordinance. The Ordinance establishes minimum requirements and procedures to control the adverse effects of increased stormwater runoff, decreased groundwater recharge, and nonpoint source pollution associated with new development and redevelopment.

Wetlands Protection Ordinance – The purpose of the Wetlands Protection Ordinance is to further protect the Town’s wetlands, related water resources, and adjoining land areas for, among other reasons, flood control, erosion and sedimentation control, storm damage prevention, and water pollution control. The Ordinance expands the jurisdiction of the Conservation Commission beyond that authorized in the Massachusetts Wetlands Protection Act. Of most relevance for flood hazard mitigation, the Ordinance expands the Commission’s jurisdiction to include all lands subject to flooding or inundation by groundwater or surface water. The Ordinance also establishes a 100-foot buffer around areas subject to inland or coastal flooding.

DCR dam safety regulations –In 2002 the Massachusetts legislature enacted revisions of the Dam Safety Statute, MGL Chapter 253 §§ 44-50, which significantly changes the responsibilities of dam owners to register, inspect and maintain dams in good operating condition. Amendments to Dam Safety Regulations 302 CMR 10.00-10.16 became effective November 4, 2005 and are reflective of the statutory changes. MGL Chapter 253 and 302 CMR 10.00 requires Emergency Action Plans be prepared, maintained and updated by dam owners, for High Hazard Potential dams and certain Significant Hazard Potential dams.

Dams: Emergency Action Plans (EAP) and upgrades -- Since the 2005 plan, EAP's were completed for two dams in Weymouth, Iron Hill Dam and Whitman's Pond Dam. The Great Pond Dam does not require an EAP. Iron Hill Dam was upgraded in 2013 at a cost of \$350,000, which brought the dam's rating from poor up to satisfactory. Whitman’s Pond dam is in satisfactory condition and does not require immediate repair. However the town is replacing a sluice gate this year within the dam structure for a cost of \$50,000.

An EAP was also prepared for the Smelt Brook Dam in Braintree, which is located upstream of Weymouth and is operated by the Weymouth/Braintree Regional Recreation-Conservation District.

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Seawalls, Jetties, and Dikes – Weymouth has 13 miles of coast with several sections that feature seawalls. Since the 2005 plan an evaluation of these was completed and work has begun on repairing and restoring priority sections, including Fore River Avenue and Fort Point Avenue. The project is in the second of four phases, and design and permitting are currently being worked on.

Existing Wind Hazard Mitigation Measures

Massachusetts State Building Code – The town enforces the Massachusetts State Building Code whose provisions are generally adequate to protect against most wind damage. The code's provisions are the most cost-effective mitigation measure against tornados given the extremely low probability of occurrence. If a tornado were to occur, the potential for severe damages would be extremely high.

Tree-trimming program – The Weymouth Park and Tree Division maintains trees on town property, and the electric utility company National Grid conducts tree trimming and maintenance around power lines.

Zoning Ordinance -- Communications tower construction requires structural support and foundation plans be stamped and approved by a registered engineer.

Existing Winter Hazard Mitigation Measures

Snow disposal –The town conducts general snow removal operations with its own equipment and has adequate snow storage/disposal space in four of the most densely developed sections of town.

Catch basin Cleaning: The Weymouth DPW clears snow from clogged catch basins to prevent flooding

Massachusetts State Building Code: The town enforces the Massachusetts State Building Code, which contains regulations regarding snow loads on building roofs. The town has adopted the state building code.

Existing Brush Fire Hazard Mitigation Measures

Burn Permits – The Town fire department requires a written permit for outdoor burning, which includes explanation of the related regulations and precautions for the permit-holder to take. The permit-holder must call the fire department on the proposed burn day to confirm weather conditions are suitable for outdoor burning. Outdoor burning is only allowed from January to May.

Subdivision/Development Review – The Fire Department participates in the review of new subdivisions and development projects.

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Existing Geologic Hazard Mitigation Measures

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.

Section 1612.2.5 sets up seismic hazard exposure groups and assigns all buildings to one of these groups according to 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 of Weymouth has recognized several existing mitigation measures that require improvements or changes, and has the capacity within its local boards and departments to address those changes. The Weymouth Department of Public Works will address the needs for catch basin cleaning, repairs and upgrades to deficient sections of seawalls, upgrades to the Whitmans Pond dam. The town’s Planning Board will address the updates to the Master Plan and implementation of the Zoning Ordinance, Floodplain District, and Subdivision Rules and Regulations. The Conservation Commission will oversee implementation of the Wetlands Bylaw and the Open Space Plan. . The Dept of Public Works together with the Planning Board and Conservation Commission will coordinate implementation and enforcement of the Stormwater Ordinance.

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Table 26- Weymouth Existing Mitigation Measures

Type of Existing Mitigation Measures	Description	Area Covered	Effectiveness/ Enforcement	Update status / Changes Needed
MULTIPLE HAZARDS				
Comprehensive Emergency Management Plan (CEMP)	Emphasis is on emergency response.	Town-wide.	Effective	Dynamic process that is ongoing; continued implementation
Weymouth Master Plan	Goals and strategies for the town's development	Town-wide	Effective but needs update	Incorporate hazard mitigation and sea level rise into future plan updates.
Communications Equipment	Interoperable system across departments per NIMS standards	Town-wide.	Effective	Police, Fire, DPW, & EMA got new radios; Fire & DPW moved to UFH; EMA to UHF and VHF
Emergency Power Generators		Town-wide.	Effective	Upgrade generators as needed; provide generators at additional locations; provide alternative fuel sources and generator power source flexibility.
Participation in the Local Emergency Planning Committee (LEPC)	Full Certification, Mayoral-appointed	Town-wide.	Effective	Continued implementation
Public Education	Information shared by Weymouth Educational Television (WETC). Flood maps available for public review.	Town-wide	Effective	Town will continue to stay up to date with materials at state and federal levels.
FLOOD HAZARDS				
Participation in the National Flood Insurance Program (NFIP)		Areas identified on the FIRM maps.	There are 615 policies in force.	New FIRM's were accepted by the town in 2012; town encourages all eligible homeowners to obtain insurance.

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Table 26- Weymouth Existing Mitigation Measures				
Type of Existing Mitigation Measures	Description	Area Covered	Effectiveness/ Enforcement	Update status / Changes Needed
Public Works Operations/Maintenance Activities	Regular program of street sweeping	Town-wide.	Effective	Continued implementation
Public Works Operations/Maintenance Activities	Catch basins are cleaned yearly to prevent sedimentation.	Town-wide.	Effective	More frequent cleaning would provide more protection
Public Works Operations/Maintenance Activities	Minimal use of sand on roads to reduce siltation.	Town-wide.	Effective	Continued implementation
Public Works Operations/Maintenance Activities	Town cleans inlet grates of culverts to remove leaves and debris when major storms are forecast.	Town-wide.	Effective	Continued implementation
Flood Hazard Mitigation Plan	Completed in 2001	Town-wide	Effective	Continued implementation
Open Space Plan	Encourages preservation of flood prone areas	Town-wide	Effective	New Open Space plan was conditionally approved by EOEEA in November 2012
Zoning – Floodplain District	Requires Special Permit for construction in flood zones	Town-wide.	Effective	The new FIRM maps were accepted by the town in ;July 2012
Subdivision Rules & Regulations	Regulations require no increase in the rate of runoff.	Town-wide	Effective	Continued implementation

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Table 26- Weymouth Existing Mitigation Measures

Type of Existing Mitigation Measures	Description	Area Covered	Effectiveness/ Enforcement	Update status / Changes Needed
Cluster Zoning	Cluster subdivisions required to dedicate land not required for rights-of-way or lots as dedicated open space for protection of natural drainage areas.	Town-wide	Effective	Continued implementation
Stormwater Ordinance	Requires review of development by DPW, Planning Board, Conservation Comm.	Town-wide	Effective	New Stormwater Ordinance adopted by Town Council 2008
Wetlands Protection Ordinance	Extends jurisdiction to smaller, isolated wetlands	Wetland Resource Areas	Effective	Continued implementation, add regulations
Seawalls, Jetties, & Dikes	Repairs and upgrades to deficient sections	Coastline		Town is working on design and permitting of priority areas (Fore River Ave. and Fort Point Ave.), Phase 2 of 4
Mill River drainage	Need to increase flood storage capacity	Mill River	Effective	Debris removal project completed
DAM HAZARDS				
Permits required for dam construction.	State law requires a permit for the construction of a dam.	Town-wide.	Effective	None

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Table 26- Weymouth Existing Mitigation Measures				
Type of Existing Mitigation Measures	Description	Area Covered	Effectiveness/ Enforcement	Update status / Changes Needed
Emergency Action Plans and dam upgrades	EAP's completed for Iron Hill Dam and Whitman's Pond Dam in Weymouth and Smelt Brook Dam in Braintree. Rebuilding of Iron Hill Dam completed in 2013.	Iron Hill Dam; Whitman's Pond dams in Weymouth and Smelt Brook Dam in Braintree	Effective; Iron Hill Dam has been upgraded from poor to satisfactory condition.	The town plans to replace a sluice gate in the Whitman's Pond dam
WIND HAZARDS				
Tree trimming program	Conducted for the Town by the Park and Tree Division and by National Grid	Town-wide.	Effective	None
Zoning restrictions on communication towers	Tower construction requires structural support and foundation plans approved by a registered engineer.	Town-wide	Effective	None
State building code	The Town has adopted the latest version of the Massachusetts State Building Code.	Town-wide.	Effective except for some hurricanes, and tornadoes	None.
WINTER HAZARDS				
Snow Disposal	Snow disposal areas for densely developed areas	Town-wide	.Effective	None
Catch basin cleaning	DPW clears snow from clogged catch basins to prevent flooding	Town wide	Effective	None

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Table 26- Weymouth Existing Mitigation Measures				
Type of Existing Mitigation Measures	Description	Area Covered	Effectiveness/ Enforcement	Update status / Changes Needed
Building Code	The town enforces the Massachusetts State Building Code, which contains regulations regarding snow loads on building roofs. The town has adopted the state building code.	Town-wide	Effective	None
FIRE HAZARDS				
Burn Permits	Fire Dept. requires Burn Permits for open fires	Town-wide.	Effective	None
Development Review	Fire Dept. reviews all new Subdivision applications	Town-wide.	Effective	None
MGL Ch. 148 and 527 CMR Fire Prevention Code, and Mass State Building Code with respect to fire protection systems	Standards for fire protection systems in new construction and redevelopment	Town-wide.	Effective	None
GEOLOGIC HAZARDS				
State building code.	The latest edition of the Massachusetts State Building code incorporates seismic considerations.	Town-wide.	Effective for new building construction or significant renovations.	None.

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VII. MITIGATION MEASURES FROM THE 2005 PLAN

Review and Update Process

At a meeting of the Weymouth Hazard Mitigation Planning Committee, Town staff reviewed the mitigation measures identified in the 2005 South Shore Regional Pre-Disaster Mitigation Plan Weymouth Annex and determined whether each measure had been implemented or deferred. Of those measures that had been deferred, the committee evaluated whether the measure should be deleted or carried forward into this Hazard Mitigation Plan Update. The decision on whether to delete or retain a particular measure was based on the committee’s assessment of the continued relevance or effectiveness of the measure and whether the deferral of action on the measure was due to the inability of the Town to take action on the measure. Table 27 summarizes the status of mitigation measures, and mitigation projects completed are described in more detail below.

Table 27 - Status of Mitigation Measures from the 2005 Plan			
Mitigation Measures	Priority	Implementation Responsibility	Update Status
1) Evaluate seawalls, jetties, & dikes	High	DPW	<p align="center">Partially Completed Continued in Plan Update as High Priority</p> <p>Evaluation completed; the Town is working on design and permitting for work on priority areas</p>
2) Drainage improvements to reduce flooding	High	DPW	<p align="center">Partially completed Continued in Plan Update as High Priority</p> <p>Improvements made at Fort Point Road; flapper valves installed at Wessagusset Road at the yacht club</p>
3) Storm water improvements to include enlarged and new storm water structures	High	DPW	<p align="center">Partially Completed Continued in Plan Update as High Priority</p> <p>Projects implemented at Columbian St at Forest St, Norton St, Washington St, & Route 18 at Derby Street</p>

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Table 27 - Status of Mitigation Measures from the 2005 Plan			
Mitigation Measures	Priority	Implementation Responsibility	Update Status
4) Preservation of natural water storage areas	High	Conservation Commission	Completed Local Wetlands Protection Ordinance is more stringent than state standards
5) Ensure flood control structures are in good condition	High	DPW	Partially Completed Continued in Plan Update as Medium Priority Emergency Action Plans completed for Iron Hill Dam, Whitman's Pond Dam and Smelt Brook Dam; upgrades completed for Iron Hill Dam Replacement of sluice gate at Whitman's Pond Dam to be included in Plan Update.
6) Mill River dredging	High	DPW	Completed A dredging study has been completed
7) Clean Storm Drains and grate inlets	High	DPW	Implementation In progress Not included in Plan Update
8) Drainage improvements to River Street (G Lane Beach)	High	DPW	Not Completed Continued in Plan Update as High Priority To be done as part of Fort Point seawall project
9) Wessagussett Rd / Wituwamat Rd drainage upgrade	Medium	DPW	Completed
10) River Street comprehensive study of seawall system	Medium	DPW	Completed
11) Public education for fire prevention education .	High	Fire Dept	Partially Completed Continued in Plan Update as Medium Priority Fire Dept outreach at community events; provides informational brochures,

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Table 27 - Status of Mitigation Measures from the 2005 Plan			
Mitigation Measures	Priority	Implementation Responsibility	Update Status
			maintains web page with fire prevention materials
12) Grants for public school fire safety education - Fire Dept.	High	Fire Dept	Completed Fire Dept received grant and won contest for public education programs
13) Earthquake assessment of town buildings	Medium	Emergency Management	Not Completed Continued in Plan Update as Medium Priority

Weymouth has made considerable progress on implementing mitigation measures identified in the 2005 Hazard Mitigation Plan. Several projects have been completed, including an evaluation seawalls, jetties, and dikes; a Mill River dredging study, Wessagussett Rd / Wituwamat Rd drainage upgrades, Emergency Action Plans for Iron Hill Dam, Whitman's Pond Dam, and Smelt Brook Dam, and the River Street study of the seawall system. Others which involve multiple projects are partially complete, including several drainage improvements to reduce flooding, storm water improvements for enlarged and new storm water structures, ensuring flood control structures are in good condition, and public education on fire safety. Two projects that were not completed will also be continued into the plan update, including drainage improvements to River Street (George Lane Beach) and an earthquake assessment of town buildings. Overall, seven mitigation measures from the 2005 plan will be continued in the plan update. Of these, five mitigation measures will retain the same priority in the plan update. Two projects prioritized as high in the 2005 plan will be ranked medium in the plan update, both because they have been partially completed and there is less significant work remaining. These include: (5) Ensure flood control structures are in good condition and (11) Public education for fire prevention education.

Moving forward into the next five year plan implementation period there will be many more opportunities to incorporate hazard mitigation into the Town's decision making processes.

The challenges the Town faces in implementing these measures are primarily due to limited funding and available staff time. This plan should help the Town prioritize the best use of its limited resources for enhanced mitigation of natural hazards.

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Other Mitigation Projects Completed

In addition to the mitigation projects listed above from the 2005 Hazard Mitigation Plan, the town has completed a number of other mitigation projects since the last plan:

Seawater Flood Control

The town installed 2 – 24” TF-2 Flapper Valves in manholes on Wessagussett and Wituwamat St in 2006

Stormwater Drainage Improvements to Critical Areas in town:

Sycamore Rd – Old pipe had collapsed and catch basins were filled with sand. The 60’ or so of collapsed pipe was dug up and replaced with new HDPE pipe. The catch basins were cleaned and the catch basin frame and grates were adjusted to grade as they were an inch above the pavement line prior to construction. Construction was completed in October, 2012 at a cost of \$4,460.

Tower Ave – Old pipe had collapsed causing flooding of the street and residential property. A section of pipe daylighted for 20’ at the back of the property and was causing back up from leaves and debris blocking the inlet. 85’ of collapsed pipe was replaced with new 12” HDPE pipe, catch basins were cleaned, surrounding pipes were jetted and cleaned and the 20’ of daylighted drainage ditch was piped to prevent further back up. Project was completed December, 2012 at a cost of 7,539.00

Weston Park – All drainage from Broad street, Tufts library parking lot, and all of Weston park was flowing through an open channel under the building of 89 Washington St causing flooding problems at the building and major concerns to the property owner. All the drainage was re-piped out to Washington St and though 400’ of closed pipe network to eliminate the flow path underneath the building at 89 Washington St. Project was completed in 2006 for a cost of \$20,749.

Norton St – 760’ of 30” drain pipe ran though residential properties in some spots close to homes. Pipe was failing causing numerous sink holes on private property and flooding North Street under the Railroad Bridge. The old pipe was filled in and new PVC pipe was installed in the street with new manholes where required. Project was completed in 2006 by the MBTA, total construction cost is unknown.

Hill St – Flooding of private property was caused by a failed drainage system. 280’ of drainpipe was removed and replaced with new HDPE pipe in 2012. 150’ of open trench was hand dredged to remove sand and debris. The construction cost was \$11,000

Washington St to Vine St – The project included the replacement of 222’ of old 12” clay drain pipe with new 12” HDPE pipe and 2 catch basins on Vine St. Installation of

TOWN OF WEYMOUTH HAZARD MITIGATION PLAN 2014 UPDATE

110' of new 12" HDPE, 2 new drain manholes, and 2 new catch basins in Washington Street. This work was completed in 2010 for a cost of \$64,966.

Wituwamat/Paomet Rd – approximately 1100' of new drain pipe was installed in these roads. These roads had very limited drainage causing flooding to residential properties and causing ice hazards during the winter months. 13 new catch basins were installed along with 8 new drain manholes and a tide gate at the outlet. This work was done in 2006 with an estimated construction cost of \$265,695.

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VIII. HAZARD MITIGATION STRATEGY

What is Hazard Mitigation?

Hazard mitigation means to permanently reduce or alleviate the losses of life, injuries and property resulting from natural hazards through long-term strategies. These long-term strategies include planning, policy changes, education programs, infrastructure projects and other activities. FEMA currently has three mitigation grant programs: the Hazards Mitigation Grant Program (HGMP), the Pre-Disaster Mitigation program (PDM), and the Flood Mitigation Assistance (FMA) program. The three links below provide additional information on these programs.

<http://www.fema.gov/government/grant/hmgp/index.shtm>

<http://www.fema.gov/government/grant/pdm/index.shtm>

<http://www.fema.gov/government/grant/fma/index.shtm>

Hazard Mitigation Measures can generally be sorted into the following groups:

- **Prevention:** Government administrative or regulatory actions or processes that influence the way land and buildings are developed and built. These actions also include public activities to reduce hazard losses. Examples include planning and zoning, building codes, capital improvement programs, open space preservation, and stormwater management regulations.
- **Property Protection:** Actions that involve the modification of existing buildings or infrastructure to protect them from a hazard or removal from the hazard area. Examples include acquisition, elevation, relocation, structural retrofits, flood proofing, storm shutters, and shatter resistant glass.
- **Public Education & Awareness:** Actions to inform and educate citizens, elected officials, and property owners about the potential risks from hazards and potential ways to mitigate them. Such actions include outreach projects, real estate disclosure, hazard information centers, and school-age and adult education programs.
- **Natural Resource Protection:** Actions that, in addition to minimizing hazard losses also preserve or restore the functions of natural systems. These actions include sediment and erosion control, stream corridor restoration, watershed management, forest and vegetation management, and wetland restoration and preservation.
- **Structural Projects:** Actions that involve the construction of structures to reduce the impact of a hazard. Such structures include storm water controls (e.g., culverts), floodwalls, seawalls, retaining walls, and safe rooms.
- **Emergency Services Protection:** Actions that will protect emergency services before, during, and immediately after an occurrence. Examples of these actions include protection of warning system capability, protection of critical facilities, protection of emergency response infrastructure.

(Source: FEMA Local Multi-Hazard Mitigation Planning Guidance)

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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 issues that involve cooperation between two or more municipalities. There is a third level of mitigation which is regional; involving a state, regional, or federal agency or an issue that involves three or more municipalities.

Inter-Community Considerations

Shoreline Environment – The coastal shoreline of the South Shore area is a dynamic environment where forces of erosion and deposition of sand are constantly at work changing the beach profile. This process disregards municipal boundaries as sand and other materials are moved along the coast. Shoreline protection measures such as sea walls, jetties, and others have an impact on this process with the potential of building up sand in some areas while stripping it away from others. Municipalities along the South Shore should work to understand how these processes are at work locally and consider mutually beneficial means of protecting their shore side communities from the impacts of storm damage.

Back River Estuary Land Protection – Mitigation of flooding and coastal storm damage is among the numerous benefits that can be attributed to protecting land in the Back River estuary, a state designated Area of Critical Environmental Concern (ACEC) covering portions of Weymouth and Hingham. These protected areas directly serve to absorb storm water and act as flood water retention areas. Indirectly, land along the water that is protected will not be developed with homes and buildings that would later be subject to storm and flood damage.

Pond Meadow Park is a 320 acre conservation and recreation area spanning the towns of Weymouth and Braintree which is managed by the Weymouth/Braintree Regional Recreation-Conservation District. Within the park is a 20 acre pond impounded by the Smelt Brook Dam, which provides flood control to protect the downstream Weymouth Landing area.

Regional Issues

Climate Change and Sea Level Rise – The entirety of Massachusetts's coastal environment faces potential risk from Climate Change and associated sea level rise. Models incorporating current trends indicate a gradual rise in global temperature, with a consequent increase in the volume of water in the world's ocean due to thermal expansion as the water warms and the addition of water from melting ice sheets and glaciers. Projections for sea level rise by the end of this century range from four to 33 inches. Higher temperatures and higher sea levels will result in a greater frequency and intensity of storms and higher flood levels.

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Assessment of climate change impacts is largely outside the scope of this Hazard Mitigation Plan, which relies primarily on historic trends to assess risk and vulnerability. The potential changes to storm damage profiles caused by climate change will likely be well outside of historic trends, making those trends uncertain predictors of future risk and vulnerability at best. Coastal communities and Regional Planning Agencies will need to advocate for a statewide response that includes using the best available information to map and model climate change and sea level rise data related to coastal hazards in Massachusetts and disseminate this information for use in hazard mitigation planning and land use policy development.

Regional Partners - In many communities, mitigating natural hazards, particularly flooding, is more than a local issue. The drainage systems that serve these communities are a complex system of storm drains, roadway drainage structures, pump stations and other facilities owned and operated by a wide array of agencies including but not limited to the Town of Weymouth, the Department of Conservation and Recreation (DCR), and Massachusetts Department of Transportation (MDOT). The planning, construction, operations, and maintenance of these structures are integral to the flood 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 where cooperation with these other agencies may be necessary. Implementation of these recommendations will require that all parties work together to develop solutions.

New Development and Infrastructure

As part of the process of developing recommendations for new mitigation measures for this plan update, the Town considered the issues related to new development, redevelopment, and infrastructure needs in order limit future risks. Taking into consideration the town's amended Floodplain Zoning District, the Wetlands Ordinance enforced on new development by the Conservation Commission, the Planning Board's Subdivision Rules and Regulations regarding stormwater from developments, the town's Stormwater Ordinance, and the Open Space Plan, the town determined that existing regulatory measures are taking full advantage of local Home Rule and land use regulatory authority. The major priorities that emerged for the town are strategic infrastructure upgrades in vulnerable areas, including several stormwater drainage improvements, seawalls, a tide gate and dam sluice gate. These priority infrastructure upgrades will reduce hazard risks for both existing and new development and redevelopment throughout the town.

Process for Setting Priorities for Mitigation Measures

The decisions on priorities for mitigation measures were made by the Weymouth Hazard Mitigation Planning Team. Priority setting was based on local knowledge of the hazard

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areas, including impacts of hazard events and the extent of the area impacted and the relation of a given mitigation measure to the town's identified goals.

MAPC staff has attended the FEMA Benefit-Cost Analysis Training and information from this training was along with a review of the STAPLEE criteria (a checklist for evaluating social, technical, administrative, political, legal, economic and environmental issues), MAPC assisted the local team in prioritizing potential mitigation measures, considering estimated project costs, whether the town has the technical and administrative capability to carry out the mitigation measures, whether any environmental constraints existed, and whether the town would be able to justify the costs relative to the anticipated benefits. A summary of the evaluation of the potential mitigation measures is provided in Table 28. The following symbols apply to indicate degree of acceptability:

- = Acceptable
- =Somewhat Acceptable.

For each mitigation measure, level of benefit created by a project was based on an estimate of the number of homes, businesses, or people served by the mitigation action and an estimate of the costs or damages avoided via implementation of the mitigation measure. Where a more exact estimate of cost was know, this number was used instead. Based on these factors the overall benefit level for each mitigation action was estimated using the following guidelines”

High	Mitigation action will result in a significant reduction of hazard risk to people and/or property from a hazard event
Medium	Mitigation action will likely result in a moderate reduction of hazard risk to people and/or property from a hazard event
Low	Mitigation action will result in a low reduction of hazard risk to people and/or property from a hazard event

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PROJECTS ALTERNATIVE	Socially Acceptable	Technically Feasible	Administratively Possible	Politically Acceptable	Legal	Economically Sound	Environmentally Sound	Overall Benefit
A) Drainage Improvements at Puritan Road	•	•	•	•	•	•	•	Medium
B) Drainage Improvements at River Street	•	•	•	•	•	•	•	Medium
C) Elevation of residences along Fort Point Avenue	•	•	•	○	•	•	•	High
D) Upgrade Seawalls, jetties, and dikes	•	•	•	•	•	•	•	High
E) Enlarge drainage system at Derby Street, add Detention Basin	1.	2.	•	•	•	•	•	Medium
F) Drainage improvements on Paomet Road; expansion of historic mosquito ditches	•	•	•	•	•	•	•	Medium

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PROJECTS ALTERNATIVE	Socially Acceptable	Technically Feasible	Administratively Possible	Politically Acceptable	Legal	Economically Sound	Environmentally Sound	Overall Benefit
G) Slide Gate at culvert in Great Esker Park	•	•	•	•	•	•	•	Medium
H) Replace sluice gate at Whitman's Pond Dam	•	•	•	•	•	•	•	High
I Debris management for major storms/ hurricanes	•	•	•	•	•	•	•	Medium
J) Public education for fire prevention - local CATV videos	•	•	•	•	•	•	•	Low
K) Municipal Building Earthquake Assessment	•	•	•	•	•	•	•	Low

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Potential Mitigation Measures

The listing of potential mitigation measures is provided in the sections below and summarized in Table 29.

High Priority Mitigation Measures

Flooding, Drainage Infrastructure, and Dams

- A) Puritan Road drainage project
Is an old culvert with headwalls on both ends collapsing and sink holes that are constantly appearing in the asphalt above. The town is looking to either replace the culvert and headwalls in kind or open the culvert up to become a daylighted channel with a bridge depending on funding and construction costs.
- B) Drainage Improvements at River Street (George Lane Beach)
A design is required to raise the road or another alternative implemented to help alleviate flooding on River Street from the sea water. [There are related issues in the adjacent boat ramp parking lot that should also be addressed as part of the roadway work](#)
- C) Elevation of structures along Fort Point Avenue
Elevation projects are pending for three residential structures along Fort Point Avenue.
- D) Upgrade Seawalls, jetties, and dikes: The Town is working on design and permitting for upgrades in priority areas (Fore River Avenue and Fort Point Avenue) [Replace with larger revetment and higher walls](#)".

Medium Priority Mitigation Measures

Flooding, Drainage Infrastructure and Dams

- E) Enlarge drainage system at Derby Street, add Detention Basin The drainage on Derby Street is inadequate and causes flooding and washout to the street and surrounding properties. The DPW is looking to hire a consultant to do a feasibility and design study to add additional drainage structures and basins to help alleviate the flooding problems.
- F) Drainage improvements on Paomet Road
The Engineering Division is reviewing potential drainage improvements at the southern end of Paomet Road. The town is coordinating with the Norfolk County Mosquito Control Project regarding maintenance and expansion of historic drainage ditches to relieve flooding in residential properties.
- G) Slide Gate at Great Esker Park
A slide gate is proposed to be installed at the proposed culvert reconstruction at Great Esker Park, just east of Weyham and Irving Roads. Permitting for the project is underway. The slide gate is intended to remain in the "open" position except for

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extreme conditions (e.g., extreme high tide with flood surge). The gate could be closed for the incoming tide, but would have to be opened to let freshwater exit.

H) Whitman's Pond Dam

The town plans to replace the sluice gate within the dam structure at Whitman's Pond.

Wind Hazards

- D) Debris management for major storms/hurricanes--DPW personnel are out during and after major storms/hurricanes to clean up debris in road ways and any other place on town owned property that pose a safety hazard to the public.

Fire Hazards

- J) Continue and enhance public education efforts for fire prevention education. The Fire Department participates in community events providing targeted outreach and informational brochures. The Fire Department maintains a web page with fire prevention materials. The Fire Department plans on working with local CATV to produce fire prevention videos and bulletins.

Earthquakes

- K) Municipal Building Assessment: Investigate options to make public municipal buildings earth-quake resistant.

Introduction to Potential Mitigation Measures Table (Table 29)

Description of the Mitigation Measure – The description of each mitigation measure is brief and cost information is given only if cost data were already available from the community. The cost data 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.

Priority – As described above and summarized in Table 28, the designation of high, medium, or low priority was done at the meeting of the Local Hazard Mitigation Planning Team. In determining project priorities, the local team considered potential benefits and estimated project costs, as well as other factors in the STAPLEE analysis.

Implementation Responsibility – The designation of implementation responsibility was done by MAPC based on a general knowledge of what each municipal department is responsible for. 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.

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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. Because the time frame for this plan is five years, the timing for all mitigation measures has been kept within this framework. The identification of a likely time frame is not meant to constrain a community from taking advantage of funding opportunities as they arise.

Potential Funding Sources – This column attempts to identify the most likely sources of funding for a specific measure. The information on potential funding sources in this table is preliminary and varies depending on a number of factors. These factors include whether or not a mitigation measure has been studied, evaluated or designed, or if it is still in the conceptual stages. MEMA and DCR assisted MAPC in reviewing the potential eligibility for hazard mitigation funding. 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 team responsible for its implementation should begin to explore the funding sources in more detail.

Additional information on funding sources – The best way to determine eligibility for a particular funding source is to review the project with a staff person at 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 in a number of types of projects including shoreline/streambank protection, flood damage reduction, flood plain management services and planning services.

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.

Abbreviations Used in Table 29

FEMA Mitigation Grants includes:

FMA = Flood Mitigation Assistance Program.

HMGP = Hazard Mitigation Grant Program.

PDM = Pre-Disaster Mitigation Program

ACOE = Army Corps of Engineers.

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

Mass DOT = Massachusetts Department of Transportation

DCR = MA Department of Conservation and Recreation

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Table 29 Weymouth Potential Mitigation Measures						
Hazard Area	Mitigation Measure	Measure Type	Implementation Responsibility	Time Frame	Estimated Cost	Potential Funding Sources
High Priority						
A) Flooding	Stormwater improvement at Puritan Road: Replace collapsing culvert, preferably with a day-lighted channel and bridge	Structural	DPW	2014-2015	\$500,000	Town/ DPW MA Dept of Ecological Restoration; Mass. CZM
B) Flooding	Stormwater improvement at River Street: Raise roadway elevation and replace the drainage system	Structural	DPW	2014-2016	TBD	Town/DPW
C) Flooding	Elevation of residences along Fort Point Avenue	Structural	Emergency Management	2014-15	TBD	FEMA/Local private match
D) Coastal hazards	Upgrades to seawalls along Fore River Ave & Fort Point Ave: Replace with larger revetment and higher walls	Structural	DPW	2014-2019	TBD	Town/DPW
Medium Priority						
E) Flooding	Enlarge drainage system at Derby Street, add Detention Basin	Structural	DPW / Mass DOT	2016-2018	\$150,000	Mass DOT

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Table 29						
Weymouth Potential Mitigation Measures						
Hazard Area	Mitigation Measure	Measure Type	Implementation Responsibility	Time Frame	Estimated Cost	Potential Funding Sources
F)						
F) Flooding	Drainage improvements on Paomet Road; expansion of historic mosquito ditches	Structural	DPW with Norfolk County Mosquito Control Project	2015-16	\$20,000	Town/DPW
G) Flooding	Slide Gate at culvert in Great Esker Park	Structural	DPW	2014	TBD	MWRA
H) Dams	Replace sluice gate at Whitman's Pond Dam	Structural	DPW	2014-2015	\$50,000	Town/DPW
I) Wind Hazards	Debris management for major storms/hurricanes	Prevention	DPW/ Emergency Management	2014-2019	Staff time	Town/DPW/EM
J) Fire Hazards	Work with CATV to produce fire prevention videos and bulletins	Prevention	Fire Dept.	2014-2019	Staff Time	Town/Fire Dept.
K) Earthquake	Municipal Building Assessment	Property Protection	DPW	2015-2016	Staff time	Town/DPW

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IX. PLAN ADOPTION AND MAINTENANCE

Plan Adoption

The Weymouth Hazard Mitigation Plan Update was adopted by the Mayor on [ADD 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

Although several of the mitigation measures from the Town's previous Hazard Mitigation Plan have been implemented, since that plan was adopted there has not been an ongoing local process to guide implementation of the plan. Such a process is needed over the next five years for the implementation of this plan update, and will be structured as described below.

MAPC worked with the Weymouth Hazard Mitigation Planning Team to prepare this plan. This group will meet on a regular basis, at least annually, to function as the Local Hazard Mitigation Implementation Group, with the Planning Director designated as the coordinator. Additional members could be added to the local implementation group from businesses, non-profits and institutions. The Town will encourage public participation during the next 5-year planning cycle. Updates and reviews of the plan will be conducted by the Planning Board, and these will be placed on the Board's agenda and publicly noticed in accordance with town and state open meeting laws.

Implementation Schedule

Mid-Term Survey on Progress– The coordinator of the Hazard Mitigation Implementation Team will prepare and distribute a biannual survey in year three 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 in order to evaluate its effectiveness in meeting the plan's goals and identify areas that need to be updated in the next plan.. The Hazard Mitigation Implementation Team, coordinated by the Planning Director, will have primary responsibility for tracking progress and updating the plan.

Begin to Prepare for the next Plan Update -- Given the lead time needed to secure funding and conduct the planning process, the Hazard Mitigation Implementation Team will begin to prepare for an update of the plan in year three. The team will use the information from the Mid-Term progress review to identify the needs and priorities for the plan update and seek funding for the plan update process. Potential sources of funding

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may include FEMA Pre-Disaster Mitigation grants and the Hazard Mitigation Grant Program. Both grant programs can pay for 75% of a planning project, with a 25% local cost share required.

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. Once the resources have been secured to update the plan, 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. 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 Weymouth Hazard Mitigation Plan Update 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 Weymouth Hazard Mitigation Plan Update by FEMA, the Local 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 that department’s ongoing work. At a minimum, the plan will be reviewed and discussed with the following departments:

- Fire Department
- Emergency Management
- Police Department
- 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 local team 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.

The Hazard Mitigation Plan will be integrated into other town plans and policies as they are updated and renewed, including the Weymouth Comprehensive Plan, Open Space Plan, Comprehensive Emergency Management Plan, and Capital Investment Program.

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X. LIST OF REFERENCES

In addition to the specific reports listed below, much of the technical information for this plan came from meetings with town department heads and staff.

FEMA, Flood Insurance Rate Maps for Norfolk County, MA, 2012

FEMA, Local Mitigation Plan Review Guide; October 1, 2011.

MA Coastal Hazards Commission, *Preparing For the Storm: Recommendations for Management of Risk from Coastal Hazards in Massachusetts*, May 2007.

MA Emergency Management Agency, *State Hazard Mitigation Plan*, 2013

MA Geographic Information System, *McConnell Land Use Statistics*, 2005

MA Office of Dam Safety, *Inventory of Massachusetts Dams*

MA Coastal Infrastructure Inventory and Assessment, Oct. 2009

Metropolitan Area Planning Council, Geographic Information Systems Lab

Town of Weymouth, *Comprehensive Emergency Management Plan*

Town of Weymouth, *Floodplain Zoning Overlay District*

Town of Weymouth, *Stormwater Ordinance*

Town of Weymouth, *Wetlands Protection Ordinance*

Town of Weymouth, *Wetlands and Rivers Protection Regulations*

Town of Weymouth, *Zoning Ordinance*

U.S. Army Corps of Engineers, *SLOSH Modeling and Maps*

US Census, 2010

Weymouth Flood Hazard Mitigation Plan. Prepared for the Flood Hazard Community Planning Team, Town of Weymouth Presented by: Bourne Consulting Engineering December 2001.

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Weymouth Master Plan Update Final Report, prepared for the Town of Weymouth Master Plan Steering Committee by: The Cecil Group, Inc. with Bonz/REA, McGregor & Associates, and Howard Stein Hudson, April 2001.

APPENDIX A

**HAZARD MITIGATION PLANNING TEAM
MEETING AGENDAS**

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Don Boyce
DIRECTOR



Richard Sullivan
COMMISSIONER



Marc D. Draisen
EXECUTIVE DIRECTOR

**SOUTH SHORE
HAZARD MITIGATION
PLANNING TEAM**

Braintree
Cohasset
Hingham
Hull
Marshfield
Milton
Quincy
Randolph
Scituate
Weymouth

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

South Shore Hazard Mitigation Planning Team

First Meeting

Tuesday, February 9, 10:00 AM

**McCulluch Building
(Whipple Senior Center)
Weymouth, MA**
(See map & directions attached)

AGENDA

10:00 WELCOME & INTRODUCTIONS

10:05 OVERVIEW OF HAZARD MITIGATION PLANNING & GRANTS

- State Hazard Mitigation Plan & FEMA Grants–Sarah White, MEMA
- Regional & Local Mitigation Plans - Martin Pillsbury, MAPC

10:20 UPDATING THE SOUTH SHORE HAZARD MITIGATION PLAN

- FEMA Requirements & Grant Eligibility
- Review of Scope of Work & Schedule –MAPC
- Questions & Discussion – Local issues & Priorities

10:50 GETTING STARTED: MAPPING AND CRITICAL FACILITIES DATABASE FOR THE SOUTH SHORE PLAN UPDATE

- Chris Brown, GIS Analyst, MAPC

11:15 NEXT STEPS / ADJOURN

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

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Meeting Agenda

Local Hazard Mitigation Planning Team Weymouth, MA

July 11, 2011 1:30 PM – 3:00 PM
Weymouth DPW, 120 Winter Street

1. Overview of Project Scope and Status.
2. Introduce Weymouth Hazard Mitigation Planning map series and digitized ortho photo. Identify Flood and Fire Hazard Areas and areas of future potential development.
3. Review and Assess Plan Goals. (see over)
4. Discuss Public Involvement and Outreach (see over)
5. Set Date for Next Meeting to:
 1. Review Existing Mitigation Measures.
 2. Review Mitigation Measures from the 2005 Plan.
 3. Discuss Potential Mitigation Measures.
 4. Prioritize Mitigation Measures.

Project Overview - MAPC received a grant to update *Hazard Mitigation Plans* for the communities of Braintree, Cohasset, Hingham, Hull, Marshfield, Milton, Quincy, Randolph, Scituate, and Weymouth. MAPC is working with the ten communities to update plans to mitigate potential damages of natural hazards such as floods, winter storms, hurricanes, earthquakes, and wild fires, before such hazards occur. The federal *Disaster Mitigation Act of 2000* requires that all municipalities adopt a *Pre-Disaster Mitigation Plan* for natural hazards and update those plans every five years, in order to remain eligible for FEMA Hazard Mitigation Grants.

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Meeting Agenda

Local Hazard Mitigation Planning Team Weymouth, MA

November 17, 2011 1:00 PM - 3:00 PM

Public Works Building, 120 Winter St 2nd Floor Meeting Room

1. Review Existing Mitigation Measures.
2. Review Mitigation Measures from the 2005 Hazard Mitigation Plan.
3. Discuss Potential Mitigation Measures.
4. Prioritize Mitigation Measures.
5. Discuss Plan Implementation and Maintenance
6. Assign Final Review Team

Project Overview - MAPC received a grant to update *Hazard Mitigation Plans* for the communities of Braintree, Cohasset, Hingham, Hull, Marshfield, Milton, Quincy, Randolph, Scituate, and Weymouth. MAPC is working with the ten communities to update plans to mitigate potential damages of natural hazards such as floods, winter storms, hurricanes, earthquakes, and wild fires, before such hazards occur. The federal *Disaster Mitigation Act of 2000* requires that all municipalities adopt a *Pre-Disaster Mitigation Plan* for natural hazards and update those plans every five years, in order to remain eligible for FEMA Hazard Mitigation Grants.

**Meeting Agenda
Local Hazard Mitigation Planning Team
Weymouth, MA**

October 10, 2013, 9:00 AM
Public Works Building, 120 Winter St 2nd Floor Meeting Room

- 1. Review status of Existing Mitigation Measures**
- 2. Status of Mitigation Measures from the 2005 Hazard Mitigation Plan**
- 3. Mitigation Measures for the Plan Update**
 - Carry over mitigation measures from the 2005 plan, and
 - Identify new mitigation measures for hazard categories

 - Prioritize mitigation measures (High, Med, Low)
 - Implementing department
 - Time Frame (Years 1 -5)
 - Cost estimate
 - Potential funding sources
- 4. Public Outreach and Final Public Meeting**
 - Post draft plan on Town web site
 - Notify key stakeholders (business and community orgs, etc)
 - Notify neighboring towns

TOWN OF WEYMOUTH HAZARD MITIGATION PLAN 2014 UPDATE

APPENDIX B HAZARD MAPPING

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 map series consists of four panels with two maps each plus one map taken from the State Hazard Mitigation Plan. The maps in this plan appendix are necessarily reduced scale versions (11 x 17 inches). The town has the original full scale map sheets (24 x 36 inches).

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

Reduced-scale copies of the map series are included in this Appendix for general reference. Full sized higher resolution PDF's of the Weymouth maps can be downloaded from the MAPC File Transfer Protocol (FTP) website:

ftp://ftp.mapc.org/Hazard_Mitigation_Plans/maps/Weymouth/

Map 1: Population Density – This map uses the US Census block data for 2010 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: 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. The map also depicts current land use.

Map 3: Flood Zones – The map of flood zones used the FEMA NFIP Flood Zones as depicted on the FIRMS (Federal Insurance Rate Maps) for Norfolk County as its source. This map is not intended for use in determining whether or not a specific property is located within a FEMA NFIP flood zone. The currently adopted FIRMS for Weymouth

TOWN OF WEYMOUTH HAZARD MITIGATION PLAN 2014 UPDATE

are kept by the Town. For more information, refer to the FEMA Map Service Center website <http://www.msc.fema.gov>. The definitions of the flood zones are described in detail on this site as well. The flood zone map for each community also shows critical infrastructure and repetitive loss areas.

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, 2008. The critical infrastructure sites are also shown. The source of the aerial photograph is Mass GIS.

TOWN OF WEYMOUTH HAZARD MITIGATION PLAN 2014 UPDATE

FEMA Pre-Disaster Mitigation Planning Grant
WEYMOUTH, MA
 Natural Hazards Map
 Population Density and Development



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 MAPC Data Services
 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 (NESCE)
 Massachusetts Emergency Management Agency (MEMA)
 Federal Emergency Management Agency (FEMA)
 Weymouth, MA

File Location:
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Date: June 2011

Sites

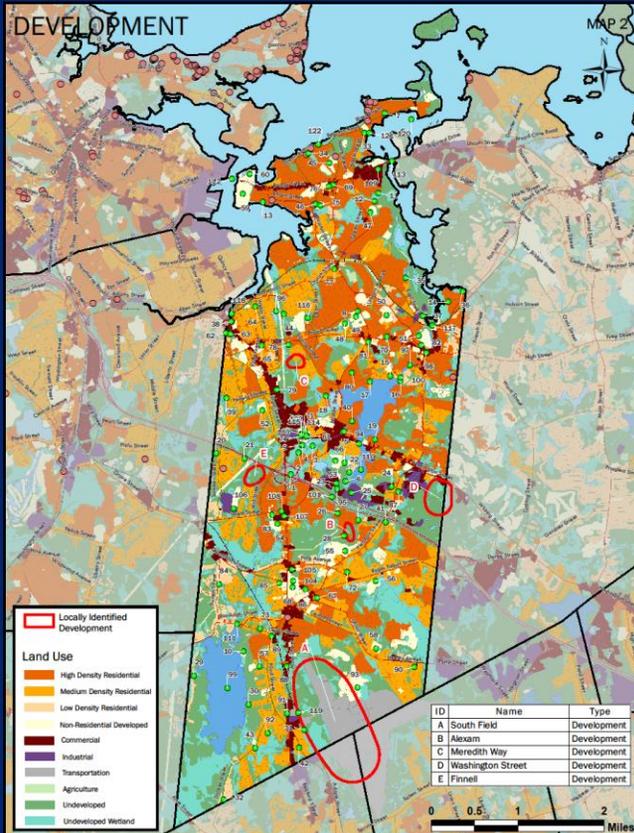
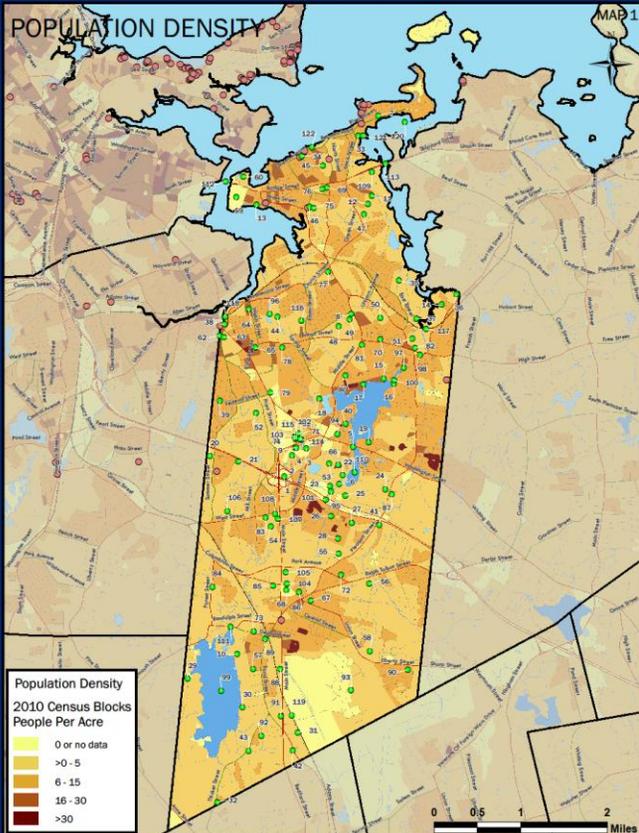
- Critical Infrastructure Sites
- Repetitive Loss Sites

Hydro

- Water Bodies
- Reservoir

Roads / Transportation

- Local
- Collector
- Arterial
- Interstate
- Trains



CRITICAL INFRASTRUCTURE SITES

ID	NAME	ADDRESS	TYPE
1	Main Street West	Main Street	Water
2	South Ave West	South Avenue	Water
3	Water Street West #2	Water Street	Water
4	Water Street West #1	Water Street	Water Pumping Station
5	Washington Street Pump Station	520 Washington Street	Water Pumping Station
6	Liberty Industrial Water Well	Liberty Industrial Parkway	Well
7	Project Hill Sewer Pump	1 Prospect Hill Dr	Water Pumping Station
8	Tram Mill	12 Mill Street	Wastewater Plant
9	Padua / Bioscience Water Treatment Plant	95 Winder St	Water Treatment Facility
10	Green Field Water Treatment Plant	230 Mill Street	Water Pumping Station
11	160-16	Living Road	Water Pumping Station
12	160-15	Madison Ave	Water Pumping Station
13	160-14	Quincy Street	Water Pumping Station
14	160-24	Clinton Road	Water Pumping Station
15	160-23	Willow Lane	Water Pumping Station
16	160-27	Iron Mill Street	Water Pumping Station
17	160-28	Carlton Cove	Water Pumping Station
18	160-26	Greenway Ave	Water Pumping Station
19	160-10	Claret View Road	Water Pumping Station
20	160-8	Summer Street	Water Pumping Station
21	160-9	Summer Street	Water Pumping Station
22	160-22	Woodside Path	Water Pumping Station
23	160-21	Liberty Avenue	Water Pumping Station
24	160-21	Matteson Drive	Water Pumping Station
25	160-20	Liberty Avenue	Water Pumping Station
26	160-19	Weymouth Commons	Water Pumping Station
27	160-18	Ball Court Dr	Water Pumping Station
28	160-14	Quincy St	Water Pumping Station
29	160-14	Partridge Street	Water Pumping Station
30	160-7	Green Ave	Water Pumping Station
31	160-18	Plan Terrace	Water Pumping Station
32	160-20	Trickett Street	Water Pumping Station
33	160-4	Mass Street	Water Pumping Station
34	160-3	Millington Road	Water Pumping Station
35	160-12	Thompson St	Water Pumping Station
36	160-15	Winton	Water Pumping Station
37	160-2	Ward Street	Water Pumping Station
38	160-2	Weymouth Landing	Water Pumping Station
39	160-4	Weymouth Landing	Water Pumping Station
40	160-4	Weymouth Landing	Water Pumping Station
41	160-13	Free Road	Water Pumping Station
42	160-11	Free Road	Water Pumping Station
43	160-11	Free Road	Water Pumping Station
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159	160-11	Free Road	Water Pumping Station
160	160-11	Free Road	Water Pumping Station

TOWN OF WEYMOUTH HAZARD MITIGATION PLAN 2014 UPDATE

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TOWN OF WEYMOUTH HAZARD MITIGATION PLAN 2014 UPDATE

FEMA Pre-Disaster Mitigation Planning Grant

WEYMOUTH, MA

Natural Hazards Map
Flood Zones and Earthquake / Landslides



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.

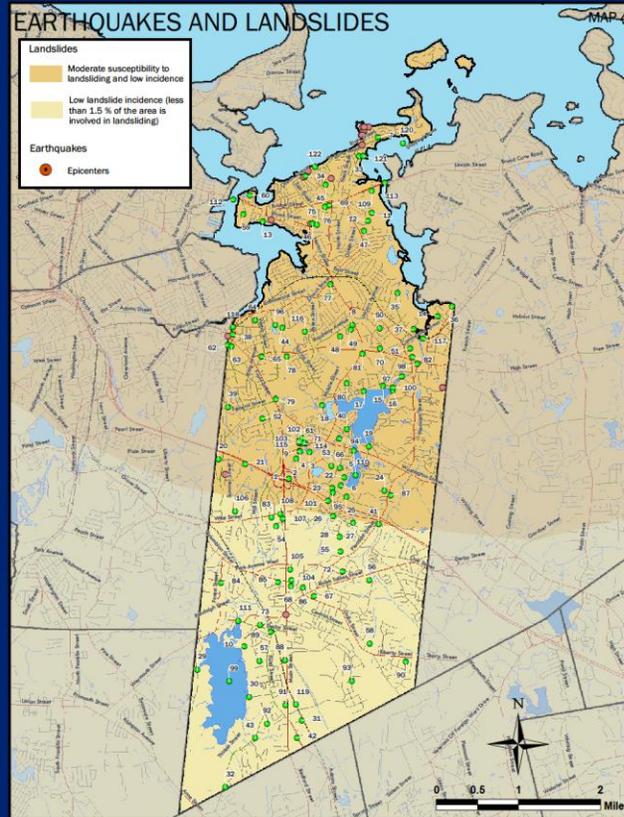
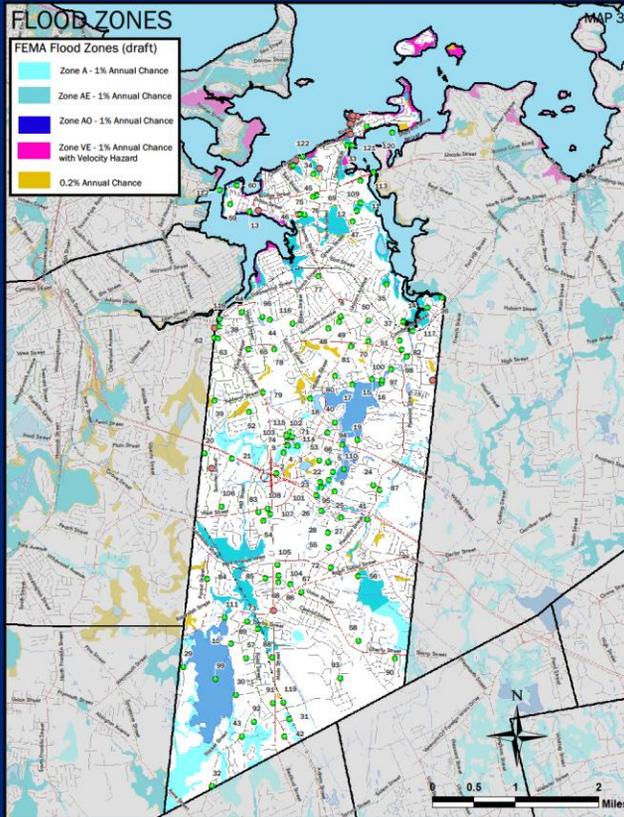
Produced by MAPC Data Services
60 Temple Place, Boston, MA 02111 (617) 451-2770

Data Sources:
Metropolitan Area Planning Council (MAPC)
Massachusetts Geographic Information System (MassGIS)
Northeast States Emergency Consortium (NSEC)
Massachusetts Emergency Management Agency (MEMA)
Federal Emergency Management Agency (FEMA)
Weymouth, MA

File Location:
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Date: June 2014

- Sites**
- Critical Infrastructure Sites
 - Repetitive Loss Sites
 - Water Bodies
 - Reservoir
- Roads / Transportation**
- Local
 - Collector
 - Arterial
 - Interstate
 - Trains



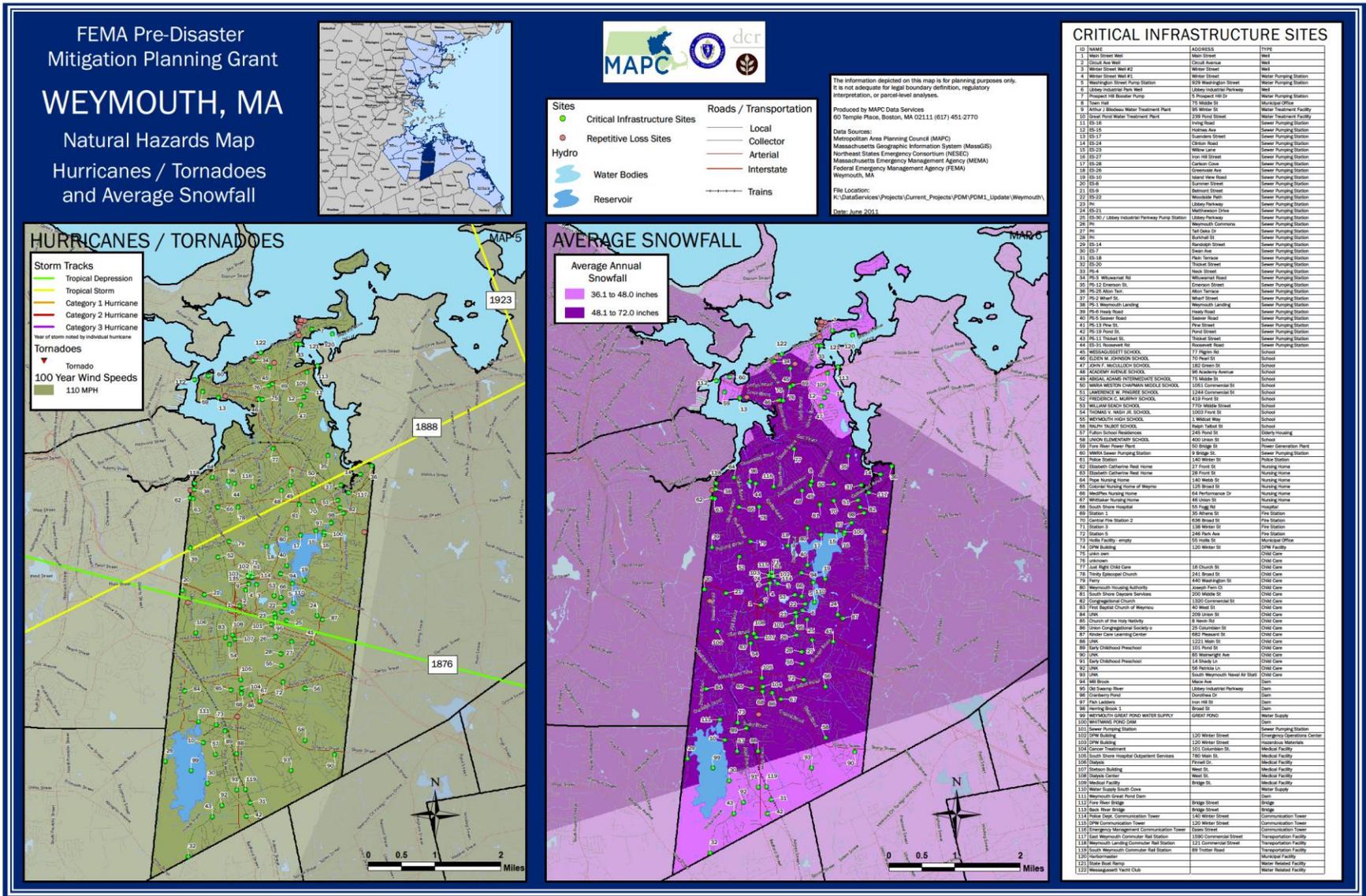
CRITICAL INFRASTRUCTURE SITES

ID	NAME	ADDRESS	TYPE
1	North Street West	North Street	Water
2	Circuit Ave West	Circuit Avenue	Water
3	Water Street West #2	Water Street	Water
4	Water Street West #1	Water Street	Water
5	Washington Street Pump Station	100 Washington Street	Water Pumping Station
6	Shoreline Pumping Station	Shoreline Parkway	Water Pumping Station
7	Prospect Hill Booster Pump	51 Prospect Hill Dr	Water Pumping Station
8	Water Mill	15 Middle St	Municipal Office
9	Arthur J. Boswell Water Treatment Plant	65 Willow St	Water Treatment Facility
10	Green River Water Treatment Plant	120 Pond Street	Water Treatment Facility
11	ES-16	Irving Street	Sewer Pumping Station
12	ES-15	Grimes Ave	Sewer Pumping Station
13	ES-17	Standards Street	Sewer Pumping Station
14	ES-24	Grimes Ave	Sewer Pumping Station
15	ES-23	Willow Lane	Sewer Pumping Station
16	ES-27	Iron Mill Street	Sewer Pumping Station
17	ES-28	Carson Cove	Sewer Pumping Station
18	ES-29	Commonwealth Ave	Sewer Pumping Station
19	ES-10	Island View Road	Sewer Pumping Station
20	ES-6	Belmont Street	Sewer Pumping Station
21	ES-9	Belmont St	Sewer Pumping Station
22	ES-22	Belmont St	Sewer Pumping Station
23	ES-25	Belmont St	Sewer Pumping Station
24	ES-21	Belmont St	Sewer Pumping Station
25	ES-20	Belmont St	Sewer Pumping Station
26	ES-26	Belmont St	Sewer Pumping Station
27	ES-18	Belmont St	Sewer Pumping Station
28	ES-14	Belmont St	Sewer Pumping Station
29	ES-14	Belmont St	Sewer Pumping Station
30	ES-7	Belmont St	Sewer Pumping Station
31	ES-18	Belmont St	Sewer Pumping Station
32	ES-20	Belmont St	Sewer Pumping Station
33	ES-4	Belmont St	Sewer Pumping Station
34	ES-3	Belmont St	Sewer Pumping Station
35	ES-12	Belmont St	Sewer Pumping Station
36	ES-25	Belmont St	Sewer Pumping Station
37	ES-2	Belmont St	Sewer Pumping Station
38	ES-1	Belmont St	Sewer Pumping Station
39	ES-5	Belmont St	Sewer Pumping Station
40	ES-6	Belmont St	Sewer Pumping Station
41	ES-15	Belmont St	Sewer Pumping Station
42	ES-19	Belmont St	Sewer Pumping Station
43	ES-23	Belmont St	Sewer Pumping Station
44	ES-11	Belmont St	Sewer Pumping Station
45	WINDHAMPTON SCHOOL	177 Pigeon Rd	School
46	WINDHAMPTON SCHOOL	177 Pigeon Rd	School
47	JOHN F. MCCULLOUGH SCHOOL	140 Green St	School
48	POCKWOOD AVENUE SCHOOL	100 Pockwood Avenue	School
49	ADRIAN ADAM INTERMEDIATE SCHOOL	115 Middle St	School
50	MARIA BELVA DONAHUE MIDDLE SCHOOL	100 Commonwealth St	School
51	LAWRENCE W. PRINCE SCHOOL	1104 Commonwealth St	School
52	ST. ANTHONY'S MIDDLE SCHOOL	110 Commonwealth St	School
53	WILLIAM SEASH SCHOOL	77 Fox Middle Street	School
54	HOMER K. WARD JR SCHOOL	100 Commonwealth St	School
55	WENDELL HIGH SCHOOL	11 Middle Way	School
56	WINDHAMPTON SCHOOL	177 Pigeon Rd	School
57	Fulton School Residences	240 Pond St	Elderly Housing
58	WINDHAMPTON SCHOOL	177 Pigeon Rd	School
59	Fore River Power Plant	50 Bridge St	Power Generation Plant
60	Weymouth Sewer Pumping Station	100 Bridge St	Water Pumping Station
61	Weymouth Sewer Pumping Station	100 Bridge St	Water Pumping Station
62	Elizabeth Catherine Reed Home	27 Front St	Nursing Home
63	Elizabeth Catherine Reed Home	27 Front St	Nursing Home
64	Page Nursing Home	140 Middle St	Nursing Home
65	Colman Nursing Home of Weymouth	140 Middle St	Nursing Home
66	Madison Nursing Home	64 Performance Dr	Nursing Home
67	Weymouth Nursing Home	44 Union St	Nursing Home
68	South Shore Hospital	55 Fogg Rd	Hospital
69	Station 1	100 Commonwealth St	Fire Station
70	Central Fire Station 2	800 Broad St	Fire Station
71	Station 3	138 Weymouth St	Fire Station
72	Station 5	240 Park Ave	Fire Station
73	Weymouth Fire Station	55 Fogg Rd	Fire Station
74	CPW Building	130 Winter St	CPW Facility
75	CPW Building	130 Winter St	CPW Facility
76	CPW Building	130 Winter St	CPW Facility
77	St. Paul's Church	100 Church St	Church
78	St. Paul's Church	100 Church St	Church
79	St. Paul's Church	100 Church St	Church
80	Weymouth Housing Authority	100 Church St	Housing
81	South Shore Optical Services	100 Commonwealth St	Optical
82	St. Paul's Church	100 Church St	Church
83	First Baptist Church of Weymouth	40 West St	Church
84	St. Paul's Church	100 Church St	Church
85	Church of the Holy Spirit	80 North St	Church
86	St. Paul's Church	100 Church St	Church
87	Weymouth Learning Center	600 Pleasant St	Church
88	St. Paul's Church	100 Church St	Church
89	St. Paul's Church	100 Church St	Church
90	St. Paul's Church	100 Church St	Church
91	St. Paul's Church	100 Church St	Church
92	St. Paul's Church	100 Church St	Church
93	St. Paul's Church	100 Church St	Church
94	St. Paul's Church	100 Church St	Church
95	St. Paul's Church	100 Church St	Church
96	St. Paul's Church	100 Church St	Church
97	St. Paul's Church	100 Church St	Church
98	St. Paul's Church	100 Church St	Church
99	Weymouth Credit Fund Water Supply	100 Church St	Water Supply
100	Weymouth Credit Fund	100 Church St	Water Supply
101	Weymouth Credit Fund	100 Church St	Water Supply
102	CPW Building	130 Winter Street	Water Pumping Station
103	CPW Building	130 Winter Street	Water Pumping Station
104	CPW Building	130 Winter Street	Water Pumping Station
105	South Shore Hospital Outpatient Services	100 Commonwealth St	Medical Facility
106	CPW Building	130 Winter Street	Water Pumping Station
107	CPW Building	130 Winter Street	Water Pumping Station
108	CPW Building	130 Winter Street	Water Pumping Station
109	CPW Building	130 Winter Street	Water Pumping Station
110	CPW Building	130 Winter Street	Water Pumping Station
111	Weymouth Credit Fund	100 Church St	Water Supply
112	Weymouth Credit Fund	100 Church St	Water Supply
113	Weymouth Credit Fund	100 Church St	Water Supply
114	Weymouth Credit Fund	100 Church St	Water Supply
115	Weymouth Credit Fund	100 Church St	Water Supply
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117	Weymouth Credit Fund	100 Church St	Water Supply
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119	Weymouth Credit Fund	100 Church St	Water Supply
120	Weymouth Credit Fund	100 Church St	Water Supply
121	Weymouth Credit Fund	100 Church St	Water Supply
122	Weymouth Credit Fund	100 Church St	Water Supply

TOWN OF WEYMOUTH HAZARD MITIGATION PLAN 2014 UPDATE

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TOWN OF WEYMOUTH HAZARD MITIGATION PLAN 2014 UPDATE



TOWN OF WEYMOUTH HAZARD MITIGATION PLAN 2014 UPDATE

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TOWN OF WEYMOUTH HAZARD MITIGATION PLAN 2014 UPDATE

FEMA Pre-Disaster Mitigation Planning Grant WEYMOUTH, MA Natural Hazards Map Composite Natural Hazards and Hazard Areas



Sites

- Critical Infrastructure Sites
- Repetitive Loss Sites

Hydro

- Water Bodies
- Reservoir

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 analysis.

Produced by MAPC Data Services
60 Temple Place, Boston, MA 02111 (617) 451-2770

Data Sources:
Metropolitan Area Planning Council (MAPC)
Massachusetts Geographic Information System (MassGIS)
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Massachusetts Emergency Management Agency (MEMA)
Federal Emergency Management Agency (FEMA)
Weymouth, MA

File Location:
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Date: June 2015

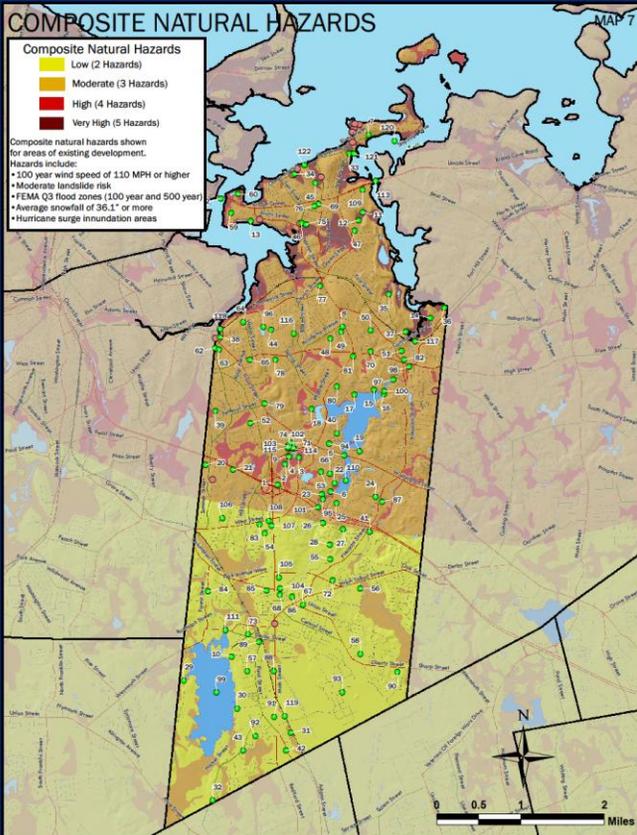
COMPOSITE NATURAL HAZARDS

Composite Natural Hazards

- Low (2 Hazards)
- Moderate (3 Hazards)
- High (4 Hazards)
- Very High (5 Hazards)

Composite natural hazards shown for areas of existing development.
Hazards include:

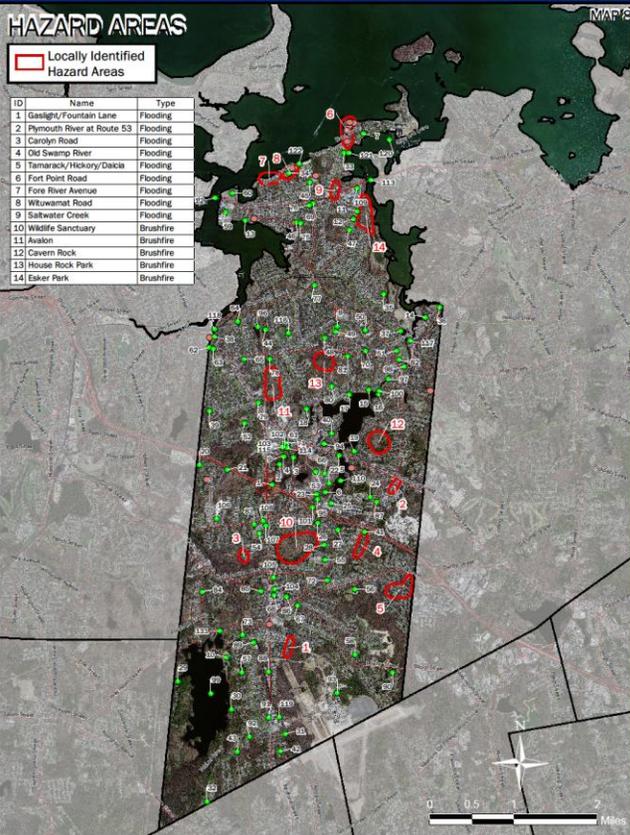
- 100 year wind speed of 110 MPH or higher
- Moderate landslide risk
- FEMA Q3 flood zones (500 year and 500 year)
- Average snowfall of 36.1" or more
- Hurricane surge inundation areas



HAZARD AREAS

Locally Identified Hazard Areas

ID	Name	Type
1	Gaslight/Fountain Lane	Flooding
2	Plymouth River at Route 63	Flooding
3	Carolin Road	Flooding
4	Old Swamp River	Flooding
5	Tamarack/Hickory/Glacial	Flooding
6	Fort River Road	Flooding
7	Fore River Avenue	Flooding
8	Witwamat Road	Flooding
9	Saltwater Creek	Flooding
10	Wildlife Sanctuary	Brushfire
11	Avallon	Brushfire
12	Caveum Rock	Brushfire
13	House Rock Park	Brushfire
14	Esker Park	Brushfire



CRITICAL INFRASTRUCTURE SITES

ID	NAME	ADDRESS	TYPE
1	Main Street West	Main Street	West
2	Clout Ave West	Clout Avenue	West
3	Wester Street West #2	Wester Street	West
4	Wester Street West #1	Wester Street	West
5	Washington Street Pump Station	820 Washington Street	Water Pumping Station
6	Liberty Industrial Park West	Liberty Industrial Parkway	West
7	Prospect Hill Booster Pump	75 Prospect Hill Dr	Water Pumping Station
8	Tram Hill	75 Main St	Manhole Office
9	Arthur J. Elsdon Water Treatment Plant	95 Wester St	Water Treatment Facility
10	South Hill Water Treatment Plant	200 Park Street	Water Treatment Facility
11	IS-16	Loring Road	Water Pumping Station
12	IS-15	Hudson Ave	Water Pumping Station
13	IS-17	Summer Street	Water Pumping Station
14	IS-24	Oliver Road	Water Pumping Station
15	IS-29	White Lane	Water Pumping Station
16	IS-27	Iron Hill Street	Water Pumping Station
17	IS-26	Carlton Cove	Water Pumping Station
18	IS-28	Greenbank Ave	Water Pumping Station
19	IS-10	Greenbank Road	Water Pumping Station
20	IS-8	Summer Street	Water Pumping Station
21	IS-9	Ballston Street	Water Pumping Station
22	IS-22	Woolbridge Path	Water Pumping Station
23	IS-6	Edison Avenue	Water Pumping Station
24	IS-21	Mathewson Drive	Water Pumping Station
25	IS-30 / Liberty Industrial Parkway Pump Station	Liberty Parkway	Water Pumping Station
26	IS-1	Weymouth Commons	Water Pumping Station
27	IS-14	Tal Dana Dr	Water Pumping Station
28	IS-1	Harvard St	Water Pumping Station
29	IS-14	Parvinton Street	Water Pumping Station
30	IS-7	Denise Ave	Water Pumping Station
31	IS-18	Plan Terrace	Water Pumping Station
32	IS-20	Thicket Street	Water Pumping Station
33	IS-4	Nash Street	Water Pumping Station
34	IS-12	Walden Rd	Water Pumping Station
35	IS-12	Emerson Street	Water Pumping Station
36	IS-28	Edison Avenue	Water Pumping Station
37	IS-2	Wheat St	Water Pumping Station
38	IS-1	Weymouth Landing	Water Pumping Station
39	IS-1	Wheat Road	Water Pumping Station
40	IS-1	Sawyer Road	Water Pumping Station
41	IS-13	Forest St	Water Pumping Station
42	IS-13	Pond Street	Water Pumping Station
43	IS-11	Forest St	Water Pumping Station
44	IS-31	Reverend Road	Water Pumping Station
45	WELLSHEADLEY SCHOOL	147 Agnes St	School
46	ELLEN W. JOHNSON SCHOOL	70 Pepp St	School
47	FRANK F. ANDERSON SCHOOL	103 Green St	School
48	ROCKDALE JUNIOR SCHOOL	36 Assembly Avenue	School
49	WALTER G. DEAN WOODBURY SCHOOL	1000 Main St	School
50	WARRIA WELTON CHAPMAN WOODS SCHOOL	1051 Commercial St	School
51	LAWRENCE C. WOODBURY SCHOOL	1124 Commercial St	School
52	FREDERICK C. MURPHY SCHOOL	415 Front St	School
53	WILLIAM S. BROWN SCHOOL	770 Middle Street	School
54	THOMAS A. WOOD R. SCHOOL	1203 Front St	School
55	WELLSHEADLEY HIGH SCHOOL	1 Millis Way	School
56	FRANK F. ANDERSON SCHOOL	103 Green St	School
57	Palton School Westside	245 Front St	Library/Reading Room
58	JOHN C. ANDERSON SCHOOL	400 Green St	School
59	Fore River Power Plant	50 Bridge St	Power Generation Plant
60	WELLS HEADLEY BOILER HOUSE	50 Bridge St	Water Pumping Station
61	Police Station	140 Wester St	Police Station
62	Elizabeth Catherine Best Home	27 Front St	Home
63	Elizabeth Catherine Best Home	28 Front St	Nursing Home
64	Home Nursing Home	110 Street St	Nursing Home
65	Compton Nursing Home of Weymouth	110 Street St	Nursing Home
66	Maplewood Nursing Home	84 Performance Dr	Nursing Home
67	Weymouth Nursing Home	48 Main St	Nursing Home
68	South River Hospital	50 Fogg St	Hospital
69	Station 1	118 Wester St	Fire Station
70	Central Fire Station 2	401 Street St	Fire Station
71	Station 3	118 Wester St	Fire Station
72	Station 4	248 Park Ave	Fire Station
73	Wheat Park empty	90 Nash St	Manager Office
74	DPW Building	150 Wester St	DPW Facility
75	Wheat Park		Club Care
76	St. Agnes Church	88 Church St	Club Care
77	St. Agnes Church	241 Broad St	Club Care
78	Yorks Episcopal Church	241 Broad St	Club Care
79	Parry	440 Washington St	Club Care
80	Weymouth Housing Authority	Joseph Ave Dr	Club Care
81	South Shore Diocese Services	200 Middle St	Club Care
82	Congregational Church	1100 Commercial St	Club Care
83	First Baptist Church of Weymouth	40 West St	Club Care
84	Unit	200 Green St	Club Care
85	Church of the Holy Trinity	88 Nash St	Club Care
86	Unit Congregational Society	25 Commercial St	Club Care
87	Weymouth Care Learning Center	682 Pleasant St	Club Care
88	Unit	1121 West St	Club Care
89	Early Childhood Preschool	101 Pond St	Club Care
90	Unit	80 Weymouth Ave	Club Care
91	Early Childhood Preschool	14 West St	Club Care
92	Unit	56 Park Ave	Club Care
93	Unit	South Weymouth Nazarene St	Club Care
94	Unit	Maple Ave	Dorm
95	St. Bernard's	400 Weymouth Parkway	Dorm
96	Crabtree Pond	Dorchester Dr	Dorm
97	Flag Landing	Iron Hill St	Dorm
98	Herring Brook	Broad St	Dorm
99	WELLSHEADLEY GREAT POND WATER SUPPLY	GREAT POND	Water Supply
100	WELLSHEADLEY GREAT POND DAM	GREAT POND	Dam
101	Wheat Park Pump Station	150 Wester Street	Water Pumping Station
102	DPW Building	150 Wester Street	Emergency Operations Center
103	DPW Building	1100 Commercial St	Medical Facility
104	Cancer Treatment	101 Columbian St	Medical Facility
105	Weymouth Home Respite Outpatient Services	Forest St	Medical Facility
106	Clayton	Forest St	Medical Facility
107	Shannon Building	West St	Medical Facility
108	Clayton Center	Iron Hill St	Medical Facility
109	Maplewood Facility	Bridge St	Medical Facility
110	Weymouth South Coast Drive		Medical Facility
111	Weymouth Great Pond Dam	Bridge Street	Dam
112	Fore River Bridge	Bridge Street	Bridge
113	Rock River Bridge	80 Bridge Street	Bridge
114	Forest Hill Communication Tower	140 Wester Street	Communication Tower
115	DPW Communication Tower	150 Wester Street	Communication Tower
116	Weymouth Municipal Communication Tower	Forest Street	Communication Tower
117	East Weymouth Commuter Rail Station	1050 Commercial Street	Transportation Facility
118	Weymouth Landing Commuter Rail Station	111 Commercial Street	Transportation Facility
119	South Weymouth Commuter Rail Station	60 Taylor Avenue	Transportation Facility
120	Weymouth		Manager Office
121	State Boat Ramp		Water Pumping Station
122	Weymouth Youth Club		Water Pumping Station

TOWN OF WEYMOUTH HAZARD MITIGATION PLAN 2014 UPDATE

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**APPENDIX C
DOCUMENTATION OF PUBLIC MEETINGS**

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TOWN OF WEYMOUTH HAZARD MITIGATION PLAN 2014 UPDATE

Department of Planning and
Community Development

James F. Clarke, Jr.
Director of Planning and
Community Development
email: jclarke@weymouth.ma.us

(781) 340-5015
(781) 335-3283 fax

*Town of Weymouth
Massachusetts*



Susan M. Kay
Mayor

75 Middle Street
Weymouth, MA 02189

www.weymouth.ma.us

REVISED

Planning Board Agenda
Tuesday, September 20, 2011 – 7:00 P.M.
McCulloch Building –Mary McElroy Meeting Room
182 Green Street

1. Presentation by MAPC –Hazard Mitigation Planning
2. Wind Energy Zoning - Discussion
3. Capital Budget – Update
4. Minutes – 6/28/11, 7/19/11
5. Other Business
6. Adjournment

RECEIVED
2011 SEP 16 A 10:55
OFFICE OF THE TOWN CLERK
WEYMOUTH, MASS

TOWN OF WEYMOUTH HAZARD MITIGATION PLAN 2014 UPDATE

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Community Development

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**Planning Board Agenda
Tuesday, March 4, 2014
7:00 P.M.**

**McCulloch Building (Whipple Center), Classroom 12
182 Green Street, Weymouth**

1. Call to Order
2. Public Meeting for the Town of Weymouth Draft Hazard Mitigation Plan – 2014 Update;
prepared by MAPC
3. Approval of Minutes – December 10, 2013, December 16, 2013 (joint with Council,
approved by Council), January 23, 2014
4. Other Business
 - Upcoming Meetings – March 18, 2014
 - Zoning amendment update – Section 120-53 “Exceptions by the Board of Zoning Appeals”
 - Reminder to complete and return state conflict of interest form
5. Adjournment

Town of Weymouth Planning Board
Department of Planning and Community Development
Weymouth Town Hall, 75 Middle Street, 3rd Floor, Weymouth, MA 02189
Telephone: (781) 340-5015 Fax: (781) 335-3283
Website: www.weymouth.ma.us

TOWN OF WEYMOUTH HAZARD MITIGATION PLAN 2014 UPDATE

Sample letter to municipalities: the Towns of Braintree, Hingham, Holbrook, Rockland,
and the City of Quincy



Smart Growth & Regional Collaboration

February 20, 2014

Hon. Joseph C. Sullivan
Braintree Town Hall
1 John F. Kennedy Memorial Drive
Braintree, MA 02184

Dear Mayor Sullivan,

The Town of Weymouth and the Metropolitan Area Planning Council are working on an update of the *Weymouth Hazard Mitigation Plan*, a plan intended to reduce the town's vulnerability to natural hazards such as flooding, hurricanes, and earthquakes. As part of the planning process, all neighboring towns are being notified in order to provide an opportunity to review the draft plan update.

The draft plan update identifies a set of hazard mitigation measures for the town of Weymouth, including structural and non-structural improvements, as well as educational and outreach efforts related to natural hazards, and other actions.

The draft plan update is available for public review on the town's web site at: www.weymouth.ma.us/wp-content/uploads/2014/02/Weymouth-Draft-Plan-Update-02-18-14.pdf
The draft plan update will be discussed at a meeting of the Weymouth Planning Board to be held on Tuesday, March 4, 2014 at 7:00 PM in the McCulloch Building, Room 12, 182 Green Street, Weymouth.

Questions or comments may be submitted at this meeting or in writing to Martin Pillsbury at MAPC, 60 Temple Place, Boston, MA 02111, or by email to mpillsbury@mapc.org. Comments should be submitted by March 14, 2014 in order to be incorporated into the final draft of the Hazard Mitigation Plan Update.

Sincerely,

Martin Pillsbury
Environmental Division Director

TOWN OF WEYMOUTH HAZARD MITIGATION PLAN 2014 UPDATE

Sample letter to organizations: Back River Watershed Association, Fore River Watershed Association, South Shore Chamber of Commerce, South Shore Hospital, and South Shore Tri-Town Development Commission



Smart Growth & Regional Collaborati

February 20, 2014

South Shore Chamber of Commerce
1050 Hingham Street
Rockland, MA 02370

Dear Sir/Madam:

The Town of Weymouth and the Metropolitan Area Planning Council are working on an update of the *Weymouth Hazard Mitigation Plan*, a plan intended to reduce the town's vulnerability to natural hazards such as flooding, hurricanes, and earthquakes. As part of the planning process, community organizations and businesses are being notified in order to provide an opportunity to review the draft plan update.

The draft plan update identifies a set of hazard mitigation measures for the town of Weymouth, including structural and non-structural improvements, as well as educational and outreach efforts related to natural hazards, and other actions.

The draft plan update is available for public review on the town's web site at: www.weymouth.ma.us/wp-content/uploads/2014/02/Weymouth-Draft-Plan-Update-02-18-14.pdf
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Sincerely,

Martin Pillsbury
Hazard Mitigation Program Manager
Metropolitan Area Planning Council

**APPENDIX D
DOCUMENTATION OF PLAN ADOPTION**

TOWN OF WEYMOUTH HAZARD MITIGATION PLAN 2014 UPDATE

<TOWN LETTERHEAD>

**CERTIFICATE OF ADOPTION
BOARD OF SELECTMEN
TOWN OF WEYMOUTH, MASSACHUSETTS**

**A RESOLUTION ADOPTING THE TOWN OF WEYMOUTH
HAZARD MITIGATION PLAN UPDATE**

WHEREAS, the Town of Weymouth established a Committee to prepare the Hazard Mitigation plan; and

WHEREAS, the *Weymouth Hazard Mitigation Plan Update* contains several potential future projects to mitigate potential impacts from natural hazards in the Town of Weymouth, and

WHEREAS, a duly-noticed public meeting was held by the PLANNING BOARD on March 4, 2014, and

WHEREAS, the Town of Weymouth authorizes responsible departments and/or agencies to execute their responsibilities demonstrated in the plan, and

NOW, THEREFORE BE IT RESOLVED that the Town of Weymouth BOARD OF SELECTMEN adopts the *Weymouth Hazard Mitigation Plan Update*, in accordance with M.G.L. 40 §4 or the charter and bylaws of the Town of Weymouth.

ADOPTED AND SIGNED this Date. _____

Name(s)

Title(s)

Signature(s)

ATTEST