

Appendix D

Hazard Mitigation and Climate Adaptation Strategy Supporting Documentation

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1. Review of 2013 SHMP Mission and Goal Statements

The 2013 Mission Statement was said to provide “a guiding principle for development of the hazard mitigation plan.” This remained true for the 2018 State Hazard Mitigation and Climate Adaptation Plan (SHMCAP). The mission statement was amended to include climate change and adaptation and now reads:

Reduce the statewide loss of life, natural resources, property, infrastructure, and economy from natural hazards and climate change through the development of a comprehensive and integrated hazard mitigation and climate adaptation program.

The 2013 goal statements, updated from 2010, include the following:

- Goal 1: Evaluate and analyze vulnerability in order to guide and promote sound mitigation activities through integrated planning to support a comprehensive state mitigation program.
- Goal 2: Increase awareness of the benefits of hazard mitigation through outreach and education.
- Goal 3: Increase coordination and cooperation among state agencies in implementing sound hazard mitigation planning and sustainable development.
- Goal 4: Promote cost-effective hazard mitigation actions that protect and promote public health and safety from all hazards with a particular emphasis on reducing damage to repetitive and severe repetitive loss properties.
- Goal 5: Monitor, evaluate, and disseminate information on the effectiveness of hazard mitigation actions implemented by state, local, and private partnerships.

The Project Management Team (PMT) reviewed these goals early on in the planning process. The previous planning process included a small committee of stakeholders with primary leadership from the Massachusetts Emergency Management Agency (MEMA) and the Department of Conservation and Recreation (DCR). While the PMT deemed these goals still relevant, the current planning process was significantly broader in reach than the process that developed these goals. The current plan was developed by leadership from PMT Co-Chairs, Sarah J. White, MEMA and Kathleen Theoharides, Executive Office of Energy and Environmental Affairs (EOEEA), along with ten other state agency representatives. In addition,

the Climate Change Coordinators played a key role in coordinating outreach and communication with all state agencies. This planning process included a comprehensive stakeholder engagement strategy that spread geographically across the Commonwealth and included a broad range of stakeholders. Finally, the addition of satisfying the requirement of *Executive Order 569 Establishing an Integrated Climate Change Strategy for the Commonwealth* to develop a state climate adaptation plan was added to this planning process. Those factors led to the PMT decision to brainstorm new goal statements with the help of all identified stakeholders and the public.

The goal statements for this plan, shown in Table D-1, were the result of brainstorming breakout groups and PMT editing and review. The process to develop these goals is detailed in *Chapter 9: Planning Process*.

Table D-1: 2018 Hazard Mitigation and Climate Adaptation Goal Statements

#	Goal Statements
1	Enhance the Commonwealth’s resiliency to natural hazards and climate change by integrating programs and building institutional capacity .
2	Reduce the impacts of natural hazards and climate change with forward-looking policies, plans, and regulations .
3	Understand our vulnerabilities and risks and develop immediate and long-term risk reduction strategies for current and future conditions using the best available science.
4	Increase the resilience of state and local government, people, natural systems, the built environment, and the economy by investing in performance-based solutions .
5	Support implementation of this plan through increased education, awareness, and incentives for action for state agencies, local governments, private industry, non-profits, and the general public.

Comparing the 2013 goal statements to the 2018 goal statements, we see a number of consistent ideas. Most importantly, we see that nothing from 2013 is omitted. The 2018 goals are broader and reflect the State’s current vision. Specifically, adding climate change, building institutional capacity, considering current and future conditions, and expanding scope to local governments, private industry, non-profits, and the general public. This comparison is shown in Table D-2.

Table D-2: Comparison of 2013 and 2018 Goal Statements

2013 Key Concepts	2018 Corresponding Goal Statements
<p>Goal 1: Evaluate and analyze vulnerability in order to guide and promote sound mitigation activities through integrated planning to support a comprehensive state mitigation program.</p> <p>Goal 3: Increase coordination and cooperation among state agencies in implementing sound hazard mitigation planning and sustainable development.</p> <p>Goal 5: Monitor, evaluate, and disseminate information on the effectiveness of hazard mitigation actions implemented by state, local, and private partnerships.</p>	<p>Goal 1. Enhance the Commonwealth’s resiliency to natural hazards and climate change by integrating programs and building institutional capacity.</p>
<p>Goal 3: Increase coordination and cooperation among state agencies in implementing sound hazard mitigation planning and sustainable development.</p> <p>Goal 5: Monitor, evaluate, and disseminate information on the effectiveness of hazard mitigation actions implemented by state, local, and private partnerships.</p>	<p>Goal 2. Reduce the impacts of natural hazards and climate change with forward-looking policies, plans, and regulations.</p>
<p>Goal 1: Evaluate and analyze vulnerability in order to guide and promote sound mitigation activities through integrated planning to support a comprehensive state mitigation program.</p> <p>Goal 4: Promote cost-effective hazard mitigation actions that protect and promote public health and safety from all hazards with a particular emphasis on reducing damage to repetitive and severe repetitive loss properties.</p>	<p>Goal 3. Understand our vulnerabilities and risks and develop immediate and long-term risk reduction strategies for current and future conditions using the best available science.</p>
<p>Goal 1: Evaluate and analyze vulnerability in order to guide and promote sound mitigation activities through integrated planning to support a comprehensive state mitigation program.</p> <p>Goal 3: Increase coordination and cooperation among state agencies in implementing sound hazard mitigation planning and sustainable development.</p> <p>Goal 4: Promote cost-effective hazard mitigation actions that protect and promote public health and safety from all hazards with a particular emphasis on reducing damage to repetitive and severe repetitive loss properties.</p>	<p>Goal 4. Increase the resilience of state and local government, people, natural systems, the built environment, and the economy by investing in performance-based solutions.</p>
<p>Goal 2: Increase awareness of the benefits of hazard mitigation through outreach and education.</p> <p>Goal 5: Monitor, evaluate, and disseminate information on the effectiveness of hazard mitigation actions implemented by state, local, and private partnerships.</p>	<p>Goal 5. Support implementation of this plan through increased education, awareness, and incentives for action for state agencies, local governments, private industry, non-profits, and the general public.</p>

2. Review and Status of 2013 SHMP Hazard Mitigation Actions

The mitigation actions from 2013 were reviewed by each appropriate responsible agency. For each action, the current implementation status of the action was recorded as well as the relevancy of the action for the 2018 SHMCAP. All of the actions were either completed, became capabilities or were moved to 2018. The complete list is included in Table D-3.

Table D-3: 2013 Mitigation Actions Review

Responsible Agency	Projected Timeline	Resources	Explanation	Update Comments and Revisions	2018 Comments – Include status of action and if the action should move forward into the updated plan. If it needs to be revised indicate necessary revisions.
Goal 1. Evaluate and analyze vulnerability in order to guide and promote sound mitigation activities through integrated planning to support a comprehensive state mitigation program.					
<i>a. Complete a standard State Hazard Mitigation Plan Update and submit for FEMA review and approval prior to the October 2013 deadline per DMA 2000. The Commonwealth has written the plan to enhanced status, with the hopes of gaining that status with the submission of the 2013 plan.</i>					
SHMT, SHMIC	FEMA Final Approval by 10/ 11/ 2013	Current MEMA/ DCR staff and contractor; federal and state funds	Required by DMA 2000 planning regulations. A FEMA-approved state mitigation plan is needed to continue to implement the Statewide Mitigation Planning Strategy and to continue the availability of disaster assistance and hazard mitigation grants.	Progress made. The Commonwealth continues its commitment to a statewide mitigation program through the continual update of the Massachusetts SHMP. The 3-year required update started in fall 2012, in conjunction with development of the THIRA. A contractor was hired to assist.	2018 progress made. The Commonwealth expanded its commitment to the mitigation program by continually updating the plan and by incorporating climate adaptation into the 2018 update. Incorporating climate change into the plan, creates a more practical and useful tool for the Commonwealth. The updated plan is referred to as the 2018 State Hazard Mitigation and Climate Adaptation Plan (SHMCAP). A project management team was formed, and a contractor was hired to assist. This action moves forward to include an update for FEMA approval every 5 years.
<i>b. Perform a statewide risk analysis for all hazards to include in future updates to this state hazard mitigation plan and other related plans</i>					
SHMT, SHMIC, MEMA	1 year	HMGP, PDM Planning Grant, State funds	An updated hazards analysis would enhance the validity, accuracy, and practicality of the statewide risk analysis.	2013 progress made. This task is being accomplished through the SHMP risk assessment update and creation of the THIRA (see Goal 1 Action (l) below).	2018 progress made. A SHMCAP risk assessment was conducted. The Municipal Vulnerability Program (MVP) program was developed through the Executive Office of Energy and Environmental Affairs to assist local communities with creating resiliency plans. This action moves forward with some revisions for new data and analysis.

Responsible Agency	Projected Timeline	Resources	Explanation	Update Comments and Revisions	2018 Comments – Include status of action and if the action should move forward into the updated plan. If it needs to be revised indicate necessary revisions.
<i>c. Develop State Hazard Mitigation Plan and submit to FEMA for approval.</i>					
SHMT	1 year	Current MEMA/ DCR staff; HMGP funds	An enhanced plan will allow the Commonwealth to be eligible for up to 20% in available HMGP funding. Additional HMGP funding will support implementation of more hazard mitigation projects as identified in the state, regional, and local hazard mitigation plans.	2013 progress made. The SHMT continues to view this as an important step in strengthening the mitigation program. The SHMT continues to evaluate the feasibility of becoming an enhanced state. The contractor conducting the 2013 update has developed the plan to an enhanced status and will be providing the SHMT with a gap analysis highlighting any areas in the mitigation program that may need strengthening to gain enhanced status.	2018 progress made. The project management team is continuing to evaluate the feasibility of becoming an enhanced state. An update to this plan will be conducted every five years. The State would like to develop an enhanced plan and the components of an enhanced plan are included in current actions.
<i>d. Work with the SHMIC to research and develop a more realistic set of criteria by which to prioritize mitigation actions that capture timely and relevant mitigation needs throughout the Commonwealth.</i>					
SHMT and SHMIC	1 year	Current MEMA/DCR Staff; HMGP funds	With the intent of increasing stakeholder participation at the state level, a different system may be needed to prioritize mitigation efforts. The current method prioritizes action items at a statewide level based on the STAPLEE. This may not be appropriate in determining priority for specific projects for each department or agency, as each department or agency has its own level of priority for projects.	New for 2013: The Commonwealth views this as a high priority as it will support Goal 4e.	New for 2018: The Commonwealth has prioritized stakeholder engagement in the development of the 2018 SHMCAP. Three series of stakeholder workshops were held across the Commonwealth ensuring that the priorities of state and local agencies were being addressed in the plan. This action is complete.

Responsible Agency	Projected Timeline	Resources	Explanation	Update Comments and Revisions	2018 Comments – Include status of action and if the action should move forward into the updated plan. If it needs to be revised indicate necessary revisions.
<i>e. Partner with regional planning agencies and other groups in Massachusetts to develop and implement regional and local multi-hazard mitigation plans by providing technical assistance.</i>					
SHMT	3 years	Current MEMA/ DCR/ CZM staff; state funds	FEMA-approved local mitigation plans are needed to implement the Statewide Mitigation Planning Strategy and the availability of hazard mitigation grants to communities. Regional planning agencies bring local and regional planning expertise, knowledge, and contacts, especially in transportation issues and land use planning, to the mitigation planning process.	Progress made/ continual. From 2010 – 2012 sixty-six communities received FEMA formal approval for their local hazard mitigation plan. Through the continual implementation of the Massachusetts mitigation program, the SHMT will continue to work with local communities and/or regional planning agencies to assist with the development and update of local hazard mitigation plans through technical assistance and funding.	Progress made / continual. From 2013 – 2017 two hundred and sixteen (216) communities have received approval from FEMA on new plans and plan updates. The SHMT continues to work with local elected and appointed officials and regional planning agencies to provide technical assistance and funding for local hazard mitigation plans. In addition, MEMA hosted a G318 Training for many local communities. This action moves forward as several new actions to support local plan development.
<i>f. Apply for available federal funding to implement and update the completed and approved multi-jurisdictional and local hazard mitigation plans.</i>					
SHMT	3 years	Future Hazard Mitigation Assistance programs (PDM-C, HMGP & FMA)	Obtain maximum available funding to implement identified mitigation projects. Federal mitigation grant funding is a key component to support implementation of hazard mitigation projects as identified in the state, regional, and local hazard mitigation plans.	Progress made/ continual. Through the implementation of the Massachusetts mitigation program, the SHMT continues to work with communities and regional planning agencies to assist with the development of single and multi-jurisdictional local hazard mitigation plans. From 2010 – 2012 the SHMT received 22 applications for planning grants to either update or develop HMP's.	Progress made / continual. At present, there are 78 plans in development. From 2013-2017 the SHMT received 36 applications for planning grants to develop and / or update local hazard mitigation plans. Beginning with PDM 16, the Commonwealth began managing the PDM planning applications to be able to provide funding to more communities. The Mitigation Unit developed a strengthened internal process to better track local plan statuses in order to notify communities so that they can update their plans without a lapse. This action moves forward.

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Responsible Agency	Projected Timeline	Resources	Explanation	Update Comments and Revisions	2018 Comments – Include status of action and if the action should move forward into the updated plan. If it needs to be revised indicate necessary revisions.
<i>g. Continue to incorporate new data and recommendations from the FEMA-approved regional and local mitigation plans into the SHMP, especially locations of critical facilities and assessments of vulnerability and estimates of potential losses by jurisdiction.</i>					
SHMT	3 years	MEMA/ DCR staff	Analyze regional and local data and make recommendations to update the SHMP. Compile up-to-date lists of prioritized hazard mitigation projects and actions throughout the Commonwealth for consideration.	Progress made/ continual. MEMA is invested in increasing its capabilities to prevent, protect against, mitigate, respond to and recover from the threats and hazards that pose the greatest risk to the Commonwealth. In keeping with this desire, in 2012, MEMA hired a full-time GIS coordinator as well as a business systems specialist aimed to increase data and technical capabilities. The SHMT, along with the business systems specialist, is currently looking into database options to assist with capturing local plan data, including local GIS data.	Progress made / continual. The Office of Coastal Zone Management (CZM) created an accurate GIS layer for critical facilities for all Massachusetts coastal communities. This action moves forward in the form of several actions.
<i>h. Track potential hazard mitigation actions statewide in a database, using new information provided by the multi-jurisdictional plans with local annexes and state agencies.</i>					
SHMT	3 years	Current MEMA/ DCR staff	Develop a statewide database of potential hazard mitigation actions that support the goals and objectives of completed mitigation plans.	Progress made. The resources needed to accomplish this action will be included in the same discussions as for Goal 1 Action (g). The SHMT, in coordination with the business systems specialist, will research and develop a resource that is able to provide project tracking.	This action has not been completed in terms of developing a database and moves forward. However, the new Action Tracker developed for this plan may be expanded for this purpose.
<i>i. Coordinate data collection and sharing with other statewide planning initiatives, such as the Statewide Homeland Security Planning process.</i>					
SHMT, Executive Office of Public Safety and Security (EOPSS)	3 years	Current MEMA, DCR, EOPSS staff	Combining resources will allow for more accurate information in several statewide plans. Coordination of data collection methodology and new information will allow for a more accurate statewide plans and maps.	Progress made/ continual. Integration continues to be a priority for the SHMT. There have been several efforts conducted during the last 3 years. The development of the THIRA as well as the Massachusetts Local Public Health Departments utilized local and state hazard mitigation plan data to conduct risk assessments. Statewide evacuation and shelter plans are utilizing the new SLOSH mapping data, and the Risk MAP efforts integrate local hazard mitigation plans and promote resiliency.	The THIRA was updated in December 2017. This also moves forward with another THIRA update planned.

Responsible Agency	Projected Timeline	Resources	Explanation	Update Comments and Revisions	2018 Comments – Include status of action and if the action should move forward into the updated plan. If it needs to be revised indicate necessary revisions.
<i>j. Continue to support existing statewide mitigation planning, especially the Community Assistance Program-State Support Services Element Floodplain Management Plan, including activities under the National Flood Insurance Program.</i>					
DCR Flood Hazard Management Program (State NFIP Office)	Ongoing	Community Assistance Program-State Support Element funding; Risk MAP, CTP funding; Flood Hazard Management Program staff	Ongoing and improved compliance with the NFIP, in conjunction with the Risk MAP, will allow the Commonwealth to focus its resources, such as technical assistance and mitigation grants, in the highest flood risk communities.	This continues to be a priority for the Commonwealth. These efforts are part of the daily and yearly implementation of the program. See section 3.2.3 for the technical assistance and outreach the SHMT has provided since 2010.	The Massachusetts Flood Hazard Management Program is operating effectively, conducting CAP-SSSE work plan tasks; reviewing as many interagency floodplain projects as possible; coordinating with other state, federal and local agencies/communities on climate change and coastal resiliency efforts; supporting flood mitigation and planning efforts; and offering technical assistance on multiple levels to a wide array of stakeholders. Due to a lack of federal funding, the former state Risk MAP coordinator position is no longer filled, and the two remaining Flood Hazard Management Program staff are unable to take over these mapping activities. This program is funded annually through the FEMA NFIP CAP-SSSE grant as a state support to the FEMA Regional offices for local implementation of the NFIP program.
<i>k. Address data deficiencies and improve analysis, when available, by partnering with federal, state, local, and other subject matter experts.</i>					
SHMT	3 years	PDM Planning Funds and/ or Current MEMA, DCR, EOPSS staff	Continue to improve the risk assessment for the Commonwealth and address data deficiencies. This action also encompasses the incorporation of all new or improved data that are made available to the Commonwealth.	Progress made. Data deficiencies highlighted in the 2010 risk assessment will be addressed where possible during the 2013 update. The consultant hired to develop the THIRA and the capabilities assessment was also hired to conduct the 2013 SHMP update. The purpose of this was to be able to garner the best possible integration between the two plans.	Progress made / continuous. A robust process for tracking agency asset vulnerability has been developed. Multiple state agencies have completed a “State Agency Vulnerability Assessment” survey which enables these agencies to analyze asset vulnerability for up to thirty assets per agency. This moves forward to expand the breadth of future risk assessments.

Responsible Agency	Projected Timeline	Resources	Explanation	Update Comments and Revisions	2018 Comments – Include status of action and if the action should move forward into the updated plan. If it needs to be revised indicate necessary revisions.
<i>l. Create a statewide Threat and Hazard Identification and Risk Assessment (THIRA) as described in FEMA’s April 2012 Threat and Hazard Identification and Risk Assessment Guide (CPG 201). In conjunction with the development of the THIRA conduct a statewide capabilities gap assessment. The THIRA will be the man-made-hazards portion of the risk assessment in the SHMP</i>					
SHMT, SHMIC, THIRA Planning Committee	1 year	PDM and HMGP grants	In accordance with Presidential Policy Directive 8 and the National Preparedness Goal, the THIRA will be developed to create a “secure and resilient state with the capabilities required across the whole community to prevent, protect against, mitigate, respond to and recover from the threats and hazards that pose the greatest risk.”	New. The THIRA was submitted to FEMA for review and approval January 31, 2013.	The THIRA was updated in December 2017. This moves forward with another THIRA update planned.

Responsible Agency	Projected Timeline	Resources	Explanation	Update Comments and Revisions	2018 Comments – Include status of action and if the action should move forward into the updated plan. If it needs to be revised indicate necessary revisions.
Goal 2. Increase awareness of the benefits of hazard mitigation through outreach and education.					
<i>a. Develop and implement a statewide hazard mitigation training program, including educational materials for federal and state agencies</i>					
SHMT, SHMIC	3 years	HMGP, state funds	Greater awareness among state and federal agencies will reduce risks from natural hazards by allowing for more effective implementation of the hazard mitigation strategy, especially the completion of mitigation actions.	Progress made: Completed for the 2010-2013 cycle. The Commonwealth continues to provide ongoing training and technical assistance of various types (discussed in Section 3 in greater detail) as a general course of action. This includes the development of studies and reports that help provide information concerning specific hazards, such as the ongoing landslide study and the various Coastal Erosion/ Climate Change reports that have been released since the 2010 plan. During the current update cycle, additional outreach was conducted. During the 2013-2016, items identified in the 2013 updated SHMP will be reviewed and additional training will occur as opportunities arise.	Progress made / ongoing. The Commonwealth provides training on a regular basis on a variety of topics relating to many different hazards. Mitigation projects for development of studies and / or educational materials have been funded. These include P-154 & ATC-20 pre-disaster and post-disaster earthquake trainings, G318 planning training, “Mitigation for Memory” Framework for Cultural Resources, Coastal Workshops (various topics offered by MEMA, DCR, CZM, DEP). Funding has also been provided in conjunction with CZM on a publication entitled “Interpreting FEMA Flood Maps and Studies in the Coastal Zone” and “CZM StormSmart Coasts: Property Owner Educational Brochure”. Studies have been funded at UMass for a soils study in relation to seismic properties and a slope stability map for Massachusetts. MEMA hosted a Stream Crossing Standards workshop in conjunction with the Division of Ecological Restoration. This moves forward with additional training and materials planned.

Responsible Agency	Projected Timeline	Resources	Explanation	Update Comments and Revisions	2018 Comments – Include status of action and if the action should move forward into the updated plan. If it needs to be revised indicate necessary revisions.
<i>b. Conduct hazard mitigation community outreach and educational programs for the general public, such as programs in schools and at home improvement stores and events.</i>					
SHMT, SHMIC	3 years	Hazard mitigation admin and technical assistance funds	Educated consumers will be better protected from natural disasters because they have reduced risks by implementing various hazard mitigation techniques, projects and actions.	This continues to be important to the Commonwealth and opportunities will be looked for throughout the 3-year planning cycle. Progress made: During the response to the 2010 spring flood, a special partnership was formed between Home Depot, the federal/ state joint field office, and North Quincy High School to work on a mitigation project called The Dawg Haus (also discussed in Section 2).	Significant progress was not made. However, the stakeholder engagement process employed for this plan update reflects the current commitment to involve and educate state and local stakeholders. That commitment is reflected in actions in this plan.
<i>c. Continue to hold hazard mitigation grant workshops for state agencies and local governments after natural disasters, especially immediately following Presidential Disaster Declarations.</i>					
SHMT	Within 2-3 months of disaster declaration	Hazard mitigation admin and technical assistance funds	Informed public officials will apply for funding for hazard mitigation projects and will motivate communities without plans to develop hazard mitigation strategies.	In addition to grant briefings (see Section 3), MEMA staff regularly speaks at area universities regarding mitigation and preparedness programs	MEMA conducts multiple grant briefings following declared disasters and upon release of PDM / FMA Notice of Funding Opportunities. In addition to the in-person briefings, MEMA has acquired webinar capability to provide increased opportunities for participation. MEMA also regularly speaks at various municipal meetings about the importance of mitigation. This action moves forward.

Responsible Agency	Projected Timeline	Resources	Explanation	Update Comments and Revisions	2018 Comments – Include status of action and if the action should move forward into the updated plan. If it needs to be revised indicate necessary revisions.
<i>d. Use the Internet to develop more consistent and timely tools for distributing information about current hazard mitigation programs and success stories in Massachusetts to other government agencies, the private sector, and the general public.</i>					
SHMT	3 years	HMGP and technical assistance funds	Informed public officials will apply for funding for hazard mitigation projects as well as motivate communities without plans to develop hazard mitigation strategies. Informed local officials will apply for funding for hazard mitigation projects and actions that will help to reduce future risks.	Progress made/ continual. The Commonwealth continues to see this as a priority. In addition to the continued outreach with CZM and Storm Smart Coasts, the mitigation unit has developed electronic forms such as applications and quarterly reports to facilitate ease of submission from sub-applicants.	
<i>e. Provide improved outreach to all eligible applicants for mitigation projects and planning.</i>					
SHMT	1 year	State resources	More partners in mitigation will increase the effectiveness of the overall mission of mitigation in Massachusetts.	Progress made/ continual. The Commonwealth continues to see this as a priority. The mitigation staff will look at the current program to determine areas of opportunity for improvement.	

Responsible Agency	Projected Timeline	Resources	Explanation	Update Comments and Revisions	2018 Comments – Include status of action and if the action should move forward into the updated plan. If it needs to be revised indicate necessary revisions.
Goal 3. Increase coordination and cooperation among state agencies in implementing sound hazard mitigation planning and sustainable development.					
<i>a. Investigate the possibility of creating a standardized format or model for local hazard mitigation plans to create consistency among all plans statewide.</i>					
SHMT, CZM Staff	1-3 years	Staff resources	Massachusetts has 351 communities with the potential to have 351 different plans and formats. Having a standardized format will facilitate incorporation of data to state or regional mitigation plans	Progress made/ continual. The Commonwealth continues to see this as a priority. To that end, the mitigation planning staff is developing a tool to help communities standardize traditionally problematic sections of the plan.	No movement. This action is not currently considered a priority.
<i>b. Develop a strategy to reduce the overlap between Comprehensive Emergency Management Plans and Hazard Mitigation Plans</i>					
SHMT, MEMA	1-3 years	Staff resources	Creating a comprehensive approach to all emergency and mitigation planning can eliminate local confusion and help to make planning funding more effective at the local level by not duplicating benefits of state and federal programs.	Progress made. MEMA mitigation planning staff has begun conversations with the MEMA All-Hazards planning staff to better coordinate/ integrate the local Comprehensive Emergency Management Plans and local hazard mitigation plans.	Progress made. The CEMP Plan’s Mitigation section 4.9, addresses Mitigation Programs that FEMA currently administers to include HMGP, PDM, FMA, RFC and SRL. The Mitigation Section also discusses planning on the local and state level, and how the Statewide Hazard Mitigation Goal for Massachusetts is to reduce the statewide loss of life, property, infrastructure, and cultural resources from natural disasters through a comprehensive hazard mitigation program that involves planning, awareness, coordination, and project development. The State Hazard Mitigation Plan outlines a number of specific strategies and action steps in support of the Statewide Hazard Mitigation Goal.

Responsible Agency	Projected Timeline	Resources	Explanation	Update Comments and Revisions	2018 Comments – Include status of action and if the action should move forward into the updated plan. If it needs to be revised indicate necessary revisions.
<i>c. Build 'non-traditional' partners in mitigation by encouraging colleges and universities, non-governmental organizations, private non-profits, and the private sector to use their resources to study hazard vulnerability and implement mitigation projects and by prioritizing project applications for traditional funding sources that leverage funding and contributions from these non-traditional sources.</i>					
SHMT lead, involves many agencies	3 years		Building partnership with all public and private partners to reach more citizens and increase awareness for mitigation and help to leverage funding for more diverse mitigation projects.	Progress made. The SHMT continues to view this as an important step in strengthening the mitigation program. The SHMT has worked hard to include non-traditional partners in the planning process, including outreach with funding opportunities. Multiple state universities have used Hazard Mitigation Assistance funding to study hazards. See Table 3-3 for HMGP grant applications received.	Progress made. The SHMT has built many public / private partnerships in mitigation. These relationships are strengthened through stakeholder working groups among several disciplines. This action continues with the momentum built developing this new plan.

Responsible Agency	Projected Timeline	Resources	Explanation	Update Comments and Revisions	2018 Comments – Include status of action and if the action should move forward into the updated plan. If it needs to be revised indicate necessary revisions.
<p><i>d. Educate all communities, state agencies, and the private sector—specifically building and insurance industries—about the benefits of mitigating against natural hazards by participating in planning and projects.</i></p>					
SHMT	Ongoing	Staff resources	<p>Greater awareness of mitigation at the local level will reduce risks from natural hazards by allowing for more effective implementation of the strategy, especially the completion of mitigation actions.</p>	<p>The Flood Hazard Management Program (FHMP) routinely visits and contacts communities to discuss National Flood Insurance Program issues and standards, as enforced primarily through state regulations, and floodplain management in a general sense. In the last three years this would have included about 72 communities. Additionally, workshops have been held each of the last three years with the South Eastern Massachusetts Building Officials Association (SEMBOA) in which a much wider audience can be reached as this annual two-day workshop is open to the whole state. Contacts made in these visits and workshops invariably leads to follow-up conversations with homeowners, design professionals, real estate and insurance professionals, and other interested parties with specific questions about insurance, proposed projects, mapping and other floodplain management issues.</p>	<p>The Flood Hazard Management Program (FHMP) routinely visits and contacts communities to discuss National Flood Insurance Program issues and standards, as enforced primarily through state regulations, and floodplain management in a general sense. In the last five calendar years (2013 thru 2017) this included 112 specific communities. Additionally, numerous annual workshops/training events are held with several MA building official associations, statewide conservation commission associations, architects and surveyors’ organizations, realtor groups, local communities, and other NPOs in an effort to reach a wide audience on matters of floodplain development regulations, mapping and resiliency practices. For example, the state’s FFY2016 CAP-SSSE final report alone showed a total of 44 such events in that 12-month period, as well as 563 specific instances of technical assistance.</p> <p>This program is on-going based upon an annual federal grant of 60% FEMA share, 40% state share. There is no expectation that the program will end unless the NFIP program is no longer authorized by Congress.</p>

Responsible Agency	Projected Timeline	Resources	Explanation	Update Comments and Revisions	2018 Comments – Include status of action and if the action should move forward into the updated plan. If it needs to be revised indicate necessary revisions.
<i>e. Continue to make recommendations to the Board of Building Regulations and Standards as the Massachusetts State Building Code is updated to include updated NFIP standards and other building standards related to natural hazards, such as wind, snow, seismic loads, and other hazards.</i>					
MEMA, DCR	as needed (dependent on Building Code update schedule)	MEMA, DCR staff	The inclusion of revised federal mitigation standards in the State Building Code will allow for consistent implementation of sound mitigation measures statewide, especially in new construction and in the repair/ renovation of substantially damaged structures. Allows for uniform application of mitigation measures by local officials.	FHMP staff, along with DEP and CZM coordinated extensively with BBRS staff to during the update of the Building Code to the 8 th Edition. The Base Volume, 8 th Edition, became effective in August 2010 and the Residential Volume, 8 th Edition became effective in February 2011. Coordination between these agencies ensured that Massachusetts standards from the 7 th Edition of the Code were brought forward to the 8 th Edition and that the Codes remained consistent with NFIP standards.	The state NFIP office (FHMP) will continue to recommend higher standards for coastal development as allowable per state Codes. FHMP staff, along with DEP and CZM, coordinate regularly with BBRS staff to assure that MA Codes meet at least minimum NFIP standards (and frequently higher.) Beginning in 2014, DCR and CZM worked to update MA Coastal A Zones (CAZ), present these revisions for FEMA approval, coordinate with FEMA’s mapping unit to include updated CAZ in FEMA’s online NFHL, and finally, to propose CAZ regulation amendments to the BBRS for approval. Once approved, MA CAZ will be regulated per ICC/ASCE standards.
<i>f. Encourage project granting agencies in the Commonwealth, such as the Massachusetts Department of Housing and Community Development’s review of Community Development Block Grants, to include the analysis of hazard impacts when reviewing applications for funding</i>					
SHMT, SHMIC	3 years	MEMA, DCR, EOPSS	By avoiding the building of new structures in an area of potential natural hazard impacts, this coordinated action between agencies will reduce or mitigate future damage and costs following future hazard events.	Progress made. This continues to be a priority for the Commonwealth. The SHMT is looking beyond its own programs to expand outreach to other programs in order to better integrate hazard mitigation. One such program is the MassWorks Infrastructure Program. Mitigation staff has attended grant briefing meetings to start the conversation. Other such discussions have been a focus with existing SHMIC members to ensure maximum integration.	Progress made. MEMA continues its partnership with the Department of Housing and Community Development with review of CDBG applications. The MassWorks program works in conjunction with mitigation projects in the Commonwealth. One project under this program was funded in conjunction with HMGP funding resulting in \$0 out of pocket for a small community.

Responsible Agency	Projected Timeline	Resources	Explanation	Update Comments and Revisions	2018 Comments – Include status of action and if the action should move forward into the updated plan. If it needs to be revised indicate necessary revisions.
<i>g. Recruit additional state agencies to become involved in the State Hazard Mitigation Interagency Committee.</i>					
SHMT	3 years	MEMA, DCR Staff	Active participation of state agencies in the SHMIC will facilitate the sharing of information between agencies, expedite implementation, and ensure more widespread and consistent implementation of sound hazard mitigation measures throughout the Commonwealth.	Progress made. Since the 2010 plan approval a new department within an existing SHMIC agency has been added. An outreach plan was developed to increase the number of state agency SHMIC members. It is a goal to add six agencies/ departments within an agency to the list in the next 3 years.	Progress made. There is a wide depth of stakeholder engagement in all mitigation activities. The group is actively involved in mitigation by reviewing grant applications and providing input into the scoring and ranking of potential projects. A Massachusetts chapter of the USACE “Silver Jackets” was formed and quarterly meetings are held. This is a formal interagency committee comprised of state and federal agencies to address flood risk.
<i>h. Continue working with other state agencies, especially those on the State Hazard Interagency Committee, to ensure that all the necessary permits and requirements are being met before the execution of all hazard mitigation projects through the Hazard Mitigation Assistance Programs.</i>					
SHMT, SHMIC	Through the 3 year planning cycle - especially following a federal disaster declaration	MEMA, DCR Staff, and State Grants Admin. Plan	By coordinating all the necessary federal and state permits, the Commonwealth will avoid future problems as projects are constructed. Coordination of permits and other requirements ensures a timely completion of an effective mitigation project.	Unchanged. The Commonwealth continues to see this as a priority. With the hiring of two new Project Specialists the SHMT is able to attend more preconstruction and FEMA EHP meetings to ensure all permits and requirements are being met. Section	Progress made. There is a potential of hiring a person for this task.

Responsible Agency	Projected Timeline	Resources	Explanation	Update Comments and Revisions	2018 Comments – Include status of action and if the action should move forward into the updated plan. If it needs to be revised indicate necessary revisions.
Goal 4. Promote cost-effective hazard mitigation actions that protect and promote public health and safety from all hazards with a particular emphasis on reducing damage to repetitive and severe repetitive loss properties.					
<i>a. Research the potential for implementing a source for a state investment in mitigation.</i>					
SHMT, MEMA	Ongoing	Staff resources	Assessing state assets and potential for partnering with existing programs and funding sources allows the Commonwealth to maximize the potential local and state contribution to hazard mitigation projects.	Unchanged. Although no movement was made on this action, the Commonwealth continues to see this as a priority.	Progress made. Several agencies are actively investing in mitigation. The 2018 plan was expanded to include climate adaptation in conjunction with the Executive Office of Energy and Environmental Affairs (EOEEA) and Governor Baker’s Executive Order 569. In addition, programs from many state agencies are cross promoted. These include the CZM Dam and Seawall Program, the DOT Municipal Small Bridge Program, and the Division of Ecological Resources Culvert Replacement Program.
<i>b. Enhance the effectiveness of 406 funding by working to further integrate mitigation into the FEMA Public Assistance Program.</i>					
SHMT, MEMA	Ongoing	Staff resources	By working with FEMA Public Assistance Program, the Commonwealth can maximize the cost-effectiveness of federal grants by mitigating hazards during the recovery process.	Progress made. The Commonwealth continues to see this as a priority. The SHMT coordinates with the mitigation branch at the joint field office (when established) to imbed a state mitigation staff with the PA staff to ensure mitigation is investigated for every project worksheet. There have been 3 JFO’s established since the 2010 plan. Only the March 2010 Floods had a MEMA/DCR staff person working at the JFO. The other events were handled remotely.	Progress made. The mitigation and recovery units work collaboratively to identify areas where 406 funding can be leveraged to maximize tax dollars and project useful life. This action moves forward.

Responsible Agency	Projected Timeline	Resources	Explanation	Update Comments and Revisions	2018 Comments – Include status of action and if the action should move forward into the updated plan. If it needs to be revised indicate necessary revisions.
<i>c. Apply for available federal hazard mitigation project grants through pre-disaster and post-disaster mitigation programs and other federal mitigation programs as the funding becomes available and explore.</i>					
SHMT	Ongoing	MEMA, DCR staff, FEMA grants, State Grants Administrative Plan	Hazard mitigation projects are expensive and federal funding is needed by the Commonwealth and communities to complete most projects. Funding cost-effective hazard mitigation projects in high-risk areas, as identified in this plan as well as in regional and local hazard mitigation plans, will reduce future losses.	Progress made. The Commonwealth continues to see this as a priority. Massachusetts has experienced a series of disasters during the last 3 years. Based on this, the SHMT has focused on managing the HMGP program funds in an efficient and effective manner. When funds are made available, the SHMT manages the non-disaster funding program as well. See Section 3 for details on outreach efforts.	The Commonwealth continues to manage HMGP funds for construction projects and planning projects for multiple disasters and pre-disaster programs. Funding for these programs is maximized by keeping a large waitlist of projects available for each disaster to ensure all appropriated funds are obligated. This action moves forward.
<i>d. Notify all eligible applicants of available hazard mitigation project grant programs for mitigation projects, including available funding through the Unified Hazard Mitigation Assistance programs and other mitigation opportunities</i>					
SHMT	Ongoing	MEMA, DCR staff, FEMA grants, State Grants Administrative Plan	Hazard mitigation projects are expensive and federal funding is needed by the Commonwealth and communities to complete most projects. Funding cost-effective hazard mitigation projects in high-risk areas, as identified in this plan and in regional and local hazard mitigation plans, will reduce future losses.	Progress made. The Commonwealth continues to see this as a priority. The Commonwealth of Massachusetts has experienced a series of disasters during the last 3 years. The SHMT manages an outreach program for FEMA’s HMA programs. Based on this, the SHMT has focused on managing the HMGP program funds in an efficient and effective manner. When funds are made available, the SHMT manages the non-disaster funding program as well. See Section 3.	The Commonwealth continues with this priority with ongoing outreach on the benefits of hazard mitigation. A notice of available funding is sent to every city and town in the Commonwealth through multiple channels. This information is also shared across many state agencies and distributed through their distribution lists and newsletters. All funding is advertised on CommBuys as well. This action moves forward.

Responsible Agency	Projected Timeline	Resources	Explanation	Update Comments and Revisions	2018 Comments – Include status of action and if the action should move forward into the updated plan. If it needs to be revised indicate necessary revisions.
<i>e. Work with state agencies that own state facilities believed to be at high or medium flood risk or overland tidal surge to further evaluate the flood and surge risk and to identify and implement appropriate mitigation actions.</i>					
SHMT, SHMIC	3 to 5 years	MEMA, DCR staff; individual agency capital funding; FEMA planning and project grant funding	Individual analysis will provide a better assessment of the flood and surge risks and identify specific flood mitigation measures for implementation by state agencies. By further identifying these risks and mitigation measures for individual structures and facilities, the Commonwealth can make recommendations for funding appropriate projects that will reduce or eliminate these risks.	Progress made. As a result of the THIRA/ SHMP update, the consultant is providing detailed maps showing state-owned facilities located in high hazard areas. As part of the deliverables for this project, the consultant will supply an outreach strategy for the SHMT to work with agencies with buildings/ infrastructure in the hazard areas to develop actions to mitigate their risk.	Through an HMGP project, the Division of Capital Asset Management and Maintenance which provided funding to collaborate with state agencies that are responsible for physical assets to identify and prioritize hazard prone buildings and facilities to help identify activity options to mitigate risk. A guidebook was developed to assist all state and local agencies to evaluate natural hazard risks and develop preliminary options for mitigation. This action moves forward.
<i>f. Develop a methodology for collecting and assessing the natural hazard risks, especially flooding, erosion, and storm damage, for all current and future state-owned facilities and properties, to be used by agencies to identify and implement appropriate mitigation actions.</i>					
SHMIC, MEMA, DCR, DCAMM	Ongoing	MEMA, DCR staff, SHMIC, MassDEP & CZM	Collecting such data will assist in identifying high-risk facilities and properties and incorporating hazard mitigation measures into the planning processes. Improving the data on high-risk facilities will assist in implementing hazard mitigation measures for specific facilities and properties.	Progress made. New process for 2013. As a result of the THIRA/ SHMP update processes, the consultant is providing detailed maps showing state-owned facilities located in high hazard areas. As part of the deliverables for this project, the consultant will supply an outreach strategy for the SHMT to work with agencies with buildings/ infrastructure in the hazard areas to develop actions to mitigate their risk.	Progress made. In 2017 DCAMM developed a final draft of its vulnerability assessment, and implemented three pilot projects to bring education, awareness and engagement for three state facilities and their managers. Following the pilot workshops, DCAMM finalized its facilities assessment list and participated on the Project Management Team for coordination of the 2018 state HMP. The findings of the assessment have been included in the 2018 plan.

Responsible Agency	Projected Timeline	Resources	Explanation	Update Comments and Revisions	2018 Comments – Include status of action and if the action should move forward into the updated plan. If it needs to be revised indicate necessary revisions.
<p><i>g. Work with state agencies to fully identify all potential hazards to facilities before major repairs, or the construction of new facilities, to minimize future impacts from natural hazards, particularly flooding, storm damage, and erosion.</i></p>					<p>Progress made. Most state projects (including MassDOT projects) are reviewed by multiple agencies in the design and permitting processes. For projects in the floodplain, DCR coordinates with the proposing agency as well as with other entities such as MEPA, EPA, USGS, and the Army Corps of Engineers. These projects include roadway improvements, tide gate installations or removals, some dam removals, new construction and affordable housing projects. In addition, DCAMM is working on incorporating language into the CAMIS database.</p>
<p>SHMIC, MEMA, DCR</p>	<p>Ongoing</p>	<p>MEMA, DCR staff, SHMIC, MassDEP & CZM</p>	<p>Recognizing exposure to natural hazards prior to construction of all new state facilities and major renovations to such facilities will result in appropriate hazard mitigation measures being included in the master planning and design process. Inclusion of hazard mitigation measures during the planning of facilities will save future repair and disaster assistance costs.</p>	<p>Unchanged/ progress made. The Commonwealth continues to see this as a priority. There are a few mechanisms within the Commonwealth that help facilitate this action. Members of the SHMT are responsible to review projects as part of the Massachusetts Environmental Policy Act review process, primarily looking at the construction of buildings in the floodplain to determine if comments are warranted. This gives staff the ability to inject mitigation for consideration. It is also the SHMT’s intent to incorporate this discussion in conjunction with helping state agencies develop mitigation actions for their vulnerable facilities.</p>	

Responsible Agency	Projected Timeline	Resources	Explanation	Update Comments and Revisions	2018 Comments – Include status of action and if the action should move forward into the updated plan. If it needs to be revised indicate necessary revisions.
<i>h. Work with communities to implement cost-effective, environmentally sound, and feasible mitigation projects to severe repetitive loss properties.</i>					
SHMT	Ongoing	Hazard Mitigation Assistance Program funds	Mitigation of severe repetitive loss structures will reduce or eliminate claims under the NFIP through project activities that will result in the greatest savings to the NFIP in the shortest period of time.	Progress made. This is a normal/ daily objective of the SHMT, specifically the State Floodplain office. See Section 3 for an overview of the technical assistance and outreach the SHMT provided since 2010.	

Responsible Agency	Projected Timeline	Resources	Explanation	Update Comments and Revisions	2018 Comments – Include status of action and if the action should move forward into the updated plan. If it needs to be revised indicate necessary revisions.
Goal 5. Monitor, evaluate, and disseminate information on the effectiveness of hazard mitigation actions implemented by state, local, and private partnerships.					
<i>a. Develop a process to track all completed mitigation projects in Massachusetts, including 406 mitigation and privately funded mitigation projects.</i>					
SHMT	3-5 year	Staff resources	Evaluating existing successes can act as a public relations tool to create awareness to the importance of natural hazard mitigation.	Progress made. This continues to be a priority for the Commonwealth and will be incorporated into the discussions for the project database development action (Goal 5 Action (b) below). In addition, the SHMT, in conjunction with FEMA mitigation staff from the Hurricane Sandy joint field office, conducted a loss avoidance study. As a result, it is apparent that data collection is pivotal to a successful loss avoidance study and will therefore also be considered during database development to ensure proper data collection/tracking.	The Mitigation Unit is currently developing a spreadsheet to track all current and closed projects.
<i>b. Evaluate the feasibility of maintaining a database of potential mitigation projects across the Commonwealth, taken from local hazard mitigation plans, project worksheets from the Public Assistance process, and other sources.</i>					
SHMT, MEMA	3-5 years	Staff resources	Evaluating potential projects will allow the Commonwealth to maximize the cost-effectiveness of federal grants by mitigating hazards in a pre- and post-disaster setting.	Progress made. MEMA is invested in increasing its capabilities to prevent, protect against, mitigate, respond to and recover from the threats and hazards that pose the greatest risk to the Commonwealth. In keeping with this desire, MEMA has hired a full-time GIS coordinator as well as a business systems specialist, to increase data and technical capabilities. The SHMT, along with the business systems specialist, is currently looking into database options to assist with capturing local plan data, including local GIS data.	No movement.

Responsible Agency	Projected Timeline	Resources	Explanation	Update Comments and Revisions	2018 Comments – Include status of action and if the action should move forward into the updated plan. If it needs to be revised indicate necessary revisions.
<i>c. Prepare hazard mitigation best practices and case studies on a regular basis.</i>					
SHMT, FEMA	Throughout the 3-year planning cycle and following future disasters	MEMA, DCR, and FEMA Public Information staff.	Sharing information on completed hazard mitigation projects that prevent loss and damage demonstrates the effectiveness of the hazard mitigation program and motivates other communities to undertake similar hazard mitigation projects in the future. Mitigation project “success stories” help to publicize communities and effective projects, thereby raising awareness of effective hazard mitigation measures.	Progress made. The most recent best practices were developed during the March 2010 flood joint field office. In the absence of a joint field office, the SHMT will capture best practices as projects are completed.	The Mitigation Unit regularly shares best practices during grant briefings and through the widely distributed “MEMA Reports”.
<i>d. Implement a standard information-sharing procedure on disaster damage data collected by FEMA, PDA, Community Relations, and infrastructure inspectors to use in local hazard mitigation planning efforts and identifying potential hazard mitigation projects.</i>					
SHMT, FEMA	Throughout the 3-year planning cycle and following future disasters	MEMA, DCR, and FEMA Infrastructure (Public Assistance) staff	In-the-field inspectors can provide useful information on opportunities for hazard mitigation projects. Timely, coordinated data can better identify areas that warrant mitigation actions and eliminate duplication of efforts by programs.	Progress made. The Commonwealth continues to see this as a priority. Starting with the March 2010 flood event, the SHMT coordinates with the mitigation branch at the joint field office (when established) to imbed state mitigation staff with the PA staff to ensure mitigation is investigated for every project worksheet.	No movement.

Responsible Agency	Projected Timeline	Resources	Explanation	Update Comments and Revisions	2018 Comments – Include status of action and if the action should move forward into the updated plan. If it needs to be revised indicate necessary revisions.
<i>e. Improve the Commonwealth’s capabilities assessment by integrating the locally administered capabilities and the state level capabilities in order to demonstrate how mitigation efforts at various levels are implemented and integrated. This will also provide the Commonwealth with information concerning any gaps or areas in which improvement can occur, either at the state or local levels to increase mitigation potential.</i>					
SHMT, SHMIC, and Local Jurisdictions	Throughout the 3-year planning cycle and as plans are submitted to the Commonwealth for review.	MEMA, DCR staff	Providing information of this type will help determine where emphasis needs to be placed with respect to the capabilities at both the local and state levels. Integration of the capabilities will enhance effectiveness and provide information on where to focus efforts.	New effort for 2013. The Commonwealth sees this as a priority with a high value. A new database will be designed that will allow the capturing of this information in greater detail. This will be supported by action (g) for Goal 1, with the hiring of a full-time GIS coordinator as well as a business system specialist aimed to increase data and technical capabilities.	No movement.
<i>f. Research best practices and then work with the Regional Planning Agencies and local communities through outreach and education to help local communities strengthen the ownership of the planning process.</i>					
SHMT, SHMIC	Throughout the 3-year planning cycle and following future disasters	MEMA, DCR, Regional Planning Agencies, and FEMA staff	With many of the Commonwealth’s current local plans in the process of being updated, or about to expire, outreach will be very beneficial. Providing assistance during the development of the plans or encouraging development of local plans will be paramount in continuing a successful mitigation program. The use of the newly developed local survey will also provide guidance to the local planners, as well as providing relevant information to the Commonwealth.	New effort for 2013. The Commonwealth sees this as a high priority with a high value. The SHMT will develop an outreach strategy to assist the Regional Planning agencies and local communities in understanding the importance of plan integration and ownership. Enhanced outreach by all planning partnerships will help ensure a higher-level of plans and stronger mitigation programs.	Progress made. Through the new MVP Program, Regional Planning Agencies and other vendors are trained on best practices so they can better assist communities with identifying vulnerabilities and developing and prioritizing actions to mitigate hazards. This results in stronger plans and better focused projects.

3. Hazard Mitigation and Climate Adaptation Prioritization Process

3.1 Action Prioritization Process

All proposed hazard mitigation and climate adaptation actions went through a robust evaluation and prioritization process according to standard criteria that were developed and approved by the PMT during the month of May 2018. Prioritization criteria included considerations of cost-effectiveness, environmental soundness, and technical feasibility in addition to many other factors the PMT agreed was important in evaluating and prioritizing actions to be included in the SHMCAP. In total, the prioritization system included 21 different parameters under three categories: Relevancy; Resiliency; and Cost & Time.

To facilitate and promote consistency throughout this process, staff from lead agencies were provided an *Action Prioritization Tool* designed to guide the evaluation and classification of each action as either *Very High, High, Medium, or Low Priority*. The tool included an Excel-based scoring system based on the prioritization criteria developed by the PMT, within which numeric scores were calculated based on point values assigned to each criterion and individual weighting associated with each parameter. Tool users were simply required to enter applicable scores for each parameter's assigned criteria, and the tool automatically determined the Priority Level based on final scores ranging from 0 to 100. Detailed instructions on applying the tool were provided to the lead agency staff assigned with the task of prioritizing actions.

One caveat to note for the prioritization process is that the estimation of monetary benefits was limited to future losses avoided. While multiple parameters and criteria sought to promote nature-based solutions and other non-structural actions with benefits that go beyond losses avoided (e.g., public health and education, open space preservation, greenhouse gas reduction, etc.), the tool lacked the capacity and did not provide guidance to monetize these benefits in the same manner as losses avoided.

Figures D-1 through D-4 on the following pages include screenshots of the Action Prioritization Tool including (1) a blank Action Scorecard; (2) User Instructions; and (3) Parameters and Definitions. A copy of the Excel-based tool is also available from the Commonwealth upon request.

Appendix D: Hazard Mitigation and Climate Adaptation Strategy Supporting Documentation

Massachusetts State Hazard Mitigation and Climate Adaptation Plan (SHMCAP)
Action Prioritization Tool

Action Title:	
Lead Agency:	

Parameter	Weighting Factor	Scoring Criteria	Score	Points
Relevancy 25%				
1	SHMCAP Goals	40%	5 – Directly supports multiple goals 3 – Directly supports one goal 1 – Consistent with but not linked to current goals 0 – Inconsistent with current goals	0
2	Agency Mission	25%	5 – Explicitly supports agency mission and current priorities 3 – Consistent with agency mission and current priorities 0 – Not directly related to agency mission or current priorities	0
3	Other State and Local Initiatives	20%	5 – Explicitly supports other State and/or local initiatives 3 – Consistent with other State and/or local initiatives 0 – Not directly related to other State and/or local initiatives	0
4	Partnerships and Stakeholder Support	15%	5 – Heavily supported by broad partnerships and stakeholders 3 – Moderately supported by other partners or stakeholders 1 – Minimal support outside of lead agency	0
Parameter Subtotal		100%	sum of parameter scores; max =	500
Relevancy subtotal		(sum of parameter scores) / (maximum possible score)		0%

Parameter	Weighting Factor	Scoring Criteria	Score	Points
Resiliency 50%				
1	Scope of Benefits	10%	5 – Benefits all five sectors 3 – Benefits multiple sectors 1 – Benefits only one sector	0
2	Scale of Benefits	10%	5 – Statewide 4 – Regional 3 – Municipal 2 – District/Neighborhood/Group 1 – Site-specific (building/parcel level)	0
3	Public Health, Safety, and Well-being	15%	5 – Meets 4 or more factors 3 – Meets 2-3 factors 1 – Meets 1 factor 0 – Meets 0 factors	0
4	Losses Avoided	15%	5 – Greater than \$50M in estimated future losses avoided 3 – Between \$1M-\$50M in estimated future losses avoided 1 – Less than \$1M in future losses avoided 0 – No measurable monetary losses avoided	0
5	Continuity of Essential Services	10%	5 – Protects critical assets, functions, or population groups as identified in Agency Vulnerability Assessment Report(s) 3 – Protects other vulnerable critical facilities, infrastructure or key assets to minimize service disruption 0 – No effect on continuity of essential services	0
6	Environmental Impact	10%	5 – Positive effect on the environment 3 – Neutral effect on the environment 0 – Adverse effect on the environment	0
7	Nature-Based Approaches	10%	5 – Specifically designed to conserve/employ natural resources 3 – Promotes conservation/employment of natural resources 0 – No effect on conservation/employment of natural resources	0
8	Greenhouse Gas Emissions	5%	5 – Reduces greenhouse gas emissions 3 – Neutral effect on greenhouse gas emissions 0 – Increases greenhouse gas emissions	0
9	Public Education, Awareness, and Capacity Building	5%	5 – Specifically incorporates public education, awareness, and/or capacity building measures 3 – Promotes public education, awareness, and/or capacity building 0 – No effect on public education, awareness, and/or capacity building	0
10	Lifespan and Consideration of Future Conditions	5%	5 – Permanent or long-term solution (>50 years) with robust consideration of future conditions 3 – Moderate-term solution (10-50 years) with some consideration of future conditions 1 – Temporary or short-term solution (<10 years) and/or no consideration of future conditions	0
11	Repetitive Damage or Losses	5%	5 – High potential to alleviate repetitive damage and loss 3 – Moderate potential to alleviate repetitive damage and loss 0 – Will not alleviate repetitive damage and loss	0
Parameter Subtotal		100%	sum of parameter scores; max =	500
Resiliency Subtotal		(sum of parameter scores) / (maximum possible score)		0%

Figure D-1: Scorecard from Action Prioritization Tool (page 1)

Appendix D: Hazard Mitigation and Climate Adaptation Strategy Supporting Documentation

Massachusetts State Hazard Mitigation and Climate Adaptation Plan (SHMCAP)
Action Prioritization Tool

Action Title:	
Lead Agency:	

Parameter	Weighting Factor	Scoring Criteria	Score	Points
Cost & Time		25%		
1	Estimated Costs*	20%	* Combines Initial Costs and Maintenance / Operating Costs	0
	a. Initial Costs	75%	5 – No monetary cost (staff time or in-kind contribution) 4 – Under \$250,000 3 – \$250,000 - \$500,000 2 – \$500,000 - \$1 million 1 – Over \$1 million	0
	b. Maintenance / Operating Costs	25%	5 – No maintenance / operating costs 3 – Less than 10% per annum of the initial cost 1 – More than 10% per annum of the initial cost	0
2	Cost Effectiveness / Return on Investment	40%	5 – Highly cost-effective (~benefit-cost ratio is greater than 4:1) 3 – Cost-effective (~benefit-cost ratio is between 1:1 and 4:1) 0 – Not cost-effective (~benefit-cost ratio is less than 1:1)	0
3	Ease of Implementation	20%	5 – Easily implemented without complexity or delays 3 – Implemented with only moderate complexity or delays 1 – Implementation is complex and faces certain delays	0
4	Completion Timeframe	10%	5 – Less than 2 years 3 – Between 2 and 4 years 1 – More than 4 years	0
5	Urgency	10%	5 – Extremely urgent 3 – Fairly urgent 1 – Not urgent	0
Parameter Subtotal		100%	sum of parameter scores: max =	500
Cost & Time Subtotal			(sum of parameter scores) / (maximum possible score)	0%

Scoring Summary				
Relevancy	25%		0%	0
Resiliency	50%		0%	0
Cost & Time	25%		0%	0
Prioritization Score			0	
Priority Level			LOW	

Figure D-1 (continued): Scorecard from Action Prioritization Tool (page 2)

Instructions for Applying the Action Prioritization Tool

1. Open the file. Note that the Action Prioritization Tool includes three worksheets: (1) the *Action Scorecard* to be used for scoring each individual action; (2) the list of *Parameters and Definitions* which provides important information for completing the scoring; and (3) *Instructions*.

2. Using the Action Scorecard worksheet, **enter the Action Title and Lead Agency** for the action to be prioritized. This information should align with agency actions identified in the Action Proposal Worksheet available at:

https://docs.google.com/spreadsheets/d/1-Cse-4J_NwydMMDMMqIV2-iHsOXuDwM-U9uHCaWUNsY/edit?usp=sharing

Then, **save** the file using a unique identifier for the action that includes the Lead Agency name and some reference to the action. For example, "DCAMM_Action01-Green Infrastructure". A separate Excel file should be saved for each action being prioritized.

Note: Cells where a user entry is required are highlighted yellow. All other cells do not require modification.

3. Using the scoring criteria provided in the Action Scorecard, in combination with the supplemental information provided in the Parameters and Definitions worksheet, **enter a Score for each parameter** (using one of the numbers provided). This can be done manually or by using the drop-down lists provided. Scores should be applied based on your best judgment and familiarity with the proposed action. More detailed analysis is not required.

4. Once all parameters have been scored (i.e., numbers have been entered in each yellow highlighted cell), the final Prioritization Score and Priority Level will be auto-populated below (Row 43 and 44, respectively). **Review and confirm the Priority Level** as needed.

5. Enter the Priority Level into the Action Proposal Worksheet for each applicable action (Column R) at:

https://docs.google.com/spreadsheets/d/1-Cse-4J_NwydMMDMMqIV2-iHsOXuDwM-U9uHCaWUNsY/edit?usp=sharing

6. Save and upload the final Excel file for each action. Final Excel files should be uploaded to the appropriate Executive Office prioritized action worksheets directory using the following Google Drive link:

<https://drive.google.com/drive/folders/1fSWyynlqP0Qr9fG1ECMIRrk8ybXMWXCD>

Figure D-2: User Instructions for Action Prioritization Tool

Appendix D: Hazard Mitigation and Climate Adaptation Strategy Supporting Documentation

Massachusetts State Hazard Mitigation and Climate Adaptation Plan (SHMCAP)
Parameters and Definitions Used to Prioritize Actions

Parameter	Definition
Relevancy	
SHMCAP Goals	The extent to which the action is consistent with and supports the five (5) goals of the State Hazard Mitigation and Climate Adaptation Plan: <ol style="list-style-type: none"> 1. Enhance the Commonwealth's resiliency to natural hazards and climate change by integrating programs and building institutional capacity. 2. Understand our vulnerabilities and risks and develop immediate and long-term risk reduction strategies for current and future conditions using the best available science. 3. Minimize the impacts of natural hazards and climate change with forward-looking policies, plans, and regulations. 4. Increase the resilience of state and local government, people, natural systems, the built environment, and the economy by investing in performance-based solutions. 5. Support implementation of this plan through increased education, awareness, and incentives for action for state agencies, local governments, private industry, non-profits, and the general public.
Agency Mission	A measure of the action's conformance with the lead agency's mission and other stated priorities.
Other State and Local Initiatives	The extent to which the action supports other State plans, policies, programs or projects, and/or other related initiatives identified in local hazard mitigation or climate adaptation plans.
Partnerships and Stakeholder Support	The extent to which the action will be actively supported by other state agencies and authorities, municipalities, regional planning agencies, non-governmental organizations, and other stakeholders.
Resiliency	
Scope of Benefits	The extent to which the action benefits the five (5) key sectors identified in the SHMCAP: Government, Built Environment, Natural Resources and Environment, Economy, and Populations.
Scale of Benefits	The geographic coverage of the area to benefit from the action.
Public Health, Safety, and Well-being	The degree to which the action increases public health resiliency according to the following five factors: (1) reduces human exposure to natural hazard or climate-related risks; (2) reduces impacts to vulnerable populations; (3) improves public health of community; (4) involves affected residents in planning process; and (5) benefits of the action are equitably distributed.
Losses Avoided	A measure of the anticipated future losses avoided due to the action, including property damage and economic losses suffered by government, businesses, and individuals, as well as costs for emergency response and disaster recovery.
Continuity of Essential Services	The extent to which the action will protect critical facilities, infrastructure and other key assets and minimize the disruption of essential services, including emergency response, utilities, transportation, public health, and other social/lifeline services.
Environmental Impact	An indicator of whether the action will have a positive, neutral, or adverse effect on the natural environment.
Nature-Based Approaches	The extent to which the action conserves and sustainably employs the natural resources and ecosystem services of the Commonwealth.
Greenhouse Gas Emissions	The extent to which the action reduces or contributes to greenhouse gas emissions.

Figure D-3: Parameters and Definitions for Action Prioritization Tool (page 1)

Massachusetts State Hazard Mitigation and Climate Adaptation Plan (SHMCAP)
Parameters and Definitions Used to Prioritize Actions

Parameter	Definition
Public Education, Awareness, and Capacity Building	The extent to which the action will help increase public education, awareness and understanding of hazard and climate-related risks, and/or enhance the capacity of people and organizations to implement their own risk reduction actions.
Lifespan and Consideration of Future Conditions	A measure of the action's useful life and the degree to which it considers future conditions, including the anticipated effects of climate change, population growth, and development trends.
Repetitive Damage or Losses	The potential for the action to eliminate or reduce the frequency of repetitive property damage and economic loss, especially to FEMA-identified Repetitive Loss Properties.
Cost & Time	
Initial Costs	Estimated dollar costs to complete the proposed action.
Maintenance / Operating Costs	Estimated annual dollar costs to maintain the action and/or operate the property or equipment after the action is completed.
Cost Effectiveness / Return on Investment	The extent to which benefits are maximized according to a general benefit-cost review of the action and its associated costs.
Ease of Implementation	A measure of how easily the action can be completed based on current political support, technical and administrative feasibility, affordability/financing availability, other agency approvals or permitting requirements, and other factors that may cause delays in implementation.
Completion Timeframe	An indication of how long it will take to complete the proposed action.
Urgency	A measure of how urgently needed the action is today versus some point in the future, based on how soon the benefits and/or losses avoided will begin to be realized.

Figure D-3 (continued): Parameters and Definitions for Action Prioritization Tool (page 2)

3.2 Prioritized Actions

While all of the actions are included in *Chapter 7: Hazard Mitigation and Climate Adaptation Strategy*, it is useful to look at the actions organized in multiple ways. For this reason, the actions are presented in the following three ways: sorted by SHMCAP goal, sorted by climate change vulnerability, and sorted by Executive Office and Agency. The actions are organized by Completion Time Frame in each section, then alphabetically by Executive Office and Agency.

3.2.1 Actions Sorted by Goal

Table D-4: Goal 1 Actions

Goal 1: Enhance the Commonwealth's resiliency to natural hazards and climate change by integrating programs and building institutional capacity.				
Executive Office:	Agency:	Action:	Completion Time Frame:	Agency Priority Score:
Executive Office of Energy and Environmental Affairs	Department of Conservation and Recreation (DCR)	DCR: Update the State Forest Action Plan to enhance climate change mitigation and adaptation strategies.	Less than 3 years	Medium
Executive Office of Energy and Environmental Affairs	Department of Conservation and Recreation (DCR)	DCR: Track and assess asset vulnerability by adding climate change/resiliency categories as part of the Asset Management Modernization Project.	Less than 3 years	High
Executive Office of Energy and Environmental Affairs	Division of Ecological Restoration (DER)	DER: Update and share a dam removal decision support tool that directly incorporates new climate change projections, climate adaptation benefits and helps municipalities and others prioritize dams for removal.	Less than 3 years	Medium
Executive Office of Energy and Environmental Affairs	Executive Office of Energy and Environmental Affairs (EOEEA)	EOEEA: Reassess and develop a climate change resiliency framework and criteria for all EOEEA agency land acquisition and grant funding for land acquisition to support natural resource conservation, wildlife, human health and public safety.	Less than 3 years	High
Executive Office of Health and Human Services	Department of Public Health (DPH)	DPH: Provide support and direct care to vulnerable populations susceptible to climate change impacts.	Less than 3 years	High
Executive Office of Housing and Economic Development	Executive Office of Housing and Economic Development (EOHED)	EOHED: Incorporate climate change resilience/adaptation standards into grant programs including MassWorks.	Less than 3 years	Very High
Executive Office of Labor	Department of Labor Standards (DLS)	DLS: Review and consider updates to MASSsafetyWorks! resources given increased expectations of extreme weather events.	Less than 3 years	Low
Executive Office of Public Safety and Security	Massachusetts Emergency Management Agency (MEMA)	MEMA: Hire a Disaster Survivor Assistance Planner.	Less than 3 years	Medium
Executive Office of Public Safety and Security	Massachusetts Emergency Management Agency (MEMA)	MEMA: Prepare hazard mitigation best practices and case studies.	Less than 3 years	Medium
Executive Office of Public Safety and Security	Massachusetts Emergency Management Agency (MEMA)	MEMA: Apply for available federal HMA funding to implement and update the completed and approved multi-jurisdictional and local hazard mitigation plans.	Less than 3 years	High

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Goal 1: Enhance the Commonwealth's resiliency to natural hazards and climate change by integrating programs and building institutional capacity.				
Executive Office:	Agency:	Action:	Completion Time Frame:	Agency Priority Score:
Executive Office of Public Safety and Security	Massachusetts Emergency Management Agency (MEMA)	MEMA: Create an Earthquake Risk Reduction Program.	Less than 3 years	Medium
Executive Office of Public Safety and Security	Massachusetts Emergency Management Agency (MEMA)	MEMA: Plan and host hazard mitigation grant workshops for state agencies and local governments after natural disasters, especially immediately following Presidential Disaster Declarations.	Less than 3 years	High
Massachusetts Department of Transportation	Massachusetts Department of Transportation (MassDOT)	MassDOT: Incorporate climate resiliency into capital planning activities.	Less than 3 years	Very High
Executive Office of Administration and Finance	Executive Office of Administration and Finance (A&F)	A&F: Budgeting, coordinating administrative functions, and planning.	3-5 years	High
Executive Office of Administration and Finance	Human Resources Division (HRD)	HRD: Incorporate hazard and climate change vulnerability into personnel and workplace policies, training, and guidance as appropriate.	3-5 years	Medium
Executive Office of Energy and Environmental Affairs	Department of Conservation and Recreation (DCR)	DCR: Incorporate climate vulnerability in all planning efforts.	3-5 years	High
Executive Office of Energy and Environmental Affairs	Department of Conservation and Recreation (DCR)	DCR: Upgrade and strengthen control systems for both the New Charles River and Amelia Earhart dams.	3-5 years	Very High
Executive Office of Energy and Environmental Affairs	Department of Environmental Protection (DEP)	DEP: Improve Mapping to Enhance Resilience and Emergency Preparedness of Water Utilities.	3-5 years	High
Executive Office of Energy and Environmental Affairs	Department of Public Utilities (DPU)	DPU: Power system planning that incorporates climate change risk.	3-5 years	High
Executive Office of Energy and Environmental Affairs	Division of Ecological Restoration (DER)	DER: Develop a prioritization and implementation strategy for barrier removal on cold water streams most impacted by warming temperatures to allow climate adaptation and habitat restoration.	3-5 years	Very High
Executive Office of Energy and Environmental Affairs	Division of Ecological Restoration (DER)	DER: Develop an implementation plan to reprioritize and accelerate tidal wetland restoration for climate adaptation and habitat restoration.	3-5 years	High
Executive Office of Energy and Environmental Affairs	Division of Ecological Restoration (DER)	DER: Develop an implementation plan to complete priority water quality restoration projects for climate adaptation and habitat restoration.	3-5 years	Medium

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Goal 1: Enhance the Commonwealth's resiliency to natural hazards and climate change by integrating programs and building institutional capacity.				
Executive Office:	Agency:	Action:	Completion Time Frame:	Agency Priority Score:
Executive Office of Energy and Environmental Affairs	Division of Ecological Restoration (DER)	DER: In support of EOEEA's efforts on MVP, build the capacity of regional organizations to implement climate adaptation and habitat restoration at the local level.	3-5 years	High
Executive Office of Energy and Environmental Affairs	Division of Fisheries and Wildlife (MassWildlife)	MassWildlife: Work with MassDOT to incorporate habitat and cold water fisheries considerations into MassDOT climate vulnerability assessments, adaptation projects, and community planning tools.	3-5 years	Medium
Executive Office of Energy and Environmental Affairs	Executive Office of Energy and Environmental Affairs (EOEEA)	EOEEA: Create and deploy a SHMCAP project database.	3-5 years	Medium
Executive Office of Energy and Environmental Affairs	Executive Office of Energy and Environmental Affairs (EOEEA)	EOEEA: Maintain and enhance climate change projections and specific climate change data sets to support different groups of end users.	3-5 years	High
Executive Office of Energy and Environmental Affairs	Executive Office of Energy and Environmental Affairs (EOEEA)	EOEEA: Update and maintain the resilientMA.org climate change clearinghouse site to include a Vulnerability Assessment Wizard for MVP communities, a clearinghouse to grant programs to fund MVP actions, and a dynamic version of the SHMCAP.	3-5 years	High
Executive Office of Energy and Environmental Affairs	Executive Office of Energy and Environmental Affairs (EOEEA)	EOEEA: Incorporate information on climate change risk and vulnerability from the SHMCAP and subsequent studies into all capital budget planning.	3-5 years	High
Executive Office of Energy and Environmental Affairs	Executive Office of Energy and Environmental Affairs (EOEEA)	EOEEA: In consultation with DCAMM, MassDOT, and EOHED develop climate change design standards.	3-5 years	Medium
Executive Office of Health and Human Services	Department of Public Health (DPH)	DPH: Update and expand DPH and DPH provider/vendor Emergency Operations Plans (EOPs) and Continuity of Operations Plans (COOPs) to address climate impacts.	3-5 years	Very High
Executive Office of Housing and Economic Development	Office of Public Safety and Inspections (OPSI)	OPSI: Review the state building code to assess feasibility of incorporating hazard mitigation and resilience.	3-5 years	High
Executive Office of Public Safety and Security	Massachusetts Emergency Management Agency (MEMA)	MEMA: Improved Local Comprehensive Emergency Management Plan (CEMP) Program.	3-5 years	Medium

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Goal 1: Enhance the Commonwealth's resiliency to natural hazards and climate change by integrating programs and building institutional capacity.				
Executive Office:	Agency:	Action:	Completion Time Frame:	Agency Priority Score:
Executive Office of Public Safety and Security	Massachusetts Emergency Management Agency (MEMA)	MEMA: Build out a mechanism to incorporate new data and recommendations from the FEMA-approved regional and local mitigation plans into the SHMCAP, ArcGIS online and/or Climate Clearinghouse, especially locations of critical facilities and assessments of vulnerability and estimates of potential losses by jurisdiction.	3-5 years	Medium
Executive Office of Public Safety and Security	Massachusetts Emergency Management Agency (MEMA)	MEMA: Partner with stakeholders in Massachusetts to develop and implement regional and local multi-hazard mitigation plans by providing training and technical assistance.	3-5 years	Medium
Massachusetts Department of Transportation	Massachusetts Department of Transportation (MassDOT)	MassDOT: Pilot Deerfield Watershed Stream Crossing Resilience Project.	3-5 years	High
Massachusetts Department of Transportation	Massachusetts Department of Transportation (MassDOT)	MassDOT: Incremental Development of Resiliency-Oriented Design Guidelines.	3-5 years	High
Executive Office of Education	Executive Office of Education (EOE)	EOE: Review and recommend standards for the safety and health of students in the Commonwealth informed by climate science.	Greater than 5 years	Low
Executive Office of Energy and Environmental Affairs	Department of Environmental Protection (DEP)	DEP: Resiliency Grants for Water Infrastructure.	Greater than 5 years	Low
Executive Office of Energy and Environmental Affairs	Department of Environmental Protection (DEP)	DEP: Enhance the Water Utility Resilience Program (WURP).	Greater than 5 years	High
Executive Office of Energy and Environmental Affairs	Department of Public Utilities (DPU)	DPU: Facilitate a program for sharing resources between municipalities for tree maintenance.	Greater than 5 years	Medium
Executive Office of Energy and Environmental Affairs	Department of Public Utilities (DPU)	DPU: Review storm preparedness best practices from other regional distribution systems.	Greater than 5 years	High
Executive Office of Energy and Environmental Affairs	Department of Public Utilities (DPU)	DPU: Regional power grid planning and incorporation of climate change data.	Greater than 5 years	Medium
Executive Office of Energy and Environmental Affairs	Division of Ecological Restoration (DER)	DER: Develop an implementation strategy and updated prioritization scheme to work with federal, state, and local partners and non-profit organizations to remove unwanted state-owned dams to reduce risk, increase resiliency to extreme weather and climate change, and restore aquatic habitat.	Greater than 5 years	Medium

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Goal 1: Enhance the Commonwealth's resiliency to natural hazards and climate change by integrating programs and building institutional capacity.				
Executive Office:	Agency:	Action:	Completion Time Frame:	Agency Priority Score:
Executive Office of Energy and Environmental Affairs	Division of Ecological Restoration (DER)	DER: Develop an implementation strategy for retired cranberry bog restoration for climate adaptation and habitat restoration by working with landowners, federal, state, and local partners and non-profit partners for climate resiliency, habitat quality, flood and water quality protection, and wildlife.	Greater than 5 years	Medium
Executive Office of Energy and Environmental Affairs	Division of Ecological Restoration (DER)	DER: Develop an implementation plan to build municipal capacity to replace undersized, deteriorated culverts with larger, safer structures that are resilient to extreme storms and provide passage for fish and wildlife.	Greater than 5 years	Very High
Executive Office of Energy and Environmental Affairs	Division of Ecological Restoration (DER)	DER: Restore streamflow to flow-stressed rivers to increase resiliency for aquatic ecosystems and for water supplies.	Greater than 5 years	Medium
Executive Office of Energy and Environmental Affairs	Executive Office of Energy and Environmental Affairs (EOEEA)	EOEEA: Review, evaluate, and implement revisions as needed to environmental and energy policies, regulations, and plans.	Greater than 5 years	High
Executive Office of Energy and Environmental Affairs	Executive Office of Energy and Environmental Affairs (EOEEA)	EOEEA: Review habitat management, land stewardship, coastal zone management, agricultural and invasive species programs and policies to develop strategies that promote coordination among agencies and support climate change adaptation and mitigation goals.	Greater than 5 years	High
Executive Office of Energy and Environmental Affairs	Executive Office of Energy and Environmental Affairs (EOEEA)	EOEEA: Accelerate implementation of priority actions identified through the Municipal Vulnerability Preparedness (MVP) program, increase municipal participation in planning program, conduct program review and revise planning and action grant program as needed.	Greater than 5 years	High
Executive Office of Health and Human Services	Department of Public Health (DPH)	DPH: Strengthen DPH health care systems and services to prepare for climate impacts.	Greater than 5 years	High
Executive Office of Health and Human Services	Department of Public Health (DPH)	DPH: Strengthen environmental health programs to respond to climate-related impacts.	Greater than 5 years	Very High
Executive Office of Public Safety and Security	Executive Office of Public Safety and Security (EOPSS)	EOPSS: Incorporate climate change resilience into business continuity planning for state government.	Greater than 5 years	High
Executive Office of Public Safety and Security	Massachusetts Emergency Management Agency (MEMA)	MEMA: Enhance the effectiveness of 406 funding by working to further integrate mitigation into the FEMA Public Assistance Program.	Greater than 5 years	High
Executive Office of Public Safety and Security	Massachusetts Emergency Management Agency (MEMA)	MEMA: Update the State Hazard Mitigation and Climate Adaptation Plan and submit for FEMA review and approval every 5 years.	Greater than 5 years	Very High

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Goal 1: Enhance the Commonwealth’s resiliency to natural hazards and climate change by integrating programs and building institutional capacity.				
Executive Office:	Agency:	Action:	Completion Time Frame:	Agency Priority Score:
Executive Office of Public Safety and Security	Massachusetts Emergency Management Agency (MEMA)	MEMA: Encourage state granting agencies in the Commonwealth, such as the Massachusetts Department of Housing and Community Development’s review of Community Development Block Grants, to work together with MEMA to assist in providing the Non-federal cost share in Disaster Recovery and Hazard Mitigation Grants to maximize the federal funding available to the Commonwealth and its communities.	Greater than 5 years	High
Massachusetts Department of Transportation	Massachusetts Bay Transit Authority (MBTA)	MBTA: Incorporate climate resiliency into capital planning activities.	Greater than 5 years	Very High
Massachusetts Department of Transportation	Massachusetts Bay Transit Authority (MBTA)	MBTA: Complete system-wide vulnerability assessment.	Greater than 5 years	Very High
Massachusetts Department of Transportation	Massachusetts Department of Transportation (MassDOT)	MassDOT: Expand and improve the Boston Harbor Flood Risk Model to create the Massachusetts Coastal Flood Risk Model.	Greater than 5 years	High
Massachusetts Department of Transportation	Massachusetts Department of Transportation (MassDOT)	MassDOT: Utilize the Boston Harbor Flood Risk Model and data from the vulnerability assessments to identify current and future high risk areas and strengthen emergency management with local, state and federal agencies.	Greater than 5 years	High
Massachusetts Department of Transportation	Massachusetts Department of Transportation (MassDOT)	MassDOT: Assess the feasibility of recommendations from the Commission on the Future of Transportation in the Commonwealth.	Greater than 5 years	High
Massachusetts Department of Transportation	Massachusetts Department of Transportation (MassDOT)	MassDOT: Capture and document institutional knowledge on vulnerabilities from staff using the Mapping Our Vulnerable Infrastructure Tool (MOVIT).	Greater than 5 years	Medium
Massachusetts Department of Transportation	Massachusetts Department of Transportation (MassDOT)	MassDOT: Coordinate with state and federal agencies to evaluate environmental regulation and permitting processes to address current roadblocks in climate change.	Greater than 5 years	High
Massachusetts Department of Transportation	Massachusetts Department of Transportation (MassDOT)	MassDOT: Develop climate change adaptation design guidance and provide resources and training for project managers and design teams on bridge and culvert design interaction with emerging fluvial geomorphology practices.	Greater than 5 years	High

Goal 1: Enhance the Commonwealth's resiliency to natural hazards and climate change by integrating programs and building institutional capacity.				
Executive Office:	Agency:	Action:	Completion Time Frame:	Agency Priority Score:
Massachusetts Department of Transportation	Massachusetts Department of Transportation (MassDOT)	MassDOT: Incorporate climate change adaptation into the MassDOT Highway Division Transportation Asset Management Plan and coordinate Asset Management across divisions and partner agencies.	Greater than 5 years	High
Massachusetts Department of Transportation	Massachusetts Department of Transportation (MassDOT)	MassDOT: Incorporate resiliency review items into the Early Environmental Coordination Checklist.	Greater than 5 years	High
Massachusetts Department of Transportation	Massachusetts Department of Transportation (MassDOT)	MassDOT: Leverage permit granting authority and ability to influence M.G.L. Section 61 findings and mitigation.	Greater than 5 years	High
Massachusetts Department of Transportation	Massachusetts Department of Transportation (MassDOT)	MassDOT: Require a holistic evaluation of all vulnerability, environmental, transportation and social data sets in the earliest project planning phases.	Greater than 5 years	High

Table D-5: Goal 2 Actions

Goal 2: Reduce the impacts of natural hazards and climate change with forward-looking policies, plans, and regulations.				
Executive Office:	Agency:	Action:	Completion Time Frame:	Agency Priority Score:
Executive Office of Energy and Environmental Affairs	Department of Conservation and Recreation (DCR)	DCR: Update the State Forest Action Plan to enhance climate change mitigation and adaptation strategies.	Less than 3 years	Medium
Executive Office of Energy and Environmental Affairs	Division of Ecological Restoration (DER)	DER: Update and share a dam removal decision support tool that directly incorporates new climate change projections, climate adaptation benefits and helps municipalities and others prioritize dams for removal.	Less than 3 years	Medium
Executive Office of Health and Human Services	Department of Public Health (DPH)	DPH: Provide support and direct care to vulnerable populations susceptible to climate change impacts.	Less than 3 years	High
Executive Office of Housing and Economic Development	Executive Office of Housing and Economic Development (EOHED)	EOHED: Incorporate climate change resilience/adaptation standards into grant programs including MassWorks.	Less than 3 years	Very High
Executive Office of Public Safety and Security	Massachusetts Emergency Management Agency (MEMA)	MEMA: Apply for available federal HMA funding to implement and update the completed and approved multi-jurisdictional and local hazard mitigation plans.	Less than 3 years	High

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Goal 2: Reduce the impacts of natural hazards and climate change with forward-looking policies, plans, and regulations.				
Executive Office:	Agency:	Action:	Completion Time Frame:	Agency Priority Score:
Executive Office of Public Safety and Security	Massachusetts Emergency Management Agency (MEMA)	MEMA: Hire a Disaster Survivor Assistance Planner.	Less than 3 years	Medium
Executive Office of Public Safety and Security	Massachusetts Emergency Management Agency (MEMA)	MEMA: Plan and host hazard mitigation grant workshops for state agencies and local governments after natural disasters, especially immediately following Presidential Disaster Declarations.	Less than 3 years	High
Executive Office of Public Safety and Security	Massachusetts Emergency Management Agency (MEMA)	MEMA: Prepare hazard mitigation best practices and case studies.	Less than 3 years	Medium
Executive Office of Technology Services and Security	Executive Office of Technology Services and Security (EOTSS)	EOTSS: Migrate CommVault to the cloud.	Less than 3 years	High
Executive Office of Technology Services and Security	Executive Office of Technology Services and Security (EOTSS)	EOTSS: Migrate critical operational systems to the cloud (MITC); move critical communications infrastructure to Markley.	Less than 3 years	High
Executive Office of Technology Services and Security	Executive Office of Technology Services and Security (EOTSS)	EOTSS: Migrate email to the cloud.	Less than 3 years	High
Massachusetts Department of Transportation	Massachusetts Department of Transportation (MassDOT)	MassDOT: Incorporate climate resiliency into capital planning activities.	Less than 3 years	Very High
Executive Office of Administration and Finance	Human Resources Division (HRD)	HRD: Incorporate hazard and climate change vulnerability into personnel and workplace policies, training, and guidance as appropriate.	3-5 years	Medium
Executive Office of Energy and Environmental Affairs	Department of Conservation and Recreation (DCR)	DCR: Incorporate climate vulnerability in all planning efforts.	3-5 years	High
Executive Office of Energy and Environmental Affairs	Department of Conservation and Recreation (DCR)	DCR: Upgrade and strengthen control systems for both the New Charles River and Amelia Earhart dams.	3-5 years	Very High
Executive Office of Energy and Environmental Affairs	Department of Environmental Protection (DEP)	DEP: Improve Mapping to Enhance Resilience and Emergency Preparedness of Water Utilities.	3-5 years	High
Executive Office of Energy and Environmental Affairs	Department of Public Utilities (DPU)	DPU: Power system planning that incorporates climate change risk.	3-5 years	High

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Goal 2: Reduce the impacts of natural hazards and climate change with forward-looking policies, plans, and regulations.				
Executive Office:	Agency:	Action:	Completion Time Frame:	Agency Priority Score:
Executive Office of Energy and Environmental Affairs	Division of Ecological Restoration (DER)	DER: Develop an implementation plan to complete priority water quality restoration projects for climate adaptation and habitat restoration.	3-5 years	Medium
Executive Office of Energy and Environmental Affairs	Division of Ecological Restoration (DER)	DER: In support of EOEEA's efforts on MVP, build the capacity of regional organizations to implement climate adaptation and habitat restoration at the local level.	3-5 years	High
Executive Office of Energy and Environmental Affairs	Division of Fisheries and Wildlife (MassWildlife)	MassWildlife: Work with MassDOT to incorporate habitat and cold water fisheries considerations into MassDOT climate vulnerability assessments, adaptation projects, and community planning tools.	3-5 years	Medium
Executive Office of Energy and Environmental Affairs	Executive Office of Energy and Environmental Affairs (EOEEA)	EOEEA: Create and deploy a SHMCAP project database.	3-5 years	Medium
Executive Office of Energy and Environmental Affairs	Executive Office of Energy and Environmental Affairs (EOEEA)	EOEEA: In consultation with DCAMM, MassDOT, and EOHED develop climate change design standards.	3-5 years	Medium
Executive Office of Energy and Environmental Affairs	Executive Office of Energy and Environmental Affairs (EOEEA)	EOEEA: Maintain and enhance climate change projections and specific climate change data sets to support different groups of end users.	3-5 years	High
Executive Office of Health and Human Services	Department of Public Health (DPH)	DPH: Update and expand DPH and DPH provider/vendor Emergency Operations Plans (EOPs) and Continuity of Operations Plans (COOPs) to address climate impacts.	3-5 years	Very High
Executive Office of Housing and Economic Development	Massachusetts Office of Travel and Tourism (MOTT)	MOTT: Research and assess and potential effects of climate change on Commonwealth travel and tourism industry and assets.	3-5 years	Medium
Executive Office of Housing and Economic Development	Office of Public Safety and Inspections (OPSI)	OPSI: Review the state building code to assess feasibility of incorporating hazard mitigation and resilience.	3-5 years	High
Executive Office of Public Safety and Security	Massachusetts Emergency Management Agency (MEMA)	MEMA: Build out a mechanism to incorporate new data and recommendations from the FEMA-approved regional and local mitigation plans into the SHMCAP, ArcGIS online and/or Climate Clearinghouse, especially locations of critical facilities and assessments of vulnerability and estimates of potential losses by jurisdiction.	3-5 years	Medium
Executive Office of Public Safety and Security	Massachusetts Emergency Management Agency (MEMA)	MEMA: Improved Local Comprehensive Emergency Management Plan (CEMP) Program.	3-5 years	Medium

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Goal 2: Reduce the impacts of natural hazards and climate change with forward-looking policies, plans, and regulations.				
Executive Office:	Agency:	Action:	Completion Time Frame:	Agency Priority Score:
Executive Office of Public Safety and Security	Massachusetts Emergency Management Agency (MEMA)	MEMA: Partner with stakeholders in Massachusetts to develop and implement regional and local multi-hazard mitigation plans by providing training and technical assistance.	3-5 years	Medium
Executive Office of Technology Services and Security	Executive Office of Technology Services and Security (EOTSS)	EOTSS: Migrate HRCMS/MMARS to the cloud.	3-5 years	High
Massachusetts Department of Transportation	Massachusetts Department of Transportation (MassDOT)	MassDOT: Pilot Deerfield Watershed Stream Crossing Resilience Project.	3-5 years	High
Massachusetts Department of Transportation	Massachusetts Department of Transportation (MassDOT)	MassDOT: Incremental Development of Resiliency-Oriented Design Guidelines.	3-5 years	High
Massachusetts Department of Transportation	Massachusetts Department of Transportation (MassDOT)	MassDOT: State-wide Transportation Asset Vulnerability Assessment (inland flooding).	3-5 years	High
Executive Office of Administration and Finance	Division of Capital Asset Management and Maintenance (DCAMM)	DCAMM: Incorporate hazard and climate change vulnerability into capital planning, master planning, and facilities management functions.	Greater than 5 years	High
Executive Office of Energy and Environmental Affairs	Department of Conservation and Recreation (DCR)	DCR: Develop strategy to implement priority DCR infrastructure projects in its Coastal Inventory.	Greater than 5 years	Medium
Executive Office of Energy and Environmental Affairs	Department of Conservation and Recreation (DCR)	DCR: Revise current review procedures for DCR-managed dams and other flood control structures to incorporate climate change data.	Greater than 5 years	High
Executive Office of Energy and Environmental Affairs	Department of Conservation and Recreation (DCR)	DCR: Work in strong coordination with EOEEA to monitor coastal shoreline sediment migration.	Greater than 5 years	Medium
Executive Office of Energy and Environmental Affairs	Department of Environmental Protection (DEP)	DEP: Enhance the Water Utility Resilience Program (WURP).	Greater than 5 years	High
Executive Office of Energy and Environmental Affairs	Department of Public Utilities (DPU)	DPU: Facilitate a program for sharing resources between municipalities for tree maintenance.	Greater than 5 years	Medium
Executive Office of Energy and Environmental Affairs	Department of Public Utilities (DPU)	DPU: Review storm preparedness best practices from other regional distribution systems.	Greater than 5 years	High

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Goal 2: Reduce the impacts of natural hazards and climate change with forward-looking policies, plans, and regulations.				
Executive Office:	Agency:	Action:	Completion Time Frame:	Agency Priority Score:
Executive Office of Energy and Environmental Affairs	Department of Public Utilities (DPU)	DPU: Regional power grid planning and incorporation of climate change data.	Greater than 5 years	Medium
Executive Office of Energy and Environmental Affairs	Division of Ecological Restoration (DER)	DER: Develop an implementation plan to build municipal capacity to replace undersized, deteriorated culverts with larger, safer structures that are resilient to extreme storms and provide passage for fish and wildlife.	Greater than 5 years	Very High
Executive Office of Energy and Environmental Affairs	Division of Ecological Restoration (DER)	DER: Restore streamflow to flow-stressed rivers to increase resiliency for aquatic ecosystems and for water supplies.	Greater than 5 years	Medium
Executive Office of Energy and Environmental Affairs	Division of Fisheries and Wildlife (MassWildlife)	MassWildlife: Mapping and control of invasive plant species.	Greater than 5 years	Medium
Executive Office of Energy and Environmental Affairs	Executive Office of Energy and Environmental Affairs (EOEEA)	EOEEA: Utilize available climate change projections and risk assessment data to assess vulnerabilities of all EOEEA properties. Support efforts across the administration to assess facilities held by other Executive Offices.	Greater than 5 years	High
Executive Office of Energy and Environmental Affairs	Executive Office of Energy and Environmental Affairs (EOEEA)	EOEEA: Accelerate implementation of priority actions identified through the Municipal Vulnerability Preparedness (MVP) program, increase municipal participation in planning program, conduct program review and revise planning and action grant program as needed.	Greater than 5 years	High
Executive Office of Energy and Environmental Affairs	Executive Office of Energy and Environmental Affairs (EOEEA)	EOEEA: Based on results of vulnerability assessment for EOEEA properties and vulnerability assessments from other agencies, use climate change projections to develop stormwater management actions and projects.	Greater than 5 years	Medium
Executive Office of Health and Human Services	Department of Public Health (DPH)	DPH: Strengthen DPH health care systems and services to prepare for climate impacts.	Greater than 5 years	High
Executive Office of Health and Human Services	Department of Public Health (DPH)	DPH: Strengthen environmental health programs to respond to climate-related impacts.	Greater than 5 years	Very High
Executive Office of Housing and Economic Development	Massachusetts Permit Regulatory Office (MPRO)	MPRO: Review Chapter 40A and existing regulatory framework to evaluate incorporation of feasibility and practicality of climate change hazard mitigation measures.	Greater than 5 years	Medium
Executive Office of Public Safety and Security	Executive Office of Public Safety and Security (EOPSS)	EOPSS: Incorporate climate change resilience into business continuity planning for state government.	Greater than 5 years	High
Executive Office of Public Safety and Security	Massachusetts Emergency Management Agency (MEMA)	MEMA: Update the State Hazard Mitigation and Climate Adaptation Plan and submit for FEMA review and approval every 5 years.	Greater than 5 years	Very High

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Goal 2: Reduce the impacts of natural hazards and climate change with forward-looking policies, plans, and regulations.				
Executive Office:	Agency:	Action:	Completion Time Frame:	Agency Priority Score:
Executive Office of Public Safety and Security	Massachusetts Emergency Management Agency (MEMA)	MEMA: Encourage state granting agencies in the Commonwealth, such as the Massachusetts Department of Housing and Community Development’s review of Community Development Block Grants, to work together with MEMA to assist in providing the Non-federal cost share in Disaster Recovery and Hazard Mitigation Grants to maximize the federal funding available to the Commonwealth and its communities.	Greater than 5 years	High
Executive Office of Public Safety and Security	Massachusetts Emergency Management Agency (MEMA)	MEMA: Enhance the effectiveness of 406 funding by working to further integrate mitigation into the FEMA Public Assistance Program.	Greater than 5 years	High
Executive Office of Technology Services and Security	Executive Office of Technology Services and Security (EOTSS)	EOTSS: Migrate Beacon, Meditech and FamilyNet to the cloud.	Greater than 5 years	High
Executive Office of Technology Services and Security	Executive Office of Technology Services and Security (EOTSS)	EOTSS: For Registry of Motor Vehicle systems that must remain on-premises (not cloud), evaluate migration options or relocations to third party on premises.	Greater than 5 years	High
Executive Office of Technology Services and Security	Executive Office of Technology Services and Security (EOTSS)	EOTSS: Re-platform MA21 and MMIS to enable cloud migration.	Greater than 5 years	High
Massachusetts Department of Transportation	Massachusetts Bay Transit Authority (MBTA)	MBTA: Incorporate climate resiliency into capital planning activities.	Greater than 5 years	Very High
Massachusetts Department of Transportation	Massachusetts Bay Transit Authority (MBTA)	MBTA: Complete system-wide vulnerability assessment.	Greater than 5 years	Very High
Massachusetts Department of Transportation	Massachusetts Department of Transportation (MassDOT)	MassDOT: Expand and improve the Boston Harbor Flood Risk Model to create the Massachusetts Coastal Flood Risk Model.	Greater than 5 years	High
Massachusetts Department of Transportation	Massachusetts Department of Transportation (MassDOT)	MassDOT: Utilize the Boston Harbor Flood Risk Model and data from the vulnerability assessments to identify current and future high risk areas and strengthen emergency management with local, state and federal agencies.	Greater than 5 years	High
Massachusetts Department of Transportation	Massachusetts Department of Transportation (MassDOT)	MassDOT: Assess the feasibility of recommendations from the Commission on the Future of Transportation in the Commonwealth.	Greater than 5 years	High

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Goal 2: Reduce the impacts of natural hazards and climate change with forward-looking policies, plans, and regulations.				
Executive Office:	Agency:	Action:	Completion Time Frame:	Agency Priority Score:
Massachusetts Department of Transportation	Massachusetts Department of Transportation (MassDOT)	MassDOT: Capture and document institutional knowledge on vulnerabilities from staff using the Mapping Our Vulnerable Infrastructure Tool (MOVIT).	Greater than 5 years	Medium
Massachusetts Department of Transportation	Massachusetts Department of Transportation (MassDOT)	MassDOT: Coordinate with state and federal agencies to evaluate environmental regulation and permitting processes to address current roadblocks in climate change.	Greater than 5 years	High
Massachusetts Department of Transportation	Massachusetts Department of Transportation (MassDOT)	MassDOT: Develop climate change adaptation design guidance and provide resources and training for project managers and design teams on bridge and culvert design interaction with emerging fluvial geomorphology practices.	Greater than 5 years	High
Massachusetts Department of Transportation	Massachusetts Department of Transportation (MassDOT)	MassDOT: Incorporate climate change adaptation into the MassDOT Highway Division Transportation Asset Management Plan and coordinate Asset Management across divisions and partner agencies.	Greater than 5 years	High
Massachusetts Department of Transportation	Massachusetts Department of Transportation (MassDOT)	MassDOT: Incorporate resiliency review items into the Early Environmental Coordination Checklist.	Greater than 5 years	High
Massachusetts Department of Transportation	Massachusetts Department of Transportation (MassDOT)	MassDOT: Leverage permit granting authority and ability to influence M.G.L. Section 61 findings and mitigation.	Greater than 5 years	High
Massachusetts Department of Transportation	Massachusetts Department of Transportation (MassDOT)	MassDOT: Require a holistic evaluation of all vulnerability, environmental, transportation and social data sets in the earliest project planning phases.	Greater than 5 years	High

Table D-6: Goal 3 Actions

Goal 3: Understand our vulnerabilities and risks and develop immediate and long-term risk reduction strategies for current and future conditions using the best available science.				
Executive Office:	Agency:	Action:	Completion Time Frame:	Agency Priority Score:
Executive Office of Energy and Environmental Affairs	Department of Conservation and Recreation (DCR)	DCR: Update the State Forest Action Plan to enhance climate change mitigation and adaptation strategies.	Less than 3 years	Medium
Executive Office of Energy and Environmental Affairs	Department of Environmental Protection (DEP)	DEP: Vulnerability assessment of hazardous waste sites.	Less than 3 years	Medium
Executive Office of Energy and Environmental Affairs	Division of Ecological Restoration (DER)	DER: Update and share a dam removal decision support tool that directly incorporates new climate change projections, climate adaptation benefits and helps municipalities and others prioritize dams for removal.	Less than 3 years	Medium
Executive Office of Energy and Environmental Affairs	Executive Office of Energy and Environmental Affairs (EOEEA)	EOEEA: Reassess and develop a climate change resiliency framework and criteria for all EOEEA agency land acquisition and grant funding for land acquisition to support natural resource conservation, wildlife, human health and public safety.	Less than 3 years	High
Executive Office of Health and Human Services	Department of Public Health (DPH)	DPH: Provide support and direct care to vulnerable populations susceptible to climate change impacts.	Less than 3 years	High
Executive Office of Housing and Economic Development	Executive Office of Housing and Economic Development (EOHED)	EOHED: Incorporate climate change resilience/adaptation standards into grant programs including MassWorks.	Less than 3 years	Very High
Executive Office of Labor	Department of Labor Standards (DLS)	DLS: Review and consider updates to MASSsafetyWorks! resources given increased expectations of extreme weather events.	Less than 3 years	Low
Executive Office of Public Safety and Security	Massachusetts Emergency Management Agency (MEMA)	MEMA: Apply for available federal HMA funding to implement and update the completed and approved multi-jurisdictional and local hazard mitigation plans.	Less than 3 years	High
Executive Office of Public Safety and Security	Massachusetts Emergency Management Agency (MEMA)	MEMA: Plan and host hazard mitigation grant workshops for state agencies and local governments after natural disasters, especially immediately following Presidential Disaster Declarations.	Less than 3 years	High
Executive Office of Public Safety and Security	Massachusetts Emergency Management Agency (MEMA)	MEMA: Create an Earthquake Risk Reduction Program.	Less than 3 years	Medium
Executive Office of Technology Services and Security	Executive Office of Technology Services and Security (EOTSS)	EOTSS: Migrate CommVault to the cloud.	Less than 3 years	High

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Goal 3: Understand our vulnerabilities and risks and develop immediate and long-term risk reduction strategies for current and future conditions using the best available science.				
Executive Office:	Agency:	Action:	Completion Time Frame:	Agency Priority Score:
Executive Office of Technology Services and Security	Executive Office of Technology Services and Security (EOTSS)	EOTSS: Migrate critical operational systems to the cloud (MITC); move critical communications infrastructure to Markley.	Less than 3 years	High
Executive Office of Technology Services and Security	Executive Office of Technology Services and Security (EOTSS)	EOTSS: Migrate email to the cloud.	Less than 3 years	High
Massachusetts Department of Transportation	Massachusetts Department of Transportation (MassDOT)	MassDOT: Incorporate climate resiliency into capital planning activities.	Less than 3 years	Very High
Executive Office of Administration and Finance	Human Resources Division (HRD)	HRD: Incorporate hazard and climate change vulnerability into personnel and workplace policies, training, and guidance as appropriate.	3-5 years	Medium
Executive Office of Energy and Environmental Affairs	Department of Conservation and Recreation (DCR)	DCR: Incorporate climate vulnerability in all planning efforts.	3-5 years	High
Executive Office of Energy and Environmental Affairs	Department of Environmental Protection (DEP)	DEP: Improve Mapping to Enhance Resilience and Emergency Preparedness of Water Utilities.	3-5 years	High
Executive Office of Energy and Environmental Affairs	Department of Environmental Protection (DEP)	DEP: Promulgate wetlands regulations to establish performance standards for work in land subject to coastal storm flowage.	3-5 years	High
Executive Office of Energy and Environmental Affairs	Department of Environmental Protection (DEP)	DEP: Update precipitation data used by wetlands program.	3-5 years	High
Executive Office of Energy and Environmental Affairs	Department of Environmental Protection (DEP)	DEP: Develop a Statewide River Hydraulic Model.	3-5 years	Medium
Executive Office of Energy and Environmental Affairs	Department of Environmental Protection (DEP)	DEP: Develop Future Extreme River Flow Projections.	3-5 years	High
Executive Office of Energy and Environmental Affairs	Department of Environmental Protection (DEP)	DEP: Regional water quality monitoring initiative.	3-5 years	Medium
Executive Office of Energy and Environmental Affairs	Department of Public Utilities (DPU)	DPU: Power system planning that incorporates climate change risk.	3-5 years	High

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Goal 3: Understand our vulnerabilities and risks and develop immediate and long-term risk reduction strategies for current and future conditions using the best available science.				
Executive Office:	Agency:	Action:	Completion Time Frame:	Agency Priority Score:
Executive Office of Energy and Environmental Affairs	Division of Ecological Restoration (DER)	DER: Develop a prioritization and implementation strategy for barrier removal on cold water streams most impacted by warming temperatures to allow climate adaptation and habitat restoration.	3-5 years	Very High
Executive Office of Energy and Environmental Affairs	Division of Ecological Restoration (DER)	DER: Develop an implementation plan to reprioritize and accelerate tidal wetland restoration for climate adaptation and habitat restoration.	3-5 years	High
Executive Office of Energy and Environmental Affairs	Division of Ecological Restoration (DER)	DER: Develop an implementation plan to complete priority water quality restoration projects for climate adaptation and habitat restoration.	3-5 years	Medium
Executive Office of Energy and Environmental Affairs	Division of Ecological Restoration (DER)	DER: In support of EOEEA's efforts on MVP, build the capacity of regional organizations to implement climate adaptation and habitat restoration at the local level.	3-5 years	High
Executive Office of Energy and Environmental Affairs	Division of Fisheries and Wildlife (MassWildlife)	MassWildlife: Evaluation of climate change impacts on common species.	3-5 years	Low
Executive Office of Energy and Environmental Affairs	Division of Fisheries and Wildlife (MassWildlife)	MassWildlife: Updates to BioMap2.	3-5 years	High
Executive Office of Energy and Environmental Affairs	Division of Fisheries and Wildlife (MassWildlife)	MassWildlife: Evaluation of shifts in habitats and species distributions	3-5 years	Medium
Executive Office of Energy and Environmental Affairs	Division of Fisheries and Wildlife (MassWildlife)	MassWildlife: In partnership with CZM, improve management of beach nourishment projects and other shoreline protection strategies and incorporate habitat considerations into coastal storm disaster response habitat and infrastructure on barrier beaches.	3-5 years	Medium
Executive Office of Energy and Environmental Affairs	Executive Office of Energy and Environmental Affairs (EOEEA)	EOEEA: Update and maintain the resilientMA.org climate change clearinghouse site to include a Vulnerability Assessment Wizard for MVP communities, a clearinghouse to grant programs to fund MVP actions, and a dynamic version of the SHMCAP.	3-5 years	High
Executive Office of Energy and Environmental Affairs	Executive Office of Energy and Environmental Affairs (EOEEA)	EOEEA: Incorporate information on climate change risk and vulnerability from the SHMCAP and subsequent studies into all capital budget planning.	3-5 years	High
Executive Office of Energy and Environmental Affairs	Executive Office of Energy and Environmental Affairs (EOEEA)	EOEEA: In consultation with DCAMM, MassDOT, and EOHEd develop climate change design standards.	3-5 years	Medium

Goal 3: Understand our vulnerabilities and risks and develop immediate and long-term risk reduction strategies for current and future conditions using the best available science.				
Executive Office:	Agency:	Action:	Completion Time Frame:	Agency Priority Score:
Executive Office of Health and Human Services	Department of Public Health (DPH)	DPH: Update and expand DPH and DPH provider/vendor Emergency Operations Plans (EOPs) and Continuity of Operations Plans (COOPs) to address climate impacts.	3-5 years	Very High
Executive Office of Housing and Economic Development	Office of Public Safety and Inspections (OPSI)	OPSI: Voluntary resilience audits for private property.	3-5 years	Medium
Executive Office of Public Safety and Security	Executive Office of Public Safety and Security (EOPSS)	EOPSS: Create a statewide Threat and Hazard Identification and Risk Assessment (THIRA). In conjunction with the development of the THIRA conduct a statewide capabilities gap assessment.	3-5 years	Medium
Executive Office of Public Safety and Security	Massachusetts Emergency Management Agency (MEMA)	MEMA: Build out a mechanism to incorporate new data and recommendations from the FEMA-approved regional and local mitigation plans into the SHMCAP, ArcGIS online and/or Climate Clearinghouse, especially locations of critical facilities and assessments of vulnerability and estimates of potential losses by jurisdiction.	3-5 years	Medium
Executive Office of Public Safety and Security	Massachusetts Emergency Management Agency (MEMA)	MEMA: Partner with stakeholders in Massachusetts to develop and implement regional and local multi-hazard mitigation plans by providing training and technical assistance.	3-5 years	Medium
Executive Office of Public Safety and Security	Massachusetts Emergency Management Agency (MEMA)	MEMA: Perform a statewide risk analysis for all hazards to include in future updates to this state hazard mitigation plan and other related plans. Address data deficiencies and improve analysis, when available, by partnering with federal, state, local, and other subject matter experts.	3-5 years	Very High
Executive Office of Technology Services and Security	Executive Office of Technology Services and Security (EOTSS)	EOTSS: Migrate HRCMS/MMARS to the cloud.	3-5 years	High
Massachusetts Department of Transportation	Massachusetts Department of Transportation (MassDOT)	MassDOT: Pilot Deerfield Watershed Stream Crossing Resilience Project.	3-5 years	High
Massachusetts Department of Transportation	Massachusetts Department of Transportation (MassDOT)	MassDOT: Incremental Development of Resiliency-Oriented Design Guidelines.	3-5 years	High
Massachusetts Department of Transportation	Massachusetts Department of Transportation (MassDOT)	MassDOT: State-wide Transportation Asset Vulnerability Assessment (inland flooding).	3-5 years	High

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Goal 3: Understand our vulnerabilities and risks and develop immediate and long-term risk reduction strategies for current and future conditions using the best available science.				
Executive Office:	Agency:	Action:	Completion Time Frame:	Agency Priority Score:
Executive Office of Administration and Finance	Division of Capital Asset Management and Maintenance (DCAMM)	DCAMM: Incorporate hazard and climate change vulnerability into capital planning, master planning, and facilities management functions.	Greater than 5 years	High
Executive Office of Education	Executive Office of Education (EOE)	EOE: Review and recommend standards for the safety and health of students in the Commonwealth informed by climate science.	Greater than 5 years	Low
Executive Office of Energy and Environmental Affairs	Department of Conservation and Recreation (DCR)	DCR: Work in strong coordination with EOEEA to monitor coastal shoreline sediment migration.	Greater than 5 years	Medium
Executive Office of Energy and Environmental Affairs	Department of Energy Resources (DOER)	DOER: Build energy resiliency.	Greater than 5 years	High
Executive Office of Energy and Environmental Affairs	Department of Environmental Protection (DEP)	DEP: Enhance the Water Utility Resilience Program (WURP).	Greater than 5 years	High
Executive Office of Energy and Environmental Affairs	Department of Environmental Protection (DEP)	DEP: Implement Updated Stream crossing culvert replacement guidance.	Greater than 5 years	High
Executive Office of Energy and Environmental Affairs	Department of Public Utilities (DPU)	DPU: Facilitate a program for sharing resources between municipalities for tree maintenance.	Greater than 5 years	Medium
Executive Office of Energy and Environmental Affairs	Department of Public Utilities (DPU)	DPU: Review storm preparedness best practices from other regional distribution systems.	Greater than 5 years	High
Executive Office of Energy and Environmental Affairs	Department of Public Utilities (DPU)	DPU: Regional power grid planning and incorporation of climate change data.	Greater than 5 years	Medium
Executive Office of Energy and Environmental Affairs	Division of Ecological Restoration (DER)	DER: Develop an implementation strategy and updated prioritization scheme to work with federal, state, and local partners and non-profit organizations to remove unwanted state-owned dams to reduce risk, increase resilience to extreme weather and climate change, and restore aquatic habitat.	Greater than 5 years	Medium
Executive Office of Energy and Environmental Affairs	Division of Ecological Restoration (DER)	DER: Develop an implementation strategy for retired cranberry bog restoration for climate adaptation and habitat restoration by working with landowners, federal, state, and local partners and non-profit partners for climate resiliency, habitat quality, flood and water quality protection, and wildlife.	Greater than 5 years	Medium
Executive Office of Energy and Environmental Affairs	Division of Ecological Restoration (DER)	DER: Develop an implementation plan to build municipal capacity to replace undersized, deteriorated culverts with larger, safer structures that are resilient to extreme storms and provide passage for fish and wildlife.	Greater than 5 years	Very High

Goal 3: Understand our vulnerabilities and risks and develop immediate and long-term risk reduction strategies for current and future conditions using the best available science.				
Executive Office:	Agency:	Action:	Completion Time Frame:	Agency Priority Score:
Executive Office of Energy and Environmental Affairs	Division of Ecological Restoration (DER)	DER: Restore streamflow to flow-stressed rivers to increase resiliency for aquatic ecosystems and for water supplies.	Greater than 5 years	Medium
Executive Office of Energy and Environmental Affairs	Division of Fisheries and Wildlife (MassWildlife)	MassWildlife: Mapping and control of invasive plant species.	Greater than 5 years	Medium
Executive Office of Energy and Environmental Affairs	Division of Fisheries and Wildlife (MassWildlife)	MassWildlife: Identification of areas with high native aquatic biodiversity to help prioritize aquatic adaptation actions as the climate changes.	Greater than 5 years	Medium
Executive Office of Energy and Environmental Affairs	Division of Fisheries and Wildlife (MassWildlife)	MassWildlife: Identification of cold water climate refugia and transitional waters for protections of CFRs.	Greater than 5 years	Medium
Executive Office of Energy and Environmental Affairs	Executive Office of Energy and Environmental Affairs (EOEEA)	EOEEA: Review, evaluate, and implement revisions as needed to environmental and energy policies, regulations, and plans.	Greater than 5 years	High
Executive Office of Energy and Environmental Affairs	Executive Office of Energy and Environmental Affairs (EOEEA)	EOEEA: Review habitat management, land stewardship, coastal zone management, agricultural and invasive species programs and policies to develop strategies that promote coordination among agencies and support climate change adaptation and mitigation goals.	Greater than 5 years	High
Executive Office of Energy and Environmental Affairs	Executive Office of Energy and Environmental Affairs (EOEEA)	EOEEA: Utilize available climate change projections and risk assessment data to assess vulnerabilities of all EOEEA properties. Support efforts across the administration to assess facilities held by other Executive Offices.	Greater than 5 years	High
Executive Office of Energy and Environmental Affairs	Executive Office of Energy and Environmental Affairs (EOEEA)	EOEEA: Accelerate implementation of priority actions identified through the Municipal Vulnerability Preparedness (MVP) program, increase municipal participation in planning program, conduct program review and revise planning and action grant program as needed.	Greater than 5 years	High
Executive Office of Health and Human Services	Department of Public Health (DPH)	DPH: Strengthen DPH health care systems and services to prepare for climate impacts.	Greater than 5 years	High
Executive Office of Health and Human Services	Department of Public Health (DPH)	DPH: Strengthen environmental health programs to respond to climate-related impacts.	Greater than 5 years	Very High
Executive Office of Public Safety and Security	Massachusetts Emergency Management Agency (MEMA)	MEMA: Update the State Hazard Mitigation and Climate Adaptation Plan and submit for FEMA review and approval every 5 years.	Greater than 5 years	Very High

Goal 3: Understand our vulnerabilities and risks and develop immediate and long-term risk reduction strategies for current and future conditions using the best available science.				
Executive Office:	Agency:	Action:	Completion Time Frame:	Agency Priority Score:
Executive Office of Public Safety and Security	Massachusetts Emergency Management Agency (MEMA)	MEMA: Encourage state granting agencies in the Commonwealth, such as the Massachusetts Department of Housing and Community Development’s review of Community Development Block Grants, to work together with MEMA to assist in providing the Non-federal cost share in Disaster Recovery and Hazard Mitigation Grants to maximize the federal funding available to the Commonwealth and its communities.	Greater than 5 years	High
Executive Office of Public Safety and Security	Massachusetts Emergency Management Agency (MEMA)	MEMA: Work with communities to implement cost-effective, environmentally sound, and feasible mitigation projects to severe repetitive loss properties.	Greater than 5 years	High
Executive Office of Technology Services and Security	Executive Office of Technology Services and Security (EOTSS)	EOTSS: Migrate Beacon, Meditech and FamilyNet to the cloud.	Greater than 5 years	High
Executive Office of Technology Services and Security	Executive Office of Technology Services and Security (EOTSS)	EOTSS: For Registry of Motor Vehicle systems that must remain on-premises (not cloud), evaluate migration options or relocations to third party on premises.	Greater than 5 years	High
Executive Office of Technology Services and Security	Executive Office of Technology Services and Security (EOTSS)	EOTSS: Re-platform MA21 and MMIS to enable cloud migration.	Greater than 5 years	High
Massachusetts Department of Transportation	Massachusetts Bay Transit Authority (MBTA)	MBTA: Incorporate climate resiliency into capital planning activities.	Greater than 5 years	Very High
Massachusetts Department of Transportation	Massachusetts Bay Transit Authority (MBTA)	MBTA: Complete system-wide vulnerability assessment.	Greater than 5 years	Very High
Massachusetts Department of Transportation	Massachusetts Department of Transportation (MassDOT)	MassDOT: Expand and improve the Boston Harbor Flood Risk Model to create the Massachusetts Coastal Flood Risk Model.	Greater than 5 years	High
Massachusetts Department of Transportation	Massachusetts Department of Transportation (MassDOT)	MassDOT: Utilize the Boston Harbor Flood Risk Model and data from the vulnerability assessments to identify current and future high risk areas and strengthen emergency management with local, state and federal agencies.	Greater than 5 years	High
Massachusetts Department of Transportation	Massachusetts Department of Transportation (MassDOT)	MassDOT: Assess the feasibility of recommendations from the Commission on the Future of Transportation in the Commonwealth.	Greater than 5 years	High

Goal 3: Understand our vulnerabilities and risks and develop immediate and long-term risk reduction strategies for current and future conditions using the best available science.				
Executive Office:	Agency:	Action:	Completion Time Frame:	Agency Priority Score:
Massachusetts Department of Transportation	Massachusetts Department of Transportation (MassDOT)	MassDOT: Capture and document institutional knowledge on vulnerabilities from staff using the Mapping Our Vulnerable Infrastructure Tool (MOVIT).	Greater than 5 years	Medium
Massachusetts Department of Transportation	Massachusetts Department of Transportation (MassDOT)	MassDOT: Coordinate with state and federal agencies to evaluate environmental regulation and permitting processes to address current roadblocks in climate change.	Greater than 5 years	High
Massachusetts Department of Transportation	Massachusetts Department of Transportation (MassDOT)	MassDOT: Develop climate change adaptation design guidance and provide resources and training for project managers and design teams on bridge and culvert design interaction with emerging fluvial geomorphology practices.	Greater than 5 years	High
Massachusetts Department of Transportation	Massachusetts Department of Transportation (MassDOT)	MassDOT: Incorporate climate change adaptation into the MassDOT Highway Division Transportation Asset Management Plan and coordinate Asset Management across divisions and partner agencies.	Greater than 5 years	High
Massachusetts Department of Transportation	Massachusetts Department of Transportation (MassDOT)	MassDOT: Incorporate resiliency review items into the Early Environmental Coordination Checklist.	Greater than 5 years	High
Massachusetts Department of Transportation	Massachusetts Department of Transportation (MassDOT)	MassDOT: Leverage permit granting authority and ability to influence M.G.L. Section 61 findings and mitigation.	Greater than 5 years	High
Massachusetts Department of Transportation	Massachusetts Department of Transportation (MassDOT)	MassDOT: Require a holistic evaluation of all vulnerability, environmental, transportation and social data sets in the earliest project planning phases.	Greater than 5 years	High

Table D-7: Goal 4 Actions

Goal 4: Increase the resilience of State and local government, people, natural systems, the built environment, and the economy by investing in performance-based solutions.				
Executive Office:	Agency:	Action:	Completion Time Frame:	Agency Priority Score:
Executive Office of Energy and Environmental Affairs	Department of Conservation and Recreation (DCR)	DCR: Track and assess asset vulnerability by adding climate change/resiliency categories as part of the Asset Management Modernization Project.	Less than 3 years	High
Executive Office of Energy and Environmental Affairs	Division of Ecological Restoration (DER)	DER: Update and share a dam removal decision support tool that directly incorporates new climate change projections, climate adaptation benefits and helps municipalities and others prioritize dams for removal.	Less than 3 years	Medium
Executive Office of Health and Human Services	Department of Public Health (DPH)	DPH: Provide support and direct care to vulnerable populations susceptible to climate change impacts.	Less than 3 years	High
Executive Office of Housing and Economic Development	Executive Office of Housing and Economic Development (EOHED)	EOHED: Incorporate climate change resilience/adaptation standards into grant programs including MassWorks.	Less than 3 years	Very High
Executive Office of Public Safety and Security	Massachusetts Emergency Management Agency (MEMA)	MEMA: Apply for available federal HMA funding to implement and update the completed and approved multi-jurisdictional and local hazard mitigation plans.	Less than 3 years	High
Executive Office of Public Safety and Security	Massachusetts Emergency Management Agency (MEMA)	MEMA: Plan and host hazard mitigation grant workshops for state agencies and local governments after natural disasters, especially immediately following Presidential Disaster Declarations.	Less than 3 years	High
Massachusetts Department of Transportation	Massachusetts Department of Transportation (MassDOT)	MassDOT: Incorporate climate resiliency into capital planning activities.	Less than 3 years	Very High
Executive Office of Administration and Finance	Human Resources Division (HRD)	HRD: Incorporate hazard and climate change vulnerability into personnel and workplace policies, training, and guidance as appropriate.	3-5 years	Medium
Executive Office of Energy and Environmental Affairs	Department of Conservation and Recreation (DCR)	DCR: Upgrade and strengthen control systems for both the New Charles River and Amelia Earhart dams.	3-5 years	Very High
Executive Office of Energy and Environmental Affairs	Department of Environmental Protection (DEP)	DEP: Improve Mapping to Enhance Resilience and Emergency Preparedness of Water Utilities.	3-5 years	High
Executive Office of Energy and Environmental Affairs	Department of Environmental Protection (DEP)	DEP: Promulgate wetlands regulations to establish performance standards for work in land subject to coastal storm flowage.	3-5 years	High
Executive Office of Energy and Environmental Affairs	Department of Public Utilities (DPU)	DPU: Power system planning that incorporates climate change risk.	3-5 years	High

Goal 4: Increase the resilience of State and local government, people, natural systems, the built environment, and the economy by investing in performance-based solutions.				
Executive Office:	Agency:	Action:	Completion Time Frame:	Agency Priority Score:
Executive Office of Energy and Environmental Affairs	Division of Ecological Restoration (DER)	DER: Develop a prioritization and implementation strategy for barrier removal on cold water streams most impacted by warming temperatures to allow climate adaptation and habitat restoration.	3-5 years	Very High
Executive Office of Energy and Environmental Affairs	Division of Ecological Restoration (DER)	DER: Develop an implementation plan to reprioritize and accelerate tidal wetland restoration for climate adaptation and habitat restoration.	3-5 years	High
Executive Office of Energy and Environmental Affairs	Division of Ecological Restoration (DER)	DER: Develop an implementation plan to complete priority water quality restoration projects for climate adaptation and habitat restoration.	3-5 years	Medium
Executive Office of Energy and Environmental Affairs	Division of Ecological Restoration (DER)	DER: In support of EOEEA's efforts on MVP, build the capacity of regional organizations to implement climate adaptation and habitat restoration at the local level.	3-5 years	High
Executive Office of Energy and Environmental Affairs	Division of Fisheries and Wildlife (MassWildlife)	MassWildlife: Study impact of climate change on fish hatcheries held by MassWildlife.	3-5 years	Low
Executive Office of Energy and Environmental Affairs	Executive Office of Energy and Environmental Affairs (EOEEA)	EOEEA: Incorporate information on climate change risk and vulnerability from the SHMCAP and subsequent studies into all capital budget planning.	3-5 years	High
Executive Office of Energy and Environmental Affairs	Executive Office of Energy and Environmental Affairs (EOEEA)	EOEEA: In consultation with DCAMM, MassDOT, and EOHED develop climate change design standards.	3-5 years	Medium
Executive Office of Health and Human Services	Department of Public Health (DPH)	DPH: Update and expand DPH and DPH provider/vendor Emergency Operations Plans (EOPs) and Continuity of Operations Plans (COOPs) to address climate impacts.	3-5 years	Very High
Executive Office of Public Safety and Security	Massachusetts Emergency Management Agency (MEMA)	MEMA: Partner with stakeholders in Massachusetts to develop and implement regional and local multi-hazard mitigation plans by providing training and technical assistance.	3-5 years	Medium
Massachusetts Department of Transportation	Massachusetts Department of Transportation (MassDOT)	MassDOT: Pilot Deerfield Watershed Stream Crossing Resilience Project.	3-5 years	High
Massachusetts Department of Transportation	Massachusetts Department of Transportation (MassDOT)	MassDOT: Incremental Development of Resiliency-Oriented Design Guidelines.	3-5 years	High

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Goal 4: Increase the resilience of State and local government, people, natural systems, the built environment, and the economy by investing in performance-based solutions.				
Executive Office:	Agency:	Action:	Completion Time Frame:	Agency Priority Score:
Executive Office of Energy and Environmental Affairs	Department of Conservation and Recreation (DCR)	DCR: Develop strategy to implement priority DCR infrastructure projects in its Coastal Inventory.	Greater than 5 years	Medium
Executive Office of Energy and Environmental Affairs	Department of Conservation and Recreation (DCR)	DCR: Revise current review procedures for DCR-managed dams and other flood control structures to incorporate climate change data.	Greater than 5 years	High
Executive Office of Energy and Environmental Affairs	Department of Environmental Protection (DEP)	DEP: Resiliency Grants for Water Infrastructure.	Greater than 5 years	Low
Executive Office of Energy and Environmental Affairs	Department of Environmental Protection (DEP)	DEP: Enhance the Water Utility Resilience Program (WURP).	Greater than 5 years	High
Executive Office of Energy and Environmental Affairs	Department of Environmental Protection (DEP)	DEP: Implement Updated Stream crossing culvert replacement guidance.	Greater than 5 years	High
Executive Office of Energy and Environmental Affairs	Division of Ecological Restoration (DER)	DER: Develop an implementation strategy and updated prioritization scheme to work with federal, state, and local partners and non-profit organizations to remove unwanted state-owned dams to reduce risk, increase resilience to extreme weather and climate change, and restore aquatic habitat.	Greater than 5 years	Medium
Executive Office of Energy and Environmental Affairs	Division of Ecological Restoration (DER)	DER: Develop an implementation strategy for retired cranberry bog restoration for climate adaptation and habitat restoration by working with landowners, federal, state, and local partners and non-profit partners for climate resiliency, habitat quality, flood and water quality protection, and wildlife.	Greater than 5 years	Medium
Executive Office of Energy and Environmental Affairs	Division of Ecological Restoration (DER)	DER: Develop an implementation plan to build municipal capacity to replace undersized, deteriorated culverts with larger, safer structures that are resilient to extreme storms and provide passage for fish and wildlife.	Greater than 5 years	Very High
Executive Office of Energy and Environmental Affairs	Division of Ecological Restoration (DER)	DER: Restore streamflow to flow-stressed rivers to increase resiliency for aquatic ecosystems and for water supplies.	Greater than 5 years	Medium
Executive Office of Energy and Environmental Affairs	Division of Fisheries and Wildlife (MassWildlife)	MassWildlife: Mapping and control of invasive plant species.	Greater than 5 years	Medium
Executive Office of Energy and Environmental Affairs	Division of Fisheries and Wildlife (MassWildlife)	MassWildlife: Dam removals at the Merrill Ponds Wildlife Management Area.	Greater than 5 years	Medium
Executive Office of Energy and Environmental Affairs	Division of Fisheries and Wildlife (MassWildlife)	MassWildlife: Great Marsh Pilot Ditch Remediation Project.	Greater than 5 years	Medium

Goal 4: Increase the resilience of State and local government, people, natural systems, the built environment, and the economy by investing in performance-based solutions.				
Executive Office:	Agency:	Action:	Completion Time Frame:	Agency Priority Score:
Executive Office of Energy and Environmental Affairs	Executive Office of Energy and Environmental Affairs (EOEEA)	EOEEA: Based on results of vulnerability assessment for EOEEA properties and vulnerability assessments from other agencies, use climate change projections to develop stormwater management actions and projects.	Greater than 5 years	Medium
Executive Office of Energy and Environmental Affairs	Executive Office of Energy and Environmental Affairs (EOEEA)	EOEEA: Utilize available climate change projections and risk assessment data to assess vulnerabilities of all EOEEA properties. Support efforts across the administration to assess facilities held by other Executive Offices.	Greater than 5 years	High
Executive Office of Energy and Environmental Affairs	Executive Office of Energy and Environmental Affairs (EOEEA)	EOEEA: Accelerate implementation of priority actions identified through the Municipal Vulnerability Preparedness (MVP) program, increase municipal participation in planning program, conduct program review and revise planning and action grant program as needed.	Greater than 5 years	High
Executive Office of Health and Human Services	Department of Public Health (DPH)	DPH: Strengthen DPH health care systems and services to prepare for climate impacts.	Greater than 5 years	High
Executive Office of Health and Human Services	Department of Public Health (DPH)	DPH: Strengthen environmental health programs to respond to climate-related impacts.	Greater than 5 years	Very High
Executive Office of Housing and Economic Development	Massachusetts Permit Regulatory Office (MPRO)	MPRO: Review Chapter 40A and existing regulatory framework to evaluate incorporation of feasibility and practicality of climate change hazard mitigation measures.	Greater than 5 years	Medium
Executive Office of Public Safety and Security	Massachusetts Emergency Management Agency (MEMA)	MEMA: Update the State Hazard Mitigation and Climate Adaptation Plan and submit for FEMA review and approval every 5 years.	Greater than 5 years	Very High
Executive Office of Public Safety and Security	Massachusetts Emergency Management Agency (MEMA)	MEMA: Encourage state granting agencies in the Commonwealth, such as the Massachusetts Department of Housing and Community Development's review of Community Development Block Grants, to work together with MEMA to assist in providing the Non-federal cost share in Disaster Recovery and Hazard Mitigation Grants to maximize the federal funding available to the Commonwealth and its communities.	Greater than 5 years	High
Executive Office of Public Safety and Security	Massachusetts Emergency Management Agency (MEMA)	MEMA: Work with communities to implement cost-effective, environmentally sound, and feasible mitigation projects to severe repetitive loss properties.	Greater than 5 years	High
Massachusetts Department of Transportation	Massachusetts Bay Transit Authority (MBTA)	MBTA: Incorporate climate resiliency into capital planning activities.	Greater than 5 years	Very High
Massachusetts Department of Transportation	Massachusetts Bay Transit Authority (MBTA)	MBTA: Complete system-wide vulnerability assessment.	Greater than 5 years	Very High

Goal 4: Increase the resilience of State and local government, people, natural systems, the built environment, and the economy by investing in performance-based solutions.				
Executive Office:	Agency:	Action:	Completion Time Frame:	Agency Priority Score:
Massachusetts Department of Transportation	Massachusetts Department of Transportation (MassDOT)	MassDOT: Expand and improve the Boston Harbor Flood Risk Model to create the Massachusetts Coastal Flood Risk Model.	Greater than 5 years	High
Massachusetts Department of Transportation	Massachusetts Department of Transportation (MassDOT)	MassDOT: Utilize the Boston Harbor Flood Risk Model and data from the vulnerability assessments to identify current and future high risk areas and strengthen emergency management with local, state and federal agencies.	Greater than 5 years	High
Massachusetts Department of Transportation	Massachusetts Department of Transportation (MassDOT)	MassDOT: Assess the feasibility of recommendations from the Commission on the Future of Transportation in the Commonwealth.	Greater than 5 years	High
Massachusetts Department of Transportation	Massachusetts Department of Transportation (MassDOT)	MassDOT: Capture and document institutional knowledge on vulnerabilities from staff using the Mapping Our Vulnerable Infrastructure Tool (MOVIT).	Greater than 5 years	Medium
Massachusetts Department of Transportation	Massachusetts Department of Transportation (MassDOT)	MassDOT: Coordinate with state and federal agencies to evaluate environmental regulation and permitting processes to address current roadblocks in climate change.	Greater than 5 years	High
Massachusetts Department of Transportation	Massachusetts Department of Transportation (MassDOT)	MassDOT: Develop climate change adaptation design guidance and provide resources and training for project managers and design teams on bridge and culvert design interaction with emerging fluvial geomorphology practices.	Greater than 5 years	High
Massachusetts Department of Transportation	Massachusetts Department of Transportation (MassDOT)	MassDOT: Incorporate climate change adaptation into the MassDOT Highway Division Transportation Asset Management Plan and coordinate Asset Management across divisions and partner agencies.	Greater than 5 years	High
Massachusetts Department of Transportation	Massachusetts Department of Transportation (MassDOT)	MassDOT: Incorporate resiliency review items into the Early Environmental Coordination Checklist.	Greater than 5 years	High
Massachusetts Department of Transportation	Massachusetts Department of Transportation (MassDOT)	MassDOT: Leverage permit granting authority and ability to influence M.G.L. Section 61 findings and mitigation.	Greater than 5 years	High

Goal 4: Increase the resilience of State and local government, people, natural systems, the built environment, and the economy by investing in performance-based solutions.				
Executive Office:	Agency:	Action:	Completion Time Frame:	Agency Priority Score:
Massachusetts Department of Transportation	Massachusetts Department of Transportation (MassDOT)	MassDOT: Require a holistic evaluation of all vulnerability, environmental, transportation and social data sets in the earliest project planning phases.	Greater than 5 years	High

Table D-8: Goal 5 Actions

Goal 5: Support implementation of this plan through increased education, awareness, and incentives for action for state agencies, local governments, private industry, non-profits, and the general public.				
Executive Office:	Agency:	Action:	Completion Time Frame:	Agency Priority Score:
Executive Office of Health and Human Services	Department of Public Health (DPH)	DPH: Provide support and direct care to vulnerable populations susceptible to climate change impacts.	Less than 3 years	High
Executive Office of Public Safety and Security	Massachusetts Emergency Management Agency (MEMA)	MEMA: Prepare hazard mitigation best practices and case studies.	Less than 3 years	Medium
Executive Office of Labor	Department of Labor Standards (DLS)	DLS: Review and consider updates to MASSsafetyWorks! resources given increased expectations of extreme weather events.	Less than 3 years	Low
Executive Office of Public Safety and Security	Massachusetts Emergency Management Agency (MEMA)	MEMA: Apply for available federal HMA funding to implement and update the completed and approved multi-jurisdictional and local hazard mitigation plans.	Less than 3 years	High
Executive Office of Public Safety and Security	Massachusetts Emergency Management Agency (MEMA)	MEMA: Plan and host hazard mitigation grant workshops for state agencies and local governments after natural disasters, especially immediately following Presidential Disaster Declarations.	Less than 3 years	High
Executive Office of Energy and Environmental Affairs	Executive Office of Energy and Environmental Affairs (EOEEA)	EOEEA: Develop and implement a communications strategy to build state agency, municipal and public awareness of climate change resiliency issues and adaptation strategies.	Less than 3 years	Low
Executive Office of Administration and Finance	Human Resources Division (HRD)	HRD: Incorporate hazard and climate change vulnerability into personnel and workplace policies, training, and guidance as appropriate.	3-5 years	Medium
Executive Office of Energy and Environmental Affairs	Department of Environmental Protection (DEP)	DEP: Improve Mapping to Enhance Resilience and Emergency Preparedness of Water Utilities.	3-5 years	High

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Goal 5: Support implementation of this plan through increased education, awareness, and incentives for action for state agencies, local governments, private industry, non-profits, and the general public.				
Executive Office:	Agency:	Action:	Completion Time Frame:	Agency Priority Score:
Executive Office of Energy and Environmental Affairs	Department of Public Utilities (DPU)	DPU: Power system planning that incorporates climate change risk.	3-5 years	High
Executive Office of Energy and Environmental Affairs	Division of Ecological Restoration (DER)	DER: Develop a prioritization and implementation strategy for barrier removal on cold water streams most impacted by warming temperatures to allow climate adaptation and habitat restoration.	3-5 years	Very High
Executive Office of Energy and Environmental Affairs	Division of Ecological Restoration (DER)	DER: Develop an implementation plan to reprioritize and accelerate tidal wetland restoration for climate adaptation and habitat restoration.	3-5 years	High
Executive Office of Energy and Environmental Affairs	Division of Ecological Restoration (DER)	DER: Develop an implementation plan to complete priority water quality restoration projects for climate adaptation and habitat restoration.	3-5 years	Medium
Executive Office of Energy and Environmental Affairs	Division of Ecological Restoration (DER)	DER: In support of EOEEA's efforts on MVP, build the capacity of regional organizations to implement climate adaptation and habitat restoration at the local level.	3-5 years	High
Executive Office of Housing and Economic Development	Office of Public Safety and Inspections (OPSI)	OPSI: Voluntary resilience audits for private property.	3-5 years	Medium
Executive Office of Health and Human Services	Department of Public Health (DPH)	DPH: Update and expand DPH and DPH provider/vendor Emergency Operations Plans (EOPs) and Continuity of Operations Plans (COOPs) to address climate impacts.	3-5 years	Very High
Executive Office of Public Safety and Security	Massachusetts Emergency Management Agency (MEMA)	MEMA: Build out a mechanism to incorporate new data and recommendations from the FEMA-approved regional and local mitigation plans into the SHMCAP, ArcGIS online and/or Climate Clearinghouse, especially locations of critical facilities and assessments of vulnerability and estimates of potential losses by jurisdiction.	3-5 years	Medium
Executive Office of Public Safety and Security	Massachusetts Emergency Management Agency (MEMA)	MEMA: Partner with stakeholders in Massachusetts to develop and implement regional and local multi-hazard mitigation plans by providing training and technical assistance.	3-5 years	Medium
Massachusetts Department of Transportation	Massachusetts Department of Transportation (MassDOT)	MassDOT: State-wide Transportation Asset Vulnerability Assessment (inland flooding).	3-5 years	High
Executive Office of Education	Executive Office of Education (EOE)	EOE: Review and recommend standards for the safety and health of students in the Commonwealth informed by climate science.	Greater than 5 years	Low
Executive Office of Energy and Environmental Affairs	Department of Environmental Protection (DEP)	DEP: Resiliency Grants for Water Infrastructure.	Greater than 5 years	Low

Goal 5: Support implementation of this plan through increased education, awareness, and incentives for action for state agencies, local governments, private industry, non-profits, and the general public.				
Executive Office:	Agency:	Action:	Completion Time Frame:	Agency Priority Score:
Executive Office of Energy and Environmental Affairs	Department of Environmental Protection (DEP)	DEP: Enhance the Water Utility Resilience Program (WURP).	Greater than 5 years	High
Executive Office of Energy and Environmental Affairs	Department of Public Utilities (DPU)	DPU: Facilitate a program for sharing resources between municipalities for tree maintenance.	Greater than 5 years	Medium
Executive Office of Energy and Environmental Affairs	Department of Public Utilities (DPU)	DPU: Review storm preparedness best practices from other regional distribution systems.	Greater than 5 years	High
Executive Office of Energy and Environmental Affairs	Department of Public Utilities (DPU)	DPU: Regional power grid planning and incorporation of climate change data.	Greater than 5 years	Medium
Executive Office of Energy and Environmental Affairs	Division of Ecological Restoration (DER)	DER: Develop an implementation strategy and updated prioritization scheme to work with federal, state, and local partners and non-profit organizations to remove unwanted state-owned dams to reduce risk, increase resilience to extreme weather and climate change, and restore aquatic habitat.	Greater than 5 years	Medium
Executive Office of Energy and Environmental Affairs	Division of Ecological Restoration (DER)	DER: Develop an implementation strategy for retired cranberry bog restoration for climate adaptation and habitat restoration by working with landowners, federal, state, and local partners and non-profit partners for climate resiliency, habitat quality, flood and water quality protection, and wildlife.	Greater than 5 years	Medium
Executive Office of Energy and Environmental Affairs	Department of Environmental Protection (DEP)	DEP: Demand strategies educational campaign.	Greater than 5 years	Medium
Executive Office of Energy and Environmental Affairs	Division of Ecological Restoration (DER)	DER: Develop an implementation plan to build municipal capacity to replace undersized, deteriorated culverts with larger, safer structures that are resilient to extreme storms and provide passage for fish and wildlife.	Greater than 5 years	Very High
Executive Office of Energy and Environmental Affairs	Division of Ecological Restoration (DER)	DER: Restore streamflow to flow-stressed rivers to increase resiliency for aquatic ecosystems and for water supplies.	Greater than 5 years	Medium
Executive Office of Energy and Environmental Affairs	Executive Office of Energy and Environmental Affairs (EOEEA)	EOEEA: Accelerate implementation of priority actions identified through the Municipal Vulnerability Preparedness (MVP) program, increase municipal participation in planning program, conduct program review and revise planning and action grant program as needed.	Greater than 5 years	High
Executive Office of Health and Human Services	Department of Public Health (DPH)	DPH: Strengthen DPH health care systems and services to prepare for climate impacts.	Greater than 5 years	High

Goal 5: Support implementation of this plan through increased education, awareness, and incentives for action for state agencies, local governments, private industry, non-profits, and the general public.				
Executive Office:	Agency:	Action:	Completion Time Frame:	Agency Priority Score:
Executive Office of Public Safety and Security	Massachusetts Emergency Management Agency (MEMA)	MEMA: Enhance the effectiveness of 406 funding by working to further integrate mitigation into the FEMA Public Assistance Program.	Greater than 5 years	High
Executive Office of Health and Human Services	Department of Public Health (DPH)	DPH: Strengthen environmental health programs to respond to climate-related impacts.	Greater than 5 years	Very High
Executive Office of Housing and Economic Development	Department of Housing and Community Development (DHCD)	DHCD: Facilitate and coordinate development of guidelines and best practices for climate change adaptation and resilience for state-aided housing development.	Greater than 5 years	High
Executive Office of Public Safety and Security	Massachusetts Emergency Management Agency (MEMA)	MEMA: Update the State Hazard Mitigation and Climate Adaptation Plan and submit for FEMA review and approval every 5 years.	Greater than 5 years	Very High
Executive Office of Public Safety and Security	Massachusetts Emergency Management Agency (MEMA)	MEMA: Work with communities to implement cost-effective, environmentally sound, and feasible mitigation projects to severe repetitive loss properties.	Greater than 5 years	High
Massachusetts Department of Transportation	Massachusetts Bay Transit Authority (MBTA)	MBTA: Incorporate climate resiliency into capital planning activities.	Greater than 5 years	Very High
Massachusetts Department of Transportation	Massachusetts Bay Transit Authority (MBTA)	MBTA: Complete system-wide vulnerability assessment.	Greater than 5 years	Very High

3.2.2 Actions Sorted by Climate Change Vulnerability

Table D-9: Precipitation Changes Actions

Executive Office:	Agency:	Action:	Completion Time Frame:	Agency Priority Score:
Executive Office of Energy and Environmental Affairs	Department of Conservation and Recreation (DCR)	DCR: Update the State Forest Action Plan to enhance climate change mitigation and adaptation strategies.	Less than 3 years	Medium
Executive Office of Energy and Environmental Affairs	Department of Environmental Protection (DEP)	DEP: Vulnerability assessment of hazardous waste sites.	Less than 3 years	Medium
Executive Office of Energy and Environmental Affairs	Department of Conservation and Recreation (DCR)	DCR: Track and assess asset vulnerability by adding climate change/resiliency categories as part of the Asset Management Modernization Project.	Less than 3 years	High
Executive Office of Energy and Environmental Affairs	Division of Ecological Restoration (DER)	DER: Update and share a dam removal decision support tool that directly incorporates new climate change projections, climate adaptation benefits and helps municipalities and others prioritize dams for removal.	Less than 3 years	Medium
Executive Office of Energy and Environmental Affairs	Executive Office of Energy and Environmental Affairs (EOEEA)	EOEEA: Reassess and develop a climate change resiliency framework and criteria for all EOEEA agency land acquisition and grant funding for land acquisition to support natural resource conservation, wildlife, human health and public safety.	Less than 3 years	High
Executive Office of Energy and Environmental Affairs	Executive Office of Energy and Environmental Affairs (EOEEA)	EOEEA: Develop and implement a communications strategy to build state agency, municipal and public awareness of climate change resiliency issues and adaptation strategies.	Less than 3 years	Low
Executive Office of Health and Human Services	Department of Public Health (DPH)	DPH: Provide support and direct care to vulnerable populations susceptible to climate change impacts.	Less than 3 years	High
Executive Office of Housing and Economic Development	Executive Office of Housing and Economic Development (EOHED)	EOHED: Incorporate climate change resilience/adaptation standards into grant programs including MassWorks.	Less than 3 years	Very High
Executive Office of Public Safety and Security	Massachusetts Emergency Management Agency (MEMA)	MEMA: Hire a Disaster Survivor Assistance Planner.	Less than 3 years	Medium
Executive Office of Public Safety and Security	Massachusetts Emergency Management Agency (MEMA)	MEMA: Prepare hazard mitigation best practices and case studies.	Less than 3 years	Medium
Executive Office of Public Safety and Security	Massachusetts Emergency Management Agency (MEMA)	MEMA: Apply for available federal HMA funding to implement and update the completed and approved multi-jurisdictional and local hazard mitigation plans.	Less than 3 years	High

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Executive Office:	Agency:	Action:	Completion Time Frame:	Agency Priority Score:
Executive Office of Public Safety and Security	Massachusetts Emergency Management Agency (MEMA)	MEMA: Plan and host hazard mitigation grant workshops for state agencies and local governments after natural disasters, especially immediately following Presidential Disaster Declarations.	Less than 3 years	High
Executive Office of Technology Services and Security	Executive Office of Technology Services and Security (EOTSS)	EOTSS: Migrate CommVault to the cloud.	Less than 3 years	High
Executive Office of Technology Services and Security	Executive Office of Technology Services and Security (EOTSS)	EOTSS: Migrate critical operational systems to the cloud (MITC); move critical communications infrastructure to Markley.	Less than 3 years	High
Executive Office of Technology Services and Security	Executive Office of Technology Services and Security (EOTSS)	EOTSS: Migrate email to the cloud.	Less than 3 years	High
Massachusetts Department of Transportation	Massachusetts Department of Transportation (MassDOT)	MassDOT: Incorporate climate resiliency into capital planning activities.	Less than 3 years	Very High
Executive Office of Administration and Finance	Executive Office of Administration and Finance (A&F)	A&F: Budgeting, coordinating administrative functions, and planning.	3-5 years	High
Executive Office of Administration and Finance	Human Resources Division (HRD)	HRD: Incorporate hazard and climate change vulnerability into personnel and workplace policies, training, and guidance as appropriate.	3-5 years	Medium
Executive Office of Energy and Environmental Affairs	Department of Conservation and Recreation (DCR)	DCR: Incorporate climate vulnerability in all planning efforts.	3-5 years	High
Executive Office of Energy and Environmental Affairs	Department of Conservation and Recreation (DCR)	DCR: Upgrade and strengthen control systems for both the New Charles River and Amelia Earhart dams.	3-5 years	Very High
Executive Office of Energy and Environmental Affairs	Department of Environmental Protection (DEP)	DEP: Improve Mapping to Enhance Resilience and Emergency Preparedness of Water Utilities.	3-5 years	High
Executive Office of Energy and Environmental Affairs	Department of Environmental Protection (DEP)	DEP: Update precipitation data used by wetlands program.	3-5 years	High
Executive Office of Energy and Environmental Affairs	Department of Environmental Protection (DEP)	DEP: Develop a Statewide River Hydraulic Model.	3-5 years	Medium

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Executive Office:	Agency:	Action:	Completion Time Frame:	Agency Priority Score:
Executive Office of Energy and Environmental Affairs	Department of Environmental Protection (DEP)	DEP: Develop Future Extreme River Flow Projections.	3-5 years	High
Executive Office of Energy and Environmental Affairs	Department of Public Utilities (DPU)	DPU: Power system planning that incorporates climate change risk.	3-5 years	High
Executive Office of Energy and Environmental Affairs	Division of Ecological Restoration (DER)	DER: Develop a prioritization and implementation strategy for barrier removal on cold water streams most impacted by warming temperatures to allow climate adaptation and habitat restoration.	3-5 years	Very High
Executive Office of Energy and Environmental Affairs	Department of Environmental Protection (DEP)	DEP: Regional water quality monitoring initiative.	3-5 years	Medium
Executive Office of Energy and Environmental Affairs	Division of Ecological Restoration (DER)	DER: Develop an implementation plan to reprioritize and accelerate tidal wetland restoration for climate adaptation and habitat restoration.	3-5 years	High
Executive Office of Energy and Environmental Affairs	Department of Environmental Protection (DEP)	DEP: Promulgate wetlands regulations to establish performance standards for work in land subject to coastal storm flowage.	3-5 years	High
Executive Office of Energy and Environmental Affairs	Division of Ecological Restoration (DER)	DER: Develop an implementation plan to complete priority water quality restoration projects for climate adaptation and habitat restoration.	3-5 years	Medium
Executive Office of Housing and Economic Development	Massachusetts Office of Travel and Tourism (MOTT)	MOTT: Research and assess and potential effects of climate change on Commonwealth travel and tourism industry and assets.	3-5 years	Medium
Executive Office of Energy and Environmental Affairs	Division of Ecological Restoration (DER)	DER: In support of EOEEA's efforts on MVP, build the capacity of regional organizations to implement climate adaptation and habitat restoration at the local level.	3-5 years	High
Executive Office of Energy and Environmental Affairs	Division of Fisheries and Wildlife (MassWildlife)	MassWildlife: Work with MassDOT to incorporate habitat and cold water fisheries considerations into MassDOT climate vulnerability assessments, adaptation projects, and community planning tools.	3-5 years	Medium
Executive Office of Energy and Environmental Affairs	Executive Office of Energy and Environmental Affairs (EOEEA)	EOEEA: Create and deploy a SHMCAP project database.	3-5 years	Medium
Executive Office of Energy and Environmental Affairs	Executive Office of Energy and Environmental Affairs (EOEEA)	EOEEA: Maintain and enhance climate change projections and specific climate change data sets to support different groups of end users.	3-5 years	High
Executive Office of Energy and Environmental Affairs	Division of Fisheries and Wildlife (MassWildlife)	MassWildlife: Evaluation of climate change impacts on common species.	3-5 years	Low

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Executive Office:	Agency:	Action:	Completion Time Frame:	Agency Priority Score:
Executive Office of Energy and Environmental Affairs	Executive Office of Energy and Environmental Affairs (EOEEA)	EOEEA: Update and maintain the resilientMA.org climate change clearinghouse site to include a Vulnerability Assessment Wizard for MVP communities, a clearinghouse to grant programs to fund MVP actions, and a dynamic version of the SHMCAP.	3-5 years	High
Executive Office of Energy and Environmental Affairs	Division of Fisheries and Wildlife (MassWildlife)	MassWildlife: Updates to BioMap2.	3-5 years	High
Executive Office of Energy and Environmental Affairs	Division of Fisheries and Wildlife (MassWildlife)	MassWildlife: Evaluation of shifts in habitats and species distributions	3-5 years	Medium
Executive Office of Energy and Environmental Affairs	Executive Office of Energy and Environmental Affairs (EOEEA)	EOEEA: Incorporate information on climate change risk and vulnerability from the SHMCAP and subsequent studies into all capital budget planning.	3-5 years	High
Executive Office of Energy and Environmental Affairs	Division of Fisheries and Wildlife (MassWildlife)	MassWildlife: In partnership with CZM, improve management of beach nourishment projects and other shoreline protection strategies and incorporate habitat considerations into coastal storm disaster response habitat and infrastructure on barrier beaches.	3-5 years	Medium
Executive Office of Energy and Environmental Affairs	Executive Office of Energy and Environmental Affairs (EOEEA)	EOEEA: In consultation with DCAMM, MassDOT, and EOHEd develop climate change design standards.	3-5 years	Medium
Executive Office of Health and Human Services	Department of Public Health (DPH)	DPH: Update and expand DPH and DPH provider/vendor Emergency Operations Plans (EOPs) and Continuity of Operations Plans (COOPs) to address climate impacts.	3-5 years	Very High
Executive Office of Housing and Economic Development	Office of Public Safety and Inspections (OPSI)	OPSI: Review the state building code to assess feasibility of incorporating hazard mitigation and resilience.	3-5 years	High
Executive Office of Housing and Economic Development	Office of Public Safety and Inspections (OPSI)	OPSI: Voluntary resilience audits for private property.	3-5 years	Medium
Executive Office of Public Safety and Security	Executive Office of Public Safety and Security (EOPSS)	EOPSS: Create a statewide Threat and Hazard Identification and Risk Assessment (THIRA). In conjunction with the development of the THIRA conduct a statewide capabilities gap assessment.	3-5 years	Medium
Executive Office of Public Safety and Security	Massachusetts Emergency Management Agency (MEMA)	MEMA: Improved Local Comprehensive Emergency Management Plan (CEMP) Program.	3-5 years	Medium

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Executive Office:	Agency:	Action:	Completion Time Frame:	Agency Priority Score:
Executive Office of Public Safety and Security	Massachusetts Emergency Management Agency (MEMA)	MEMA: Build out a mechanism to incorporate new data and recommendations from the FEMA-approved regional and local mitigation plans into the SHMCAP, ArcGIS online and/or Climate Clearinghouse, especially locations of critical facilities and assessments of vulnerability and estimates of potential losses by jurisdiction.	3-5 years	Medium
Executive Office of Public Safety and Security	Massachusetts Emergency Management Agency (MEMA)	MEMA: Partner with stakeholders in Massachusetts to develop and implement regional and local multi-hazard mitigation plans by providing training and technical assistance.	3-5 years	Medium
Executive Office of Public Safety and Security	Massachusetts Emergency Management Agency (MEMA)	MEMA: Perform a statewide risk analysis for all hazards to include in future updates to this state hazard mitigation plan and other related plans. Address data deficiencies and improve analysis, when available, by partnering with federal, state, local, and other subject matter experts.	3-5 years	Very High
Executive Office of Technology Services and Security	Executive Office of Technology Services and Security (EOTSS)	EOTSS: Migrate HRCMS/MMARS to the cloud.	3-5 years	High
Massachusetts Department of Transportation	Massachusetts Department of Transportation (MassDOT)	MassDOT: Pilot Deerfield Watershed Stream Crossing Resilience Project.	3-5 years	High
Massachusetts Department of Transportation	Massachusetts Department of Transportation (MassDOT)	MassDOT: Incremental Development of Resiliency-Oriented Design Guidelines.	3-5 years	High
Massachusetts Department of Transportation	Massachusetts Department of Transportation (MassDOT)	MassDOT: State-wide Transportation Asset Vulnerability Assessment (inland flooding).	3-5 years	High
Executive Office of Administration and Finance	Division of Capital Asset Management and Maintenance (DCAMM)	DCAMM: Incorporate hazard and climate change vulnerability into capital planning, master planning, and facilities management functions.	Greater than 5 years	High
Executive Office of Education	Executive Office of Education (EOE)	EOE: Review and recommend standards for the safety and health of students in the Commonwealth informed by climate science.	Greater than 5 years	Low
Executive Office of Energy and Environmental Affairs	Department of Conservation and Recreation (DCR)	DCR: Revise current review procedures for DCR-managed dams and other flood control structures to incorporate climate change data.	Greater than 5 years	High
Executive Office of Energy and Environmental Affairs	Department of Energy Resources (DOER)	DOER: Build energy resiliency.	Greater than 5 years	High

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Executive Office:	Agency:	Action:	Completion Time Frame:	Agency Priority Score:
Executive Office of Energy and Environmental Affairs	Department of Environmental Protection (DEP)	DEP: Resiliency Grants for Water Infrastructure.	Greater than 5 years	Low
Executive Office of Energy and Environmental Affairs	Department of Environmental Protection (DEP)	DEP: Enhance the Water Utility Resilience Program (WURP).	Greater than 5 years	High
Executive Office of Energy and Environmental Affairs	Department of Public Utilities (DPU)	DPU: Facilitate a program for sharing resources between municipalities for tree maintenance.	Greater than 5 years	Medium
Executive Office of Energy and Environmental Affairs	Department of Public Utilities (DPU)	DPU: Review storm preparedness best practices from other regional distribution systems.	Greater than 5 years	High
Executive Office of Energy and Environmental Affairs	Department of Public Utilities (DPU)	DPU: Regional power grid planning and incorporation of climate change data.	Greater than 5 years	Medium
Executive Office of Energy and Environmental Affairs	Department of Environmental Protection (DEP)	DEP: Implement Updated Stream crossing culvert replacement guidance.	Greater than 5 years	High
Executive Office of Energy and Environmental Affairs	Division of Ecological Restoration (DER)	DER: Develop an implementation strategy and updated prioritization scheme to work with federal, state, and local partners and non-profit organizations to remove unwanted state-owned dams to reduce risk, increase resilience to extreme weather and climate change, and restore aquatic habitat.	Greater than 5 years	Medium
Executive Office of Energy and Environmental Affairs	Division of Ecological Restoration (DER)	DER: Develop an implementation strategy for retired cranberry bog restoration for climate adaptation and habitat restoration by working with landowners, federal, state, and local partners and non-profit partners for climate resiliency, habitat quality, flood and water quality protection, and wildlife.	Greater than 5 years	Medium
Executive Office of Energy and Environmental Affairs	Department of Environmental Protection (DEP)	DEP: Demand strategies educational campaign.	Greater than 5 years	Medium
Executive Office of Energy and Environmental Affairs	Division of Ecological Restoration (DER)	DER: Develop an implementation plan to build municipal capacity to replace undersized, deteriorated culverts with larger, safer structures that are resilient to extreme storms and provide passage for fish and wildlife.	Greater than 5 years	Very High
Executive Office of Energy and Environmental Affairs	Division of Ecological Restoration (DER)	DER: Restore streamflow to flow-stressed rivers to increase resiliency for aquatic ecosystems and for water supplies.	Greater than 5 years	Medium
Executive Office of Energy and Environmental Affairs	Division of Fisheries and Wildlife (MassWildlife)	MassWildlife: Identification of areas with high native aquatic biodiversity to help prioritize aquatic adaptation actions as the climate changes.	Greater than 5 years	Medium
Executive Office of Energy and Environmental Affairs	Division of Fisheries and Wildlife (MassWildlife)	MassWildlife: Mapping and control of invasive plant species.	Greater than 5 years	Medium

Appendix D: Hazard Mitigation and Climate Adaptation Strategy Supporting Documentation

Executive Office:	Agency:	Action:	Completion Time Frame:	Agency Priority Score:
Executive Office of Energy and Environmental Affairs	Division of Fisheries and Wildlife (MassWildlife)	MassWildlife: Identification of cold water climate refugia and transitional waters for protections of CFRs.	Greater than 5 years	Medium
Executive Office of Energy and Environmental Affairs	Executive Office of Energy and Environmental Affairs (EOEEA)	EOEEA: Review, evaluate, and implement revisions as needed to environmental and energy policies, regulations, and plans.	Greater than 5 years	High
Executive Office of Energy and Environmental Affairs	Division of Fisheries and Wildlife (MassWildlife)	MassWildlife: Dam removals at the Merrill Ponds Wildlife Management Area.	Greater than 5 years	Medium
Executive Office of Energy and Environmental Affairs	Executive Office of Energy and Environmental Affairs (EOEEA)	EOEEA: Review habitat management, land stewardship, coastal zone management, agricultural and invasive species programs and policies to develop strategies that promote coordination among agencies and support climate change adaptation and mitigation goals.	Greater than 5 years	High
Executive Office of Energy and Environmental Affairs	Division of Fisheries and Wildlife (MassWildlife)	MassWildlife: Great Marsh Pilot Ditch Remediation Project.	Greater than 5 years	Medium
Executive Office of Energy and Environmental Affairs	Executive Office of Energy and Environmental Affairs (EOEEA)	EOEEA: Based on results of vulnerability assessment for EOEEA properties and vulnerability assessments from other agencies, use climate change projections to develop stormwater management actions and projects.	Greater than 5 years	Medium
Executive Office of Energy and Environmental Affairs	Executive Office of Energy and Environmental Affairs (EOEEA)	EOEEA: Utilize available climate change projections and risk assessment data to assess vulnerabilities of all EOEEA properties. Support efforts across the administration to assess facilities held by other Executive Offices.	Greater than 5 years	High
Executive Office of Energy and Environmental Affairs	Executive Office of Energy and Environmental Affairs (EOEEA)	EOEEA: Accelerate implementation of priority actions identified through the Municipal Vulnerability Preparedness (MVP) program, increase municipal participation in planning program, conduct program review and revise planning and action grant program as needed.	Greater than 5 years	High
Executive Office of Health and Human Services	Department of Public Health (DPH)	DPH: Strengthen DPH health care systems and services to prepare for climate impacts.	Greater than 5 years	High
Executive Office of Health and Human Services	Department of Public Health (DPH)	DPH: Strengthen environmental health programs to respond to climate-related impacts.	Greater than 5 years	Very High
Executive Office of Public Safety and Security	Executive Office of Public Safety and Security (EOPSS)	EOPSS: Incorporate climate change resilience into business continuity planning for state government.	Greater than 5 years	High
Executive Office of Public Safety and Security	Massachusetts Emergency Management Agency (MEMA)	MEMA: Enhance the effectiveness of 406 funding by working to further integrate mitigation into the FEMA Public Assistance Program.	Greater than 5 years	High

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Executive Office:	Agency:	Action:	Completion Time Frame:	Agency Priority Score:
Executive Office of Housing and Economic Development	Massachusetts Permit Regulatory Office (MPRO)	MPRO: Review Chapter 40A and existing regulatory framework to evaluate incorporation of feasibility and practicality of climate change hazard mitigation measures.	Greater than 5 years	Medium
Executive Office of Housing and Economic Development	Department of Housing and Community Development (DHCD)	DHCD: Facilitate and coordinate development of guidelines and best practices for climate change adaptation and resilience for state-aided housing development.	Greater than 5 years	High
Executive Office of Public Safety and Security	Massachusetts Emergency Management Agency (MEMA)	MEMA: Update the State Hazard Mitigation and Climate Adaptation Plan and submit for FEMA review and approval every 5 years.	Greater than 5 years	Very High
Executive Office of Public Safety and Security	Massachusetts Emergency Management Agency (MEMA)	MEMA: Encourage state granting agencies in the Commonwealth, such as the Massachusetts Department of Housing and Community Development's review of Community Development Block Grants, to work together with MEMA to assist in providing the Non-federal cost share in Disaster Recovery and Hazard Mitigation Grants to maximize the federal funding available to the Commonwealth and its communities.	Greater than 5 years	High
Executive Office of Public Safety and Security	Massachusetts Emergency Management Agency (MEMA)	MEMA: Work with communities to implement cost-effective, environmentally sound, and feasible mitigation projects to severe repetitive loss properties.	Greater than 5 years	High
Executive Office of Technology Services and Security	Executive Office of Technology Services and Security (EOTSS)	EOTSS: Migrate Beacon, Meditech and FamilyNet to the cloud.	Greater than 5 years	High
Executive Office of Technology Services and Security	Executive Office of Technology Services and Security (EOTSS)	EOTSS: For Registry of Motor Vehicle systems that must remain on-premises (not cloud), evaluate migration options or relocations to third party on premises.	Greater than 5 years	High
Executive Office of Technology Services and Security	Executive Office of Technology Services and Security (EOTSS)	EOTSS: Re-platform MA21 and MMIS to enable cloud migration.	Greater than 5 years	High
Massachusetts Department of Transportation	Massachusetts Bay Transit Authority (MBTA)	MBTA: Incorporate climate resiliency into capital planning activities.	Greater than 5 years	Very High
Massachusetts Department of Transportation	Massachusetts Bay Transit Authority (MBTA)	MBTA: Complete system-wide vulnerability assessment.	Greater than 5 years	Very High
Massachusetts Department of Transportation	Massachusetts Department of Transportation (MassDOT)	MassDOT: Expand and improve the Boston Harbor Flood Risk Model to create the Massachusetts Coastal Flood Risk Model.	Greater than 5 years	High

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Executive Office:	Agency:	Action:	Completion Time Frame:	Agency Priority Score:
Massachusetts Department of Transportation	Massachusetts Department of Transportation (MassDOT)	MassDOT: Utilize the Boston Harbor Flood Risk Model and data from the vulnerability assessments to identify current and future high risk areas and strengthen emergency management with local, state and federal agencies.	Greater than 5 years	High
Massachusetts Department of Transportation	Massachusetts Department of Transportation (MassDOT)	MassDOT: Assess the feasibility of recommendations from the Commission on the Future of Transportation in the Commonwealth.	Greater than 5 years	High
Massachusetts Department of Transportation	Massachusetts Department of Transportation (MassDOT)	MassDOT: Capture and document institutional knowledge on vulnerabilities from staff using the Mapping Our Vulnerable Infrastructure Tool (MOVIT).	Greater than 5 years	Medium
Massachusetts Department of Transportation	Massachusetts Department of Transportation (MassDOT)	MassDOT: Coordinate with state and federal agencies to evaluate environmental regulation and permitting processes to address current roadblocks in climate change.	Greater than 5 years	High
Massachusetts Department of Transportation	Massachusetts Department of Transportation (MassDOT)	MassDOT: Develop climate change adaptation design guidance and provide resources and training for project managers and design teams on bridge and culvert design interaction with emerging fluvial geomorphology practices.	Greater than 5 years	High
Massachusetts Department of Transportation	Massachusetts Department of Transportation (MassDOT)	MassDOT: Incorporate climate change adaptation into the MassDOT Highway Division Transportation Asset Management Plan and coordinate Asset Management across divisions and partner agencies.	Greater than 5 years	High
Massachusetts Department of Transportation	Massachusetts Department of Transportation (MassDOT)	MassDOT: Incorporate resiliency review items into the Early Environmental Coordination Checklist.	Greater than 5 years	High
Massachusetts Department of Transportation	Massachusetts Department of Transportation (MassDOT)	MassDOT: Leverage permit granting authority and ability to influence M.G.L. Section 61 findings and mitigation.	Greater than 5 years	High
Massachusetts Department of Transportation	Massachusetts Department of Transportation (MassDOT)	MassDOT: Require a holistic evaluation of all vulnerability, environmental, transportation and social data sets in the earliest project planning phases.	Greater than 5 years	High

Table D-10: Sea Level Rise Actions

Executive Office:	Agency:	Action:	Completion Time Frame:	Agency Priority Score:
Executive Office of Energy and Environmental Affairs	Department of Conservation and Recreation (DCR)	DCR: Track and assess asset vulnerability by adding climate change/resiliency categories as part of the Asset Management Modernization Project.	Less than 3 years	High
Executive Office of Energy and Environmental Affairs	Department of Environmental Protection (DEP)	DEP: Vulnerability assessment of hazardous waste sites.	Less than 3 years	Medium
Executive Office of Energy and Environmental Affairs	Executive Office of Energy and Environmental Affairs (EOEEA)	EOEEA: Reassess and develop a climate change resiliency framework and criteria for all EOEEA agency land acquisition and grant funding for land acquisition to support natural resource conservation, wildlife, human health and public safety.	Less than 3 years	High
Executive Office of Energy and Environmental Affairs	Executive Office of Energy and Environmental Affairs (EOEEA)	EOEEA: Develop and implement a communications strategy to build state agency, municipal and public awareness of climate change resiliency issues and adaptation strategies.	Less than 3 years	Low
Executive Office of Health and Human Services	Department of Public Health (DPH)	DPH: Provide support and direct care to vulnerable populations susceptible to climate change impacts.	Less than 3 years	High
Executive Office of Housing and Economic Development	Executive Office of Housing and Economic Development (EOHED)	EOHED: Incorporate climate change resilience/adaptation standards into grant programs including MassWorks.	Less than 3 years	Very High
Executive Office of Public Safety and Security	Massachusetts Emergency Management Agency (MEMA)	MEMA: Hire a Disaster Survivor Assistance Planner.	Less than 3 years	Medium
Executive Office of Public Safety and Security	Massachusetts Emergency Management Agency (MEMA)	MEMA: Prepare hazard mitigation best practices and case studies.	Less than 3 years	Medium
Executive Office of Public Safety and Security	Massachusetts Emergency Management Agency (MEMA)	MEMA: Apply for available federal HMA funding to implement and update the completed and approved multi-jurisdictional and local hazard mitigation plans.	Less than 3 years	High
Executive Office of Public Safety and Security	Massachusetts Emergency Management Agency (MEMA)	MEMA: Plan and host hazard mitigation grant workshops for state agencies and local governments after natural disasters, especially immediately following Presidential Disaster Declarations.	Less than 3 years	High
Executive Office of Technology Services and Security	Executive Office of Technology Services and Security (EOTSS)	EOTSS: Migrate CommVault to the cloud.	Less than 3 years	High
Executive Office of Technology Services and Security	Executive Office of Technology Services and Security (EOTSS)	EOTSS: Migrate critical operational systems to the cloud (MITC); move critical communications infrastructure to Markley.	Less than 3 years	High

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Executive Office:	Agency:	Action:	Completion Time Frame:	Agency Priority Score:
Executive Office of Technology Services and Security	Executive Office of Technology Services and Security (EOTSS)	EOTSS: Migrate email to the cloud.	Less than 3 years	High
Massachusetts Department of Transportation	Massachusetts Department of Transportation (MassDOT)	MassDOT: Incorporate climate resiliency into capital planning activities.	Less than 3 years	Very High
Executive Office of Administration and Finance	Executive Office of Administration and Finance (A&F)	A&F: Budgeting, coordinating administrative functions, and planning.	3-5 years	High
Executive Office of Administration and Finance	Human Resources Division (HRD)	HRD: Incorporate hazard and climate change vulnerability into personnel and workplace policies, training, and guidance as appropriate.	3-5 years	Medium
Executive Office of Energy and Environmental Affairs	Department of Conservation and Recreation (DCR)	DCR: Incorporate climate vulnerability in all planning efforts.	3-5 years	High
Executive Office of Energy and Environmental Affairs	Department of Conservation and Recreation (DCR)	DCR: Upgrade and strengthen control systems for both the New Charles River and Amelia Earhart dams.	3-5 years	Very High
Executive Office of Energy and Environmental Affairs	Department of Environmental Protection (DEP)	DEP: Improve Mapping to Enhance Resilience and Emergency Preparedness of Water Utilities.	3-5 years	High
Executive Office of Energy and Environmental Affairs	Department of Environmental Protection (DEP)	DEP: Update precipitation data used by wetlands program.	3-5 years	High
Executive Office of Energy and Environmental Affairs	Department of Environmental Protection (DEP)	DEP: Develop a Statewide River Hydraulic Model.	3-5 years	Medium
Executive Office of Energy and Environmental Affairs	Department of Environmental Protection (DEP)	DEP: Develop Future Extreme River Flow Projections.	3-5 years	High
Executive Office of Energy and Environmental Affairs	Department of Environmental Protection (DEP)	DEP: Regional water quality monitoring initiative.	3-5 years	Medium
Executive Office of Energy and Environmental Affairs	Department of Environmental Protection (DEP)	DEP: Promulgate wetlands regulations to establish performance standards for work in land subject to coastal storm flowage.	3-5 years	High
Executive Office of Energy and Environmental Affairs	Department of Public Utilities (DPU)	DPU: Power system planning that incorporates climate change risk.	3-5 years	High

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Executive Office:	Agency:	Action:	Completion Time Frame:	Agency Priority Score:
Executive Office of Energy and Environmental Affairs	Division of Ecological Restoration (DER)	DER: Develop an implementation plan to reprioritize and accelerate tidal wetland restoration for climate adaptation and habitat restoration.	3-5 years	High
Executive Office of Energy and Environmental Affairs	Division of Ecological Restoration (DER)	DER: In support of EOEEA's efforts on MVP, build the capacity of regional organizations to implement climate adaptation and habitat restoration at the local level.	3-5 years	High
Executive Office of Energy and Environmental Affairs	Division of Fisheries and Wildlife (MassWildlife)	MassWildlife: Work with MassDOT to incorporate habitat and cold water fisheries considerations into MassDOT climate vulnerability assessments, adaptation projects, and community planning tools.	3-5 years	Medium
Executive Office of Energy and Environmental Affairs	Division of Fisheries and Wildlife (MassWildlife)	MassWildlife: Evaluation of climate change impacts on common species.	3-5 years	Low
Executive Office of Energy and Environmental Affairs	Division of Fisheries and Wildlife (MassWildlife)	MassWildlife: Updates to BioMap2.	3-5 years	High
Executive Office of Energy and Environmental Affairs	Division of Fisheries and Wildlife (MassWildlife)	MassWildlife: Evaluation of shifts in habitats and species distributions	3-5 years	Medium
Executive Office of Energy and Environmental Affairs	Division of Fisheries and Wildlife (MassWildlife)	MassWildlife: In partnership with CZM, improve management of beach nourishment projects and other shoreline protection strategies and incorporate habitat considerations into coastal storm disaster response habitat and infrastructure on barrier beaches.	3-5 years	Medium
Executive Office of Energy and Environmental Affairs	Division of Fisheries and Wildlife (MassWildlife)	MassWildlife: Study impact of climate change on fish hatcheries held by MassWildlife.	3-5 years	Low
Executive Office of Energy and Environmental Affairs	Executive Office of Energy and Environmental Affairs (EOEEA)	EOEEA: Create and deploy a SHMCAP project database.	3-5 years	Medium
Executive Office of Energy and Environmental Affairs	Executive Office of Energy and Environmental Affairs (EOEEA)	EOEEA: Maintain and enhance climate change projections and specific climate change data sets to support different groups of end users.	3-5 years	High
Executive Office of Energy and Environmental Affairs	Executive Office of Energy and Environmental Affairs (EOEEA)	EOEEA: Update and maintain the resilientMA.org climate change clearinghouse site to include a Vulnerability Assessment Wizard for MVP communities, a clearinghouse to grant programs to fund MVP actions, and a dynamic version of the SHMCAP.	3-5 years	High
Executive Office of Energy and Environmental Affairs	Executive Office of Energy and Environmental Affairs (EOEEA)	EOEEA: Incorporate information on climate change risk and vulnerability from the SHMCAP and subsequent studies into all capital budget planning.	3-5 years	High

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Executive Office:	Agency:	Action:	Completion Time Frame:	Agency Priority Score:
Executive Office of Energy and Environmental Affairs	Executive Office of Energy and Environmental Affairs (EOEEA)	EOEEA: In consultation with DCAMM, MassDOT, and EOHEd develop climate change design standards.	3-5 years	Medium
Executive Office of Health and Human Services	Department of Public Health (DPH)	DPH: Update and expand DPH and DPH provider/vendor Emergency Operations Plans (EOPs) and Continuity of Operations Plans (COOPs) to address climate impacts.	3-5 years	Very High
Executive Office of Housing and Economic Development	Massachusetts Office of Travel and Tourism (MOTT)	MOTT: Research and assess and potential effects of climate change on Commonwealth travel and tourism industry and assets.	3-5 years	Medium
Executive Office of Housing and Economic Development	Office of Public Safety and Inspections (OPSI)	OPSI: Review the state building code to assess feasibility of incorporating hazard mitigation and resilience.	3-5 years	High
Executive Office of Housing and Economic Development	Office of Public Safety and Inspections (OPSI)	OPSI: Voluntary resilience audits for private property.	3-5 years	Medium
Executive Office of Public Safety and Security	Executive Office of Public Safety and Security (EOPSS)	EOPSS: Create a statewide Threat and Hazard Identification and Risk Assessment (THIRA). In conjunction with the development of the THIRA conduct a statewide capabilities gap assessment.	3-5 years	Medium
Executive Office of Public Safety and Security	Massachusetts Emergency Management Agency (MEMA)	MEMA: Improved Local Comprehensive Emergency Management Plan (CEMP) Program.	3-5 years	Medium
Executive Office of Public Safety and Security	Massachusetts Emergency Management Agency (MEMA)	MEMA: Build out a mechanism to incorporate new data and recommendations from the FEMA-approved regional and local mitigation plans into the SHMCAP, ArcGIS online and/or Climate Clearinghouse, especially locations of critical facilities and assessments of vulnerability and estimates of potential losses by jurisdiction.	3-5 years	Medium
Executive Office of Public Safety and Security	Massachusetts Emergency Management Agency (MEMA)	MEMA: Partner with stakeholders in Massachusetts to develop and implement regional and local multi-hazard mitigation plans by providing training and technical assistance.	3-5 years	Medium
Executive Office of Public Safety and Security	Massachusetts Emergency Management Agency (MEMA)	MEMA: Perform a statewide risk analysis for all hazards to include in future updates to this state hazard mitigation plan and other related plans. Address data deficiencies and improve analysis, when available, by partnering with federal, state, local, and other subject matter experts.	3-5 years	Very High
Executive Office of Technology Services and Security	Executive Office of Technology Services and Security (EOTSS)	EOTSS: Migrate HRCMS/MMARS to the cloud.	3-5 years	High

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Executive Office:	Agency:	Action:	Completion Time Frame:	Agency Priority Score:
Massachusetts Department of Transportation	Massachusetts Department of Transportation (MassDOT)	MassDOT: Pilot Deerfield Watershed Stream Crossing Resilience Project.	3-5 years	High
Massachusetts Department of Transportation	Massachusetts Department of Transportation (MassDOT)	MassDOT: Incremental Development of Resiliency-Oriented Design Guidelines.	3-5 years	High
Executive Office of Administration and Finance	Division of Capital Asset Management and Maintenance (DCAMM)	DCAMM: Incorporate hazard and climate change vulnerability into capital planning, master planning, and facilities management functions.	Greater than 5 years	High
Executive Office of Education	Executive Office of Education (EOE)	EOE: Review and recommend standards for the safety and health of students in the Commonwealth informed by climate science.	Greater than 5 years	Low
Executive Office of Energy and Environmental Affairs	Department of Conservation and Recreation (DCR)	DCR: Work in strong coordination with EOEEA to monitor coastal shoreline sediment migration.	Greater than 5 years	Medium
Executive Office of Energy and Environmental Affairs	Department of Conservation and Recreation (DCR)	DCR: Develop strategy to implement priority DCR infrastructure projects in its Coastal Inventory.	Greater than 5 years	Medium
Executive Office of Energy and Environmental Affairs	Department of Energy Resources (DOER)	DOER: Build energy resiliency.	Greater than 5 years	High
Executive Office of Energy and Environmental Affairs	Department of Environmental Protection (DEP)	DEP: Resiliency Grants for Water Infrastructure.	Greater than 5 years	Low
Executive Office of Energy and Environmental Affairs	Department of Environmental Protection (DEP)	DEP: Enhance the Water Utility Resilience Program (WURP).	Greater than 5 years	High
Executive Office of Energy and Environmental Affairs	Department of Environmental Protection (DEP)	DEP: Implement Updated Stream crossing culvert replacement guidance.	Greater than 5 years	High
Executive Office of Energy and Environmental Affairs	Department of Environmental Protection (DEP)	DEP: Demand strategies educational campaign.	Greater than 5 years	Medium
Executive Office of Energy and Environmental Affairs	Department of Public Utilities (DPU)	DPU: Review storm preparedness best practices from other regional distribution systems.	Greater than 5 years	High
Executive Office of Energy and Environmental Affairs	Department of Public Utilities (DPU)	DPU: Regional power grid planning and incorporation of climate change data.	Greater than 5 years	Medium

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Executive Office:	Agency:	Action:	Completion Time Frame:	Agency Priority Score:
Executive Office of Energy and Environmental Affairs	Division of Ecological Restoration (DER)	DER: Develop an implementation strategy for retired cranberry bog restoration for climate adaptation and habitat restoration by working with landowners, federal, state, and local partners and non-profit partners for climate resiliency, habitat quality, flood and water quality protection, and wildlife.	Greater than 5 years	Medium
Executive Office of Energy and Environmental Affairs	Division of Fisheries and Wildlife (MassWildlife)	MassWildlife: Mapping and control of invasive plant species.	Greater than 5 years	Medium
Executive Office of Energy and Environmental Affairs	Division of Fisheries and Wildlife (MassWildlife)	MassWildlife: Great Marsh Pilot Ditch Remediation Project.	Greater than 5 years	Medium
Executive Office of Energy and Environmental Affairs	Executive Office of Energy and Environmental Affairs (EOEEA)	EOEEA: Review, evaluate, and implement revisions as needed to environmental and energy policies, regulations, and plans.	Greater than 5 years	High
Executive Office of Energy and Environmental Affairs	Executive Office of Energy and Environmental Affairs (EOEEA)	EOEEA: Review habitat management, land stewardship, coastal zone management, agricultural and invasive species programs and policies to develop strategies that promote coordination among agencies and support climate change adaptation and mitigation goals.	Greater than 5 years	High
Executive Office of Energy and Environmental Affairs	Executive Office of Energy and Environmental Affairs (EOEEA)	EOEEA: Utilize available climate change projections and risk assessment data to assess vulnerabilities of all EOEEA properties. Support efforts across the administration to assess facilities held by other Executive Offices.	Greater than 5 years	High
Executive Office of Energy and Environmental Affairs	Executive Office of Energy and Environmental Affairs (EOEEA)	EOEEA: Accelerate implementation of priority actions identified through the Municipal Vulnerability Preparedness (MVP) program, increase municipal participation in planning program, conduct program review and revise planning and action grant program as needed.	Greater than 5 years	High
Executive Office of Health and Human Services	Department of Public Health (DPH)	DPH: Strengthen DPH health care systems and services to prepare for climate impacts.	Greater than 5 years	High
Executive Office of Health and Human Services	Department of Public Health (DPH)	DPH: Strengthen environmental health programs to respond to climate-related impacts.	Greater than 5 years	Very High
Executive Office of Housing and Economic Development	Department of Housing and Community Development (DHCD)	DHCD: Facilitate and coordinate development of guidelines and best practices for climate change adaptation and resilience for state-aided housing development.	Greater than 5 years	High
Executive Office of Housing and Economic Development	Massachusetts Permit Regulatory Office (MPRO)	MPRO: Review Chapter 40A and existing regulatory framework to evaluate incorporation of feasibility and practicality of climate change hazard mitigation measures.	Greater than 5 years	Medium

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Executive Office:	Agency:	Action:	Completion Time Frame:	Agency Priority Score:
Executive Office of Public Safety and Security	Executive Office of Public Safety and Security (EOPSS)	EOPSS: Incorporate climate change resilience into business continuity planning for state government.	Greater than 5 years	High
Executive Office of Public Safety and Security	Massachusetts Emergency Management Agency (MEMA)	MEMA: Enhance the effectiveness of 406 funding by working to further integrate mitigation into the FEMA Public Assistance Program.	Greater than 5 years	High
Executive Office of Public Safety and Security	Massachusetts Emergency Management Agency (MEMA)	MEMA: Update the State Hazard Mitigation and Climate Adaptation Plan and submit for FEMA review and approval every 5 years.	Greater than 5 years	Very High
Executive Office of Public Safety and Security	Massachusetts Emergency Management Agency (MEMA)	MEMA: Encourage state granting agencies in the Commonwealth, such as the Massachusetts Department of Housing and Community Development’s review of Community Development Block Grants, to work together with MEMA to assist in providing the Non-federal cost share in Disaster Recovery and Hazard Mitigation Grants to maximize the federal funding available to the Commonwealth and its communities.	Greater than 5 years	High
Executive Office of Public Safety and Security	Massachusetts Emergency Management Agency (MEMA)	MEMA: Work with communities to implement cost-effective, environmentally sound, and feasible mitigation projects to severe repetitive loss properties.	Greater than 5 years	High
Executive Office of Technology Services and Security	Executive Office of Technology Services and Security (EOTSS)	EOTSS: Migrate Beacon, Meditech and FamilyNet to the cloud.	Greater than 5 years	High
Executive Office of Technology Services and Security	Executive Office of Technology Services and Security (EOTSS)	EOTSS: For Registry of Motor Vehicle systems that must remain on-premises (not cloud), evaluate migration options or relocations to third party on premises.	Greater than 5 years	High
Executive Office of Technology Services and Security	Executive Office of Technology Services and Security (EOTSS)	EOTSS: Re-platform MA21 and MMIS to enable cloud migration.	Greater than 5 years	High
Massachusetts Department of Transportation	Massachusetts Bay Transit Authority (MBTA)	MBTA: Incorporate climate resiliency into capital planning activities.	Greater than 5 years	Very High
Massachusetts Department of Transportation	Massachusetts Bay Transit Authority (MBTA)	MBTA: Complete system-wide vulnerability assessment.	Greater than 5 years	Very High
Massachusetts Department of Transportation	Massachusetts Department of Transportation (MassDOT)	MassDOT: Expand and improve the Boston Harbor Flood Risk Model to create the Massachusetts Coastal Flood Risk Model.	Greater than 5 years	High

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Executive Office:	Agency:	Action:	Completion Time Frame:	Agency Priority Score:
Massachusetts Department of Transportation	Massachusetts Department of Transportation (MassDOT)	MassDOT: Utilize the Boston Harbor Flood Risk Model and data from the vulnerability assessments to identify current and future high risk areas and strengthen emergency management with local, state and federal agencies.	Greater than 5 years	High
Massachusetts Department of Transportation	Massachusetts Department of Transportation (MassDOT)	MassDOT: Assess the feasibility of recommendations from the Commission on the Future of Transportation in the Commonwealth.	Greater than 5 years	High
Massachusetts Department of Transportation	Massachusetts Department of Transportation (MassDOT)	MassDOT: Capture and document institutional knowledge on vulnerabilities from staff using the Mapping Our Vulnerable Infrastructure Tool (MOVIT).	Greater than 5 years	Medium
Massachusetts Department of Transportation	Massachusetts Department of Transportation (MassDOT)	MassDOT: Coordinate with state and federal agencies to evaluate environmental regulation and permitting processes to address current roadblocks in climate change.	Greater than 5 years	High
Massachusetts Department of Transportation	Massachusetts Department of Transportation (MassDOT)	MassDOT: Incorporate climate change adaptation into the MassDOT Highway Division Transportation Asset Management Plan and coordinate Asset Management across divisions and partner agencies.	Greater than 5 years	High
Massachusetts Department of Transportation	Massachusetts Department of Transportation (MassDOT)	MassDOT: Incorporate resiliency review items into the Early Environmental Coordination Checklist.	Greater than 5 years	High
Massachusetts Department of Transportation	Massachusetts Department of Transportation (MassDOT)	MassDOT: Leverage permit granting authority and ability to influence M.G.L. Section 61 findings and mitigation.	Greater than 5 years	High
Massachusetts Department of Transportation	Massachusetts Department of Transportation (MassDOT)	MassDOT: Require a holistic evaluation of all vulnerability, environmental, transportation and social data sets in the earliest project planning phases.	Greater than 5 years	High

Table D-11: Rising Temperatures Actions

Executive Office:	Agency:	Action:	Completion Time Frame:	Agency Priority Score:
Executive Office of Energy and Environmental Affairs	Department of Conservation and Recreation (DCR)	DCR: Update the State Forest Action Plan to enhance climate change mitigation and adaptation strategies.	Less than 3 years	Medium
Executive Office of Energy and Environmental Affairs	Department of Conservation and Recreation (DCR)	DCR: Track and assess asset vulnerability by adding climate change/resiliency categories as part of the Asset Management Modernization Project.	Less than 3 years	High
Executive Office of Energy and Environmental Affairs	Department of Environmental Protection (DEP)	DEP: Vulnerability assessment of hazardous waste sites.	Less than 3 years	Medium
Executive Office of Energy and Environmental Affairs	Division of Ecological Restoration (DER)	DER: Update and share a dam removal decision support tool that directly incorporates new climate change projections, climate adaptation benefits and helps municipalities and others prioritize dams for removal.	Less than 3 years	Medium
Executive Office of Energy and Environmental Affairs	Executive Office of Energy and Environmental Affairs (EOEEA)	EOEEA: Reassess and develop a climate change resiliency framework and criteria for all EOEEA agency land acquisition and grant funding for land acquisition to support natural resource conservation, wildlife, human health and public safety.	Less than 3 years	High
Executive Office of Energy and Environmental Affairs	Executive Office of Energy and Environmental Affairs (EOEEA)	EOEEA: Develop and implement a communications strategy to build state agency, municipal and public awareness of climate change resiliency issues and adaptation strategies.	Less than 3 years	Low
Executive Office of Health and Human Services	Department of Public Health (DPH)	DPH: Provide support and direct care to vulnerable populations susceptible to climate change impacts.	Less than 3 years	High
Executive Office of Housing and Economic Development	Executive Office of Housing and Economic Development (EOHED)	EOHED: Incorporate climate change resilience/adaptation standards into grant programs including MassWorks.	Less than 3 years	Very High
Executive Office of Labor	Department of Labor Standards (DLS)	DLS: Review and consider updates to MASSsafetyWorks! resources given increased expectations of extreme weather events.	Less than 3 years	Low
Executive Office of Public Safety and Security	Massachusetts Emergency Management Agency (MEMA)	MEMA: Hire a Disaster Survivor Assistance Planner.	Less than 3 years	Medium
Executive Office of Public Safety and Security	Massachusetts Emergency Management Agency (MEMA)	MEMA: Prepare hazard mitigation best practices and case studies.	Less than 3 years	Medium
Executive Office of Public Safety and Security	Massachusetts Emergency Management Agency (MEMA)	MEMA: Apply for available federal HMA funding to implement and update the completed and approved multi-jurisdictional and local hazard mitigation plans.	Less than 3 years	High

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Executive Office:	Agency:	Action:	Completion Time Frame:	Agency Priority Score:
Executive Office of Public Safety and Security	Massachusetts Emergency Management Agency (MEMA)	MEMA: Plan and host hazard mitigation grant workshops for state agencies and local governments after natural disasters, especially immediately following Presidential Disaster Declarations.	Less than 3 years	High
Executive Office of Technology Services and Security	Executive Office of Technology Services and Security (EOTSS)	EOTSS: Migrate CommVault to the cloud.	Less than 3 years	High
Executive Office of Technology Services and Security	Executive Office of Technology Services and Security (EOTSS)	EOTSS: Migrate critical operational systems to the cloud (MITC); move critical communications infrastructure to Markley.	Less than 3 years	High
Executive Office of Technology Services and Security	Executive Office of Technology Services and Security (EOTSS)	EOTSS: Migrate email to the cloud.	Less than 3 years	High
Massachusetts Department of Transportation	Massachusetts Department of Transportation (MassDOT)	MassDOT: Incorporate climate resiliency into capital planning activities.	Less than 3 years	Very High
Executive Office of Administration and Finance	Executive Office of Administration and Finance (A&F)	A&F: Budgeting, coordinating administrative functions, and planning.	3-5 years	High
Executive Office of Administration and Finance	Human Resources Division (HRD)	HRD: Incorporate hazard and climate change vulnerability into personnel and workplace policies, training, and guidance as appropriate.	3-5 years	Medium
Executive Office of Energy and Environmental Affairs	Department of Conservation and Recreation (DCR)	DCR: Incorporate climate vulnerability in all planning efforts.	3-5 years	High
Executive Office of Energy and Environmental Affairs	Department of Environmental Protection (DEP)	DEP: Improve Mapping to Enhance Resilience and Emergency Preparedness of Water Utilities.	3-5 years	High
Executive Office of Energy and Environmental Affairs	Department of Environmental Protection (DEP)	DEP: Update precipitation data used by wetlands program.	3-5 years	High
Executive Office of Energy and Environmental Affairs	Department of Environmental Protection (DEP)	DEP: Develop a Statewide River Hydraulic Model.	3-5 years	Medium
Executive Office of Energy and Environmental Affairs	Department of Environmental Protection (DEP)	DEP: Develop Future Extreme River Flow Projections.	3-5 years	High

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Executive Office:	Agency:	Action:	Completion Time Frame:	Agency Priority Score:
Executive Office of Energy and Environmental Affairs	Department of Environmental Protection (DEP)	DEP: Regional water quality monitoring initiative.	3-5 years	Medium
Executive Office of Energy and Environmental Affairs	Department of Environmental Protection (DEP)	DEP: Promulgate wetlands regulations to establish performance standards for work in land subject to coastal storm flowage.	3-5 years	High
Executive Office of Energy and Environmental Affairs	Department of Public Utilities (DPU)	DPU: Power system planning that incorporates climate change risk.	3-5 years	High
Executive Office of Energy and Environmental Affairs	Division of Ecological Restoration (DER)	DER: Develop a prioritization and implementation strategy for barrier removal on cold water streams most impacted by warming temperatures to allow climate adaptation and habitat restoration.	3-5 years	Very High
Executive Office of Energy and Environmental Affairs	Division of Ecological Restoration (DER)	DER: Develop an implementation plan to reprioritize and accelerate tidal wetland restoration for climate adaptation and habitat restoration.	3-5 years	High
Executive Office of Energy and Environmental Affairs	Division of Ecological Restoration (DER)	DER: Develop an implementation plan to complete priority water quality restoration projects for climate adaptation and habitat restoration.	3-5 years	Medium
Executive Office of Energy and Environmental Affairs	Division of Ecological Restoration (DER)	DER: In support of EOEEA's efforts on MVP, build the capacity of regional organizations to implement climate adaptation and habitat restoration at the local level.	3-5 years	High
Executive Office of Energy and Environmental Affairs	Division of Fisheries and Wildlife (MassWildlife)	MassWildlife: Work with MassDOT to incorporate habitat and cold water fisheries considerations into MassDOT climate vulnerability assessments, adaptation projects, and community planning tools.	3-5 years	Medium
Executive Office of Energy and Environmental Affairs	Division of Fisheries and Wildlife (MassWildlife)	MassWildlife: Evaluation of climate change impacts on common species.	3-5 years	Low
Executive Office of Energy and Environmental Affairs	Division of Fisheries and Wildlife (MassWildlife)	MassWildlife: Updates to BioMap2.	3-5 years	High
Executive Office of Energy and Environmental Affairs	Division of Fisheries and Wildlife (MassWildlife)	MassWildlife: Evaluation of shifts in habitats and species distributions	3-5 years	Medium
Executive Office of Energy and Environmental Affairs	Division of Fisheries and Wildlife (MassWildlife)	MassWildlife: In partnership with CZM, improve management of beach nourishment projects and other shoreline protection strategies and incorporate habitat considerations into coastal storm disaster response habitat and infrastructure on barrier beaches.	3-5 years	Medium
Executive Office of Energy and Environmental Affairs	Executive Office of Energy and Environmental Affairs (EOEEA)	EOEEA: Create and deploy a SHMCAP project database.	3-5 years	Medium

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Executive Office:	Agency:	Action:	Completion Time Frame:	Agency Priority Score:
Executive Office of Energy and Environmental Affairs	Executive Office of Energy and Environmental Affairs (EOEEA)	EOEEA: Maintain and enhance climate change projections and specific climate change data sets to support different groups of end users.	3-5 years	High
Executive Office of Energy and Environmental Affairs	Executive Office of Energy and Environmental Affairs (EOEEA)	EOEEA: Update and maintain the resilientMA.org climate change clearinghouse site to include a Vulnerability Assessment Wizard for MVP communities, a clearinghouse to grant programs to fund MVP actions, and a dynamic version of the SHMCAP.	3-5 years	High
Executive Office of Energy and Environmental Affairs	Executive Office of Energy and Environmental Affairs (EOEEA)	EOEEA: Incorporate information on climate change risk and vulnerability from the SHMCAP and subsequent studies into all capital budget planning.	3-5 years	High
Executive Office of Energy and Environmental Affairs	Executive Office of Energy and Environmental Affairs (EOEEA)	EOEEA: In consultation with DCAMM, MassDOT, and EOHEd develop climate change design standards.	3-5 years	Medium
Executive Office of Health and Human Services	Department of Public Health (DPH)	DPH: Update and expand DPH and DPH provider/vendor Emergency Operations Plans (EOPs) and Continuity of Operations Plans (COOPs) to address climate impacts.	3-5 years	Very High
Executive Office of Housing and Economic Development	Massachusetts Office of Travel and Tourism (MOTT)	MOTT: Research and assess and potential effects of climate change on Commonwealth travel and tourism industry and assets.	3-5 years	Medium
Executive Office of Housing and Economic Development	Office of Public Safety and Inspections (OPSI)	OPSI: Review the state building code to assess feasibility of incorporating hazard mitigation and resilience.	3-5 years	High
Executive Office of Housing and Economic Development	Office of Public Safety and Inspections (OPSI)	OPSI: Voluntary resilience audits for private property.	3-5 years	Medium
Executive Office of Public Safety and Security	Executive Office of Public Safety and Security (EOPSS)	EOPSS: Create a statewide Threat and Hazard Identification and Risk Assessment (THIRA). In conjunction with the development of the THIRA conduct a statewide capabilities gap assessment.	3-5 years	Medium
Executive Office of Public Safety and Security	Massachusetts Emergency Management Agency (MEMA)	MEMA: Improved Local Comprehensive Emergency Management Plan (CEMP) Program.	3-5 years	Medium
Executive Office of Public Safety and Security	Massachusetts Emergency Management Agency (MEMA)	MEMA: Build out a mechanism to incorporate new data and recommendations from the FEMA-approved regional and local mitigation plans into the SHMCAP, ArcGIS online and/or Climate Clearinghouse, especially locations of critical facilities and assessments of vulnerability and estimates of potential losses by jurisdiction.	3-5 years	Medium

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Executive Office:	Agency:	Action:	Completion Time Frame:	Agency Priority Score:
Executive Office of Public Safety and Security	Massachusetts Emergency Management Agency (MEMA)	MEMA: Partner with stakeholders in Massachusetts to develop and implement regional and local multi-hazard mitigation plans by providing training and technical assistance.	3-5 years	Medium
Executive Office of Public Safety and Security	Massachusetts Emergency Management Agency (MEMA)	MEMA: Perform a statewide risk analysis for all hazards to include in future updates to this state hazard mitigation plan and other related plans. Address data deficiencies and improve analysis, when available, by partnering with federal, state, local, and other subject matter experts.	3-5 years	Very High
Executive Office of Technology Services and Security	Executive Office of Technology Services and Security (EOTSS)	EOTSS: Migrate HRCMS/MMARS to the cloud.	3-5 years	High
Massachusetts Department of Transportation	Massachusetts Department of Transportation (MassDOT)	MassDOT: Pilot Deerfield Watershed Stream Crossing Resilience Project.	3-5 years	High
Massachusetts Department of Transportation	Massachusetts Department of Transportation (MassDOT)	MassDOT: Incremental Development of Resiliency-Oriented Design Guidelines.	3-5 years	High
Massachusetts Department of Transportation	Massachusetts Department of Transportation (MassDOT)	MassDOT: State-wide Transportation Asset Vulnerability Assessment (inland flooding).	3-5 years	High
Executive Office of Administration and Finance	Division of Capital Asset Management and Maintenance (DCAMM)	DCAMM: Incorporate hazard and climate change vulnerability into capital planning, master planning, and facilities management functions.	Greater than 5 years	High
Executive Office of Education	Executive Office of Education (EOE)	EOE: Review and recommend standards for the safety and health of students in the Commonwealth informed by climate science.	Greater than 5 years	Low
Executive Office of Energy and Environmental Affairs	Department of Energy Resources (DOER)	DOER: Build energy resiliency.	Greater than 5 years	High
Executive Office of Energy and Environmental Affairs	Department of Environmental Protection (DEP)	DEP: Resiliency Grants for Water Infrastructure.	Greater than 5 years	Low
Executive Office of Energy and Environmental Affairs	Department of Environmental Protection (DEP)	DEP: Enhance the Water Utility Resilience Program (WURP).	Greater than 5 years	High
Executive Office of Energy and Environmental Affairs	Department of Environmental Protection (DEP)	DEP: Implement Updated Stream crossing culvert replacement guidance.	Greater than 5 years	High

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Executive Office:	Agency:	Action:	Completion Time Frame:	Agency Priority Score:
Executive Office of Energy and Environmental Affairs	Department of Environmental Protection (DEP)	DEP: Demand strategies educational campaign.	Greater than 5 years	Medium
Executive Office of Energy and Environmental Affairs	Department of Public Utilities (DPU)	DPU: Review storm preparedness best practices from other regional distribution systems.	Greater than 5 years	High
Executive Office of Energy and Environmental Affairs	Department of Public Utilities (DPU)	DPU: Regional power grid planning and incorporation of climate change data.	Greater than 5 years	Medium
Executive Office of Energy and Environmental Affairs	Division of Ecological Restoration (DER)	DER: Develop an implementation strategy and updated prioritization scheme to work with federal, state, and local partners and non-profit organizations to remove unwanted state-owned dams to reduce risk, increase resilience to extreme weather and climate change, and restore aquatic habitat.	Greater than 5 years	Medium
Executive Office of Energy and Environmental Affairs	Division of Ecological Restoration (DER)	DER: Develop an implementation strategy for retired cranberry bog restoration for climate adaptation and habitat restoration by working with landowners, federal, state, and local partners and non-profit partners for climate resiliency, habitat quality, flood and water quality protection, and wildlife.	Greater than 5 years	Medium
Executive Office of Energy and Environmental Affairs	Division of Ecological Restoration (DER)	DER: Develop an implementation plan to build municipal capacity to replace undersized, deteriorated culverts with larger, safer structures that are resilient to extreme storms and provide passage for fish and wildlife.	Greater than 5 years	Very High
Executive Office of Energy and Environmental Affairs	Division of Ecological Restoration (DER)	DER: Restore streamflow to flow-stressed rivers to increase resiliency for aquatic ecosystems and for water supplies.	Greater than 5 years	Medium
Executive Office of Energy and Environmental Affairs	Division of Fisheries and Wildlife (MassWildlife)	MassWildlife: Identification of areas with high native aquatic biodiversity to help prioritize aquatic adaptation actions as the climate changes.	Greater than 5 years	Medium
Executive Office of Energy and Environmental Affairs	Division of Fisheries and Wildlife (MassWildlife)	MassWildlife: Mapping and control of invasive plant species.	Greater than 5 years	Medium
Executive Office of Energy and Environmental Affairs	Division of Fisheries and Wildlife (MassWildlife)	MassWildlife: Identification of cold water climate refugia and transitional waters for protections of CFRs.	Greater than 5 years	Medium
Executive Office of Energy and Environmental Affairs	Division of Fisheries and Wildlife (MassWildlife)	MassWildlife: Great Marsh Pilot Ditch Remediation Project.	Greater than 5 years	Medium
Executive Office of Energy and Environmental Affairs	Executive Office of Energy and Environmental Affairs (EOEEA)	EOEEA: Review, evaluate, and implement revisions as needed to environmental and energy policies, regulations, and plans.	Greater than 5 years	High

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Executive Office:	Agency:	Action:	Completion Time Frame:	Agency Priority Score:
Executive Office of Energy and Environmental Affairs	Executive Office of Energy and Environmental Affairs (EOEEA)	EOEEA: Review habitat management, land stewardship, coastal zone management, agricultural and invasive species programs and policies to develop strategies that promote coordination among agencies and support climate change adaptation and mitigation goals.	Greater than 5 years	High
Executive Office of Energy and Environmental Affairs	Executive Office of Energy and Environmental Affairs (EOEEA)	EOEEA: Utilize available climate change projections and risk assessment data to assess vulnerabilities of all EOEEA properties. Support efforts across the administration to assess facilities held by other Executive Offices.	Greater than 5 years	High
Executive Office of Energy and Environmental Affairs	Executive Office of Energy and Environmental Affairs (EOEEA)	EOEEA: Accelerate implementation of priority actions identified through the Municipal Vulnerability Preparedness (MVP) program, increase municipal participation in planning program, conduct program review and revise planning and action grant program as needed.	Greater than 5 years	High
Executive Office of Health and Human Services	Department of Public Health (DPH)	DPH: Strengthen DPH health care systems and services to prepare for climate impacts.	Greater than 5 years	High
Executive Office of Health and Human Services	Department of Public Health (DPH)	DPH: Strengthen environmental health programs to respond to climate-related impacts.	Greater than 5 years	Very High
Executive Office of Housing and Economic Development	Massachusetts Permit Regulatory Office (MPRO)	MPRO: Review Chapter 40A and existing regulatory framework to evaluate incorporation of feasibility and practicality of climate change hazard mitigation measures.	Greater than 5 years	Medium
Executive Office of Public Safety and Security	Executive Office of Public Safety and Security (EOPSS)	EOPSS: Incorporate climate change resilience into business continuity planning for state government.	Greater than 5 years	High
Executive Office of Public Safety and Security	Massachusetts Emergency Management Agency (MEMA)	MEMA: Enhance the effectiveness of 406 funding by working to further integrate mitigation into the FEMA Public Assistance Program.	Greater than 5 years	High
Executive Office of Public Safety and Security	Massachusetts Emergency Management Agency (MEMA)	MEMA: Update the State Hazard Mitigation and Climate Adaptation Plan and submit for FEMA review and approval every 5 years.	Greater than 5 years	Very High
Executive Office of Public Safety and Security	Massachusetts Emergency Management Agency (MEMA)	MEMA: Encourage state granting agencies in the Commonwealth, such as the Massachusetts Department of Housing and Community Development’s review of Community Development Block Grants, to work together with MEMA to assist in providing the Non-federal cost share in Disaster Recovery and Hazard Mitigation Grants to maximize the federal funding available to the Commonwealth and its communities.	Greater than 5 years	High

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Executive Office:	Agency:	Action:	Completion Time Frame:	Agency Priority Score:
Executive Office of Technology Services and Security	Executive Office of Technology Services and Security (EOTSS)	EOTSS: Migrate Beacon, Meditech and FamilyNet to the cloud.	Greater than 5 years	High
Executive Office of Technology Services and Security	Executive Office of Technology Services and Security (EOTSS)	EOTSS: For Registry of Motor Vehicle systems that must remain on-premises (not cloud), evaluate migration options or relocations to third party on premises.	Greater than 5 years	High
Executive Office of Technology Services and Security	Executive Office of Technology Services and Security (EOTSS)	EOTSS: Re-platform MA21 and MMIS to enable cloud migration.	Greater than 5 years	High
Massachusetts Department of Transportation	Massachusetts Bay Transit Authority (MBTA)	MBTA: Incorporate climate resiliency into capital planning activities.	Greater than 5 years	Very High
Massachusetts Department of Transportation	Massachusetts Bay Transit Authority (MBTA)	MBTA: Complete system-wide vulnerability assessment.	Greater than 5 years	Very High
Massachusetts Department of Transportation	Massachusetts Department of Transportation (MassDOT)	MassDOT: Expand and improve the Boston Harbor Flood Risk Model to create the Massachusetts Coastal Flood Risk Model.	Greater than 5 years	High
Massachusetts Department of Transportation	Massachusetts Department of Transportation (MassDOT)	MassDOT: Utilize the Boston Harbor Flood Risk Model and data from the vulnerability assessments to identify current and future high risk areas and strengthen emergency management with local, state and federal agencies.	Greater than 5 years	High
Massachusetts Department of Transportation	Massachusetts Department of Transportation (MassDOT)	MassDOT: Assess the feasibility of recommendations from the Commission on the Future of Transportation in the Commonwealth.	Greater than 5 years	High
Massachusetts Department of Transportation	Massachusetts Department of Transportation (MassDOT)	MassDOT: Capture and document institutional knowledge on vulnerabilities from staff using the Mapping Our Vulnerable Infrastructure Tool (MOVIT).	Greater than 5 years	Medium
Massachusetts Department of Transportation	Massachusetts Department of Transportation (MassDOT)	MassDOT: Coordinate with state and federal agencies to evaluate environmental regulation and permitting processes to address current roadblocks in climate change.	Greater than 5 years	High
Massachusetts Department of Transportation	Massachusetts Department of Transportation (MassDOT)	MassDOT: Develop climate change adaptation design guidance and provide resources and training for project managers and design teams on bridge and culvert design interaction with emerging fluvial geomorphology practices.	Greater than 5 years	High

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Executive Office:	Agency:	Action:	Completion Time Frame:	Agency Priority Score:
Massachusetts Department of Transportation	Massachusetts Department of Transportation (MassDOT)	MassDOT: Incorporate climate change adaptation into the MassDOT Highway Division Transportation Asset Management Plan and coordinate Asset Management across divisions and partner agencies.	Greater than 5 years	High
Massachusetts Department of Transportation	Massachusetts Department of Transportation (MassDOT)	MassDOT: Incorporate resiliency review items into the Early Environmental Coordination Checklist.	Greater than 5 years	High
Massachusetts Department of Transportation	Massachusetts Department of Transportation (MassDOT)	MassDOT: Leverage permit granting authority and ability to influence M.G.L. Section 61 findings and mitigation.	Greater than 5 years	High
Massachusetts Department of Transportation	Massachusetts Department of Transportation (MassDOT)	MassDOT: Require a holistic evaluation of all vulnerability, environmental, transportation and social data sets in the earliest project planning phases.	Greater than 5 years	High

Table D-12: Extreme Weather Actions

Executive Office:	Agency:	Action:	Completion Time Frame:	Agency Priority Score:
Executive Office of Energy and Environmental Affairs	Department of Conservation and Recreation (DCR)	DCR: Track and assess asset vulnerability by adding climate change/resiliency categories as part of the Asset Management Modernization Project.	Less than 3 years	High
Executive Office of Energy and Environmental Affairs	Department of Environmental Protection (DEP)	DEP: Vulnerability assessment of hazardous waste sites.	Less than 3 years	Medium
Executive Office of Energy and Environmental Affairs	Division of Ecological Restoration (DER)	DER: Update and share a dam removal decision support tool that directly incorporates new climate change projections, climate adaptation benefits and helps municipalities and others prioritize dams for removal.	Less than 3 years	Medium
Executive Office of Energy and Environmental Affairs	Executive Office of Energy and Environmental Affairs (EOEEA)	EOEEA: Develop and implement a communications strategy to build state agency, municipal and public awareness of climate change resiliency issues and adaptation strategies.	Less than 3 years	Low

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Executive Office:	Agency:	Action:	Completion Time Frame:	Agency Priority Score:
Executive Office of Energy and Environmental Affairs	Executive Office of Energy and Environmental Affairs (EOEEA)	EOEEA: Reassess and develop a climate change resiliency framework and criteria for all EOEEA agency land acquisition and grant funding for land acquisition to support natural resource conservation, wildlife, human health and public safety.	Less than 3 years	High
Executive Office of Health and Human Services	Department of Public Health (DPH)	DPH: Provide support and direct care to vulnerable populations susceptible to climate change impacts.	Less than 3 years	High
Executive Office of Housing and Economic Development	Executive Office of Housing and Economic Development (EOHED)	EOHED: Incorporate climate change resilience/adaptation standards into grant programs including MassWorks.	Less than 3 years	Very High
Executive Office of Labor	Department of Labor Standards (DLS)	DLS: Review and consider updates to MASSsafetyWorks! resources given increased expectations of extreme weather events.	Less than 3 years	Low
Executive Office of Public Safety and Security	Massachusetts Emergency Management Agency (MEMA)	MEMA: Apply for available federal HMA funding to implement and update the completed and approved multi-jurisdictional and local hazard mitigation plans.	Less than 3 years	High
Executive Office of Public Safety and Security	Massachusetts Emergency Management Agency (MEMA)	MEMA: Hire a Disaster Survivor Assistance Planner.	Less than 3 years	Medium
Executive Office of Public Safety and Security	Massachusetts Emergency Management Agency (MEMA)	MEMA: Plan and host hazard mitigation grant workshops for state agencies and local governments after natural disasters, especially immediately following Presidential Disaster Declarations.	Less than 3 years	High
Executive Office of Public Safety and Security	Massachusetts Emergency Management Agency (MEMA)	MEMA: Prepare hazard mitigation best practices and case studies.	Less than 3 years	Medium
Executive Office of Technology Services and Security	Executive Office of Technology Services and Security (EOTSS)	EOTSS: Migrate CommVault to the cloud.	Less than 3 years	High
Executive Office of Technology Services and Security	Executive Office of Technology Services and Security (EOTSS)	EOTSS: Migrate critical operational systems to the cloud (MITC); move critical communications infrastructure to Markley.	Less than 3 years	High
Executive Office of Technology Services and Security	Executive Office of Technology Services and Security (EOTSS)	EOTSS: Migrate email to the cloud.	Less than 3 years	High
Massachusetts Department of Transportation	Massachusetts Department of Transportation (MassDOT)	MassDOT: Incorporate climate resiliency into capital planning activities.	Less than 3 years	Very High

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Executive Office:	Agency:	Action:	Completion Time Frame:	Agency Priority Score:
Executive Office of Administration and Finance	Executive Office of Administration and Finance (A&F)	A&F: Budgeting, coordinating administrative functions, and planning.	3-5 years	High
Executive Office of Administration and Finance	Human Resources Division (HRD)	HRD: Incorporate hazard and climate change vulnerability into personnel and workplace policies, training, and guidance as appropriate.	3-5 years	Medium
Executive Office of Energy and Environmental Affairs	Department of Conservation and Recreation (DCR)	DCR: Incorporate climate vulnerability in all planning efforts.	3-5 years	High
Executive Office of Energy and Environmental Affairs	Department of Conservation and Recreation (DCR)	DCR: Upgrade and strengthen control systems for both the New Charles River and Amelia Earhart dams.	3-5 years	Very High
Executive Office of Energy and Environmental Affairs	Department of Environmental Protection (DEP)	DEP: Promulgate wetlands regulations to establish performance standards for work in land subject to coastal storm flowage.	3-5 years	High
Executive Office of Energy and Environmental Affairs	Department of Environmental Protection (DEP)	DEP: Update precipitation data used by wetlands program.	3-5 years	High
Executive Office of Energy and Environmental Affairs	Department of Environmental Protection (DEP)	DEP: Develop a Statewide River Hydraulic Model.	3-5 years	Medium
Executive Office of Energy and Environmental Affairs	Department of Environmental Protection (DEP)	DEP: Develop Future Extreme River Flow Projections.	3-5 years	High
Executive Office of Energy and Environmental Affairs	Department of Environmental Protection (DEP)	DEP: Improve Mapping to Enhance Resilience and Emergency Preparedness of Water Utilities.	3-5 years	High
Executive Office of Energy and Environmental Affairs	Department of Environmental Protection (DEP)	DEP: Regional water quality monitoring initiative.	3-5 years	Medium
Executive Office of Energy and Environmental Affairs	Department of Public Utilities (DPU)	DPU: Power system planning that incorporates climate change risk.	3-5 years	High
Executive Office of Energy and Environmental Affairs	Division of Ecological Restoration (DER)	DER: Develop a prioritization and implementation strategy for barrier removal on cold water streams most impacted by warming temperatures to allow climate adaptation and habitat restoration.	3-5 years	Very High
Executive Office of Energy and Environmental Affairs	Division of Ecological Restoration (DER)	DER: Develop an implementation plan to reprioritize and accelerate tidal wetland restoration for climate adaptation and habitat restoration.	3-5 years	High

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Executive Office:	Agency:	Action:	Completion Time Frame:	Agency Priority Score:
Executive Office of Energy and Environmental Affairs	Division of Ecological Restoration (DER)	DER: In support of EOEEA's efforts on MVP, build the capacity of regional organizations to implement climate adaptation and habitat restoration at the local level.	3-5 years	High
Executive Office of Energy and Environmental Affairs	Division of Fisheries and Wildlife (MassWildlife)	MassWildlife: Evaluation of climate change impacts on common species.	3-5 years	Low
Executive Office of Energy and Environmental Affairs	Division of Fisheries and Wildlife (MassWildlife)	MassWildlife: Updates to BioMap2.	3-5 years	High
Executive Office of Energy and Environmental Affairs	Division of Fisheries and Wildlife (MassWildlife)	MassWildlife: Work with MassDOT to incorporate habitat and cold water fisheries considerations into MassDOT climate vulnerability assessments, adaptation projects, and community planning tools.	3-5 years	Medium
Executive Office of Energy and Environmental Affairs	Division of Fisheries and Wildlife (MassWildlife)	MassWildlife: Evaluation of shifts in habitats and species distributions	3-5 years	Medium
Executive Office of Energy and Environmental Affairs	Division of Fisheries and Wildlife (MassWildlife)	MassWildlife: In partnership with CZM, improve management of beach nourishment projects and other shoreline protection strategies and incorporate habitat considerations into coastal storm disaster response habitat and infrastructure on barrier beaches.	3-5 years	Medium
Executive Office of Energy and Environmental Affairs	Executive Office of Energy and Environmental Affairs (EOEEA)	EOEEA: Create and deploy a SHMCAP project database.	3-5 years	Medium
Executive Office of Energy and Environmental Affairs	Executive Office of Energy and Environmental Affairs (EOEEA)	EOEEA: In consultation with DCAMM, MassDOT, and EOHEd develop climate change design standards.	3-5 years	Medium
Executive Office of Energy and Environmental Affairs	Executive Office of Energy and Environmental Affairs (EOEEA)	EOEEA: Maintain and enhance climate change projections and specific climate change data sets to support different groups of end users.	3-5 years	High
Executive Office of Energy and Environmental Affairs	Executive Office of Energy and Environmental Affairs (EOEEA)	EOEEA: Update and maintain the resilientMA.org climate change clearinghouse site to include a Vulnerability Assessment Wizard for MVP communities, a clearinghouse to grant programs to fund MVP actions, and a dynamic version of the SHMCAP.	3-5 years	High
Executive Office of Energy and Environmental Affairs	Executive Office of Energy and Environmental Affairs (EOEEA)	EOEEA: Incorporate information on climate change risk and vulnerability from the SHMCAP and subsequent studies into all capital budget planning.	3-5 years	High

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Executive Office:	Agency:	Action:	Completion Time Frame:	Agency Priority Score:
Executive Office of Health and Human Services	Department of Public Health (DPH)	DPH: Update and expand DPH and DPH provider/vendor Emergency Operations Plans (EOPs) and Continuity of Operations Plans (COOPs) to address climate impacts.	3-5 years	Very High
Executive Office of Housing and Economic Development	Massachusetts Office of Travel and Tourism (MOTT)	MOTT: Research and assess and potential effects of climate change on Commonwealth travel and tourism industry and assets.	3-5 years	Medium
Executive Office of Housing and Economic Development	Office of Public Safety and Inspections (OPSI)	OPSI: Review the state building code to assess feasibility of incorporating hazard mitigation and resilience.	3-5 years	High
Executive Office of Housing and Economic Development	Office of Public Safety and Inspections (OPSI)	OPSI: Voluntary resilience audits for private property.	3-5 years	Medium
Executive Office of Public Safety and Security	Executive Office of Public Safety and Security (EOPSS)	EOPSS: Create a statewide Threat and Hazard Identification and Risk Assessment (THIRA). In conjunction with the development of the THIRA conduct a statewide capabilities gap assessment.	3-5 years	Medium
Executive Office of Public Safety and Security	Massachusetts Emergency Management Agency (MEMA)	MEMA: Perform a statewide risk analysis for all hazards to include in future updates to this state hazard mitigation plan and other related plans. Address data deficiencies and improve analysis, when available, by partnering with federal, state, local, and other subject matter experts.	3-5 years	Very High
Executive Office of Public Safety and Security	Massachusetts Emergency Management Agency (MEMA)	MEMA: Build out a mechanism to incorporate new data and recommendations from the FEMA-approved regional and local mitigation plans into the SHMCAP, ArcGIS online and/or Climate Clearinghouse, especially locations of critical facilities and assessments of vulnerability and estimates of potential losses by jurisdiction.	3-5 years	Medium
Executive Office of Public Safety and Security	Massachusetts Emergency Management Agency (MEMA)	MEMA: Improved Local Comprehensive Emergency Management Plan (CEMP) Program.	3-5 years	Medium
Executive Office of Public Safety and Security	Massachusetts Emergency Management Agency (MEMA)	MEMA: Partner with stakeholders in Massachusetts to develop and implement regional and local multi-hazard mitigation plans by providing training and technical assistance.	3-5 years	Medium
Executive Office of Technology Services and Security	Executive Office of Technology Services and Security (EOTSS)	EOTSS: Migrate HRCMS/MMARS to the cloud.	3-5 years	High
Massachusetts Department of Transportation	Massachusetts Department of Transportation (MassDOT)	MassDOT: Pilot Deerfield Watershed Stream Crossing Resilience Project.	3-5 years	High

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Executive Office:	Agency:	Action:	Completion Time Frame:	Agency Priority Score:
Massachusetts Department of Transportation	Massachusetts Department of Transportation (MassDOT)	MassDOT: Incremental Development of Resiliency-Oriented Design Guidelines.	3-5 years	High
Massachusetts Department of Transportation	Massachusetts Department of Transportation (MassDOT)	MassDOT: State-wide Transportation Asset Vulnerability Assessment (inland flooding).	3-5 years	High
Executive Office of Administration and Finance	Division of Capital Asset Management and Maintenance (DCAMM)	DCAMM: Incorporate hazard and climate change vulnerability into capital planning, master planning, and facilities management functions.	Greater than 5 years	High
Executive Office of Education	Executive Office of Education (EOE)	EOE: Review and recommend standards for the safety and health of students in the Commonwealth informed by climate science.	Greater than 5 years	Low
Executive Office of Energy and Environmental Affairs	Department of Conservation and Recreation (DCR)	DCR: Develop strategy to implement priority DCR infrastructure projects in its Coastal Inventory.	Greater than 5 years	Medium
Executive Office of Energy and Environmental Affairs	Department of Conservation and Recreation (DCR)	DCR: Revise current review procedures for DCR-managed dams and other flood control structures to incorporate climate change data.	Greater than 5 years	High
Executive Office of Energy and Environmental Affairs	Department of Conservation and Recreation (DCR)	DCR: Work in strong coordination with EOEEA to monitor coastal shoreline sediment migration.	Greater than 5 years	Medium
Executive Office of Energy and Environmental Affairs	Department of Energy Resources (DOER)	DOER: Build energy resiliency.	Greater than 5 years	High
Executive Office of Energy and Environmental Affairs	Department of Environmental Protection (DEP)	DEP: Enhance the Water Utility Resilience Program (WURP).	Greater than 5 years	High
Executive Office of Energy and Environmental Affairs	Department of Environmental Protection (DEP)	DEP: Implement Updated Stream crossing culvert replacement guidance.	Greater than 5 years	High
Executive Office of Energy and Environmental Affairs	Department of Environmental Protection (DEP)	DEP: Resiliency Grants for Water Infrastructure.	Greater than 5 years	Low
Executive Office of Energy and Environmental Affairs	Department of Environmental Protection (DEP)	DEP: Demand strategies educational campaign.	Greater than 5 years	Medium
Executive Office of Energy and Environmental Affairs	Department of Public Utilities (DPU)	DPU: Facilitate a program for sharing resources between municipalities for tree maintenance.	Greater than 5 years	Medium

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Executive Office:	Agency:	Action:	Completion Time Frame:	Agency Priority Score:
Executive Office of Energy and Environmental Affairs	Department of Public Utilities (DPU)	DPU: Review storm preparedness best practices from other regional distribution systems.	Greater than 5 years	High
Executive Office of Energy and Environmental Affairs	Department of Public Utilities (DPU)	DPU: Regional power grid planning and incorporation of climate change data.	Greater than 5 years	Medium
Executive Office of Energy and Environmental Affairs	Division of Ecological Restoration (DER)	DER: Develop an implementation plan to build municipal capacity to replace undersized, deteriorated culverts with larger, safer structures that are resilient to extreme storms and provide passage for fish and wildlife.	Greater than 5 years	Very High
Executive Office of Energy and Environmental Affairs	Division of Ecological Restoration (DER)	DER: Develop an implementation strategy and updated prioritization scheme to work with federal, state, and local partners and non-profit organizations to remove unwanted state-owned dams to reduce risk, increase resilience to extreme weather and climate change, and restore aquatic habitat.	Greater than 5 years	Medium
Executive Office of Energy and Environmental Affairs	Division of Ecological Restoration (DER)	DER: Develop an implementation strategy for retired cranberry bog restoration for climate adaptation and habitat restoration by working with landowners, federal, state, and local partners and non-profit partners for climate resiliency, habitat quality, flood and water quality protection, and wildlife.	Greater than 5 years	Medium
Executive Office of Energy and Environmental Affairs	Division of Fisheries and Wildlife (MassWildlife)	MassWildlife: Identification of areas with high native aquatic biodiversity to help prioritize aquatic adaptation actions as the climate changes.	Greater than 5 years	Medium
Executive Office of Energy and Environmental Affairs	Division of Fisheries and Wildlife (MassWildlife)	MassWildlife: Identification of cold water climate refugia and transitional waters for protections of CFRs.	Greater than 5 years	Medium
Executive Office of Energy and Environmental Affairs	Division of Fisheries and Wildlife (MassWildlife)	MassWildlife: Dam removals at the Merrill Ponds Wildlife Management Area.	Greater than 5 years	Medium
Executive Office of Energy and Environmental Affairs	Division of Fisheries and Wildlife (MassWildlife)	MassWildlife: Mapping and control of invasive plant species.	Greater than 5 years	Medium
Executive Office of Energy and Environmental Affairs	Executive Office of Energy and Environmental Affairs (EOEEA)	EOEEA: Review, evaluate, and implement revisions as needed to environmental and energy policies, regulations, and plans.	Greater than 5 years	High
Executive Office of Energy and Environmental Affairs	Executive Office of Energy and Environmental Affairs (EOEEA)	EOEEA: Utilize available climate change projections and risk assessment data to assess vulnerabilities of all EOEEA properties. Support efforts across the administration to assess facilities held by other Executive Offices.	Greater than 5 years	High

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Executive Office:	Agency:	Action:	Completion Time Frame:	Agency Priority Score:
Executive Office of Energy and Environmental Affairs	Executive Office of Energy and Environmental Affairs (EOEEA)	EOEEA: Accelerate implementation of priority actions identified through the Municipal Vulnerability Preparedness (MVP) program, increase municipal participation in planning program, conduct program review and revise planning and action grant program as needed.	Greater than 5 years	High
Executive Office of Energy and Environmental Affairs	Executive Office of Energy and Environmental Affairs (EOEEA)	EOEEA: Review habitat management, land stewardship, coastal zone management, agricultural and invasive species programs and policies to develop strategies that promote coordination among agencies and support climate change adaptation and mitigation goals.	Greater than 5 years	High
Executive Office of Health and Human Services	Department of Public Health (DPH)	DPH: Strengthen DPH health care systems and services to prepare for climate impacts.	Greater than 5 years	High
Executive Office of Health and Human Services	Department of Public Health (DPH)	DPH: Strengthen environmental health programs to respond to climate-related impacts.	Greater than 5 years	Very High
Executive Office of Housing and Economic Development	Department of Housing and Community Development (DHCD)	DHCD: Facilitate and coordinate development of guidelines and best practices for climate change adaptation and resilience for state-aided housing development.	Greater than 5 years	High
Executive Office of Housing and Economic Development	Massachusetts Permit Regulatory Office (MPRO)	MPRO: Review Chapter 40A and existing regulatory framework to evaluate incorporation of feasibility and practicality of climate change hazard mitigation measures.	Greater than 5 years	Medium
Executive Office of Public Safety and Security	Executive Office of Public Safety and Security (EOPSS)	EOPSS: Incorporate climate change resilience into business continuity planning for state government.	Greater than 5 years	High
Executive Office of Public Safety and Security	Massachusetts Emergency Management Agency (MEMA)	MEMA: Update the State Hazard Mitigation and Climate Adaptation Plan and submit for FEMA review and approval every 5 years.	Greater than 5 years	Very High
Executive Office of Public Safety and Security	Massachusetts Emergency Management Agency (MEMA)	MEMA: Encourage state granting agencies in the Commonwealth, such as the Massachusetts Department of Housing and Community Development's review of Community Development Block Grants, to work together with MEMA to assist in providing the Non-federal cost share in Disaster Recovery and Hazard Mitigation Grants to maximize the federal funding available to the Commonwealth and its communities.	Greater than 5 years	High
Executive Office of Public Safety and Security	Massachusetts Emergency Management Agency (MEMA)	MEMA: Enhance the effectiveness of 406 funding by working to further integrate mitigation into the FEMA Public Assistance Program.	Greater than 5 years	High
Executive Office of Public Safety and Security	Massachusetts Emergency Management Agency (MEMA)	MEMA: Work with communities to implement cost-effective, environmentally sound, and feasible mitigation projects to severe repetitive loss properties.	Greater than 5 years	High

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Executive Office:	Agency:	Action:	Completion Time Frame:	Agency Priority Score:
Executive Office of Technology Services and Security	Executive Office of Technology Services and Security (EOTSS)	EOTSS: Migrate Beacon, Meditech and FamilyNet to the cloud.	Greater than 5 years	High
Executive Office of Technology Services and Security	Executive Office of Technology Services and Security (EOTSS)	EOTSS: For Registry of Motor Vehicle systems that must remain on-premises (not cloud), evaluate migration options or relocations to third party on premises.	Greater than 5 years	High
Executive Office of Technology Services and Security	Executive Office of Technology Services and Security (EOTSS)	EOTSS: Re-platform MA21 and MMIS to enable cloud migration.	Greater than 5 years	High
Massachusetts Department of Transportation	Massachusetts Bay Transit Authority (MBTA)	MBTA: Incorporate climate resiliency into capital planning activities.	Greater than 5 years	Very High
Massachusetts Department of Transportation	Massachusetts Bay Transit Authority (MBTA)	MBTA: Complete system-wide vulnerability assessment.	Greater than 5 years	Very High
Massachusetts Department of Transportation	Massachusetts Department of Transportation (MassDOT)	MassDOT: Expand and improve the Boston Harbor Flood Risk Model to create the Massachusetts Coastal Flood Risk Model.	Greater than 5 years	High
Massachusetts Department of Transportation	Massachusetts Department of Transportation (MassDOT)	MassDOT: Utilize the Boston Harbor Flood Risk Model and data from the vulnerability assessments to identify current and future high risk areas and strengthen emergency management with local, state and federal agencies.	Greater than 5 years	High
Massachusetts Department of Transportation	Massachusetts Department of Transportation (MassDOT)	MassDOT: Assess the feasibility of recommendations from the Commission on the Future of Transportation in the Commonwealth.	Greater than 5 years	High
Massachusetts Department of Transportation	Massachusetts Department of Transportation (MassDOT)	MassDOT: Capture and document institutional knowledge on vulnerabilities from staff using the Mapping Our Vulnerable Infrastructure Tool (MOVIT).	Greater than 5 years	Medium
Massachusetts Department of Transportation	Massachusetts Department of Transportation (MassDOT)	MassDOT: Coordinate with state and federal agencies to evaluate environmental regulation and permitting processes to address current roadblocks in climate change.	Greater than 5 years	High
Massachusetts Department of Transportation	Massachusetts Department of Transportation (MassDOT)	MassDOT: Develop climate change adaptation design guidance and provide resources and training for project managers and design teams on bridge and culvert design interaction with emerging fluvial geomorphology practices.	Greater than 5 years	High

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Executive Office:	Agency:	Action:	Completion Time Frame:	Agency Priority Score:
Massachusetts Department of Transportation	Massachusetts Department of Transportation (MassDOT)	MassDOT: Incorporate climate change adaptation into the MassDOT Highway Division Transportation Asset Management Plan and coordinate Asset Management across divisions and partner agencies.	Greater than 5 years	High
Massachusetts Department of Transportation	Massachusetts Department of Transportation (MassDOT)	MassDOT: Incorporate resiliency review items into the Early Environmental Coordination Checklist.	Greater than 5 years	High
Massachusetts Department of Transportation	Massachusetts Department of Transportation (MassDOT)	MassDOT: Leverage permit granting authority and ability to influence M.G.L. Section 61 findings and mitigation.	Greater than 5 years	High
Massachusetts Department of Transportation	Massachusetts Department of Transportation (MassDOT)	MassDOT: Require a holistic evaluation of all vulnerability, environmental, transportation and social data sets in the earliest project planning phases.	Greater than 5 years	High

Table D-13: Earthquake Actions

Executive Office:	Agency:	Action:	Completion Time Frame:	Agency Priority Score:
Executive Office of Energy and Environmental Affairs	Department of Environmental Protection (DEP)	DEP: Vulnerability assessment of hazardous waste sites.	Less than 3 years	Medium
Executive Office of Health and Human Services	Department of Public Health (DPH)	DPH: Provide support and direct care to vulnerable populations susceptible to climate change impacts.	Less than 3 years	High
Executive Office of Housing and Economic Development	Executive Office of Housing and Economic Development (EOHED)	EOHED: Incorporate climate change resilience/adaptation standards into grant programs including MassWorks.	Less than 3 years	Very High
Executive Office of Public Safety and Security	Massachusetts Emergency Management Agency (MEMA)	MEMA: Apply for available federal HMA funding to implement and update the completed and approved multi-jurisdictional and local hazard mitigation plans.	Less than 3 years	High
Executive Office of Public Safety and Security	Massachusetts Emergency Management Agency (MEMA)	MEMA: Plan and host hazard mitigation grant workshops for state agencies and local governments after natural disasters, especially immediately following Presidential Disaster Declarations.	Less than 3 years	High
Executive Office of Public Safety and Security	Massachusetts Emergency Management Agency (MEMA)	MEMA: Create an Earthquake Risk Reduction Program.	Less than 3 years	Medium

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Executive Office:	Agency:	Action:	Completion Time Frame:	Agency Priority Score:
Executive Office of Technology Services and Security	Executive Office of Technology Services and Security (EOTSS)	EOTSS: Migrate CommVault to the cloud.	Less than 3 years	High
Executive Office of Technology Services and Security	Executive Office of Technology Services and Security (EOTSS)	EOTSS: Migrate critical operational systems to the cloud (MITC); move critical communications infrastructure to Markley.	Less than 3 years	High
Executive Office of Technology Services and Security	Executive Office of Technology Services and Security (EOTSS)	EOTSS: Migrate email to the cloud.	Less than 3 years	High
Executive Office of Administration and Finance	Human Resources Division (HRD)	HRD: Incorporate hazard and climate change vulnerability into personnel and workplace policies, training, and guidance as appropriate.	3-5 years	Medium
Executive Office of Energy and Environmental Affairs	Executive Office of Energy and Environmental Affairs (EOEEA)	EOEEA: Create and deploy a SHMCAP project database.	3-5 years	Medium
Executive Office of Health and Human Services	Department of Public Health (DPH)	DPH: Update and expand DPH and DPH provider/vendor Emergency Operations Plans (EOPs) and Continuity of Operations Plans (COOPs) to address climate impacts.	3-5 years	Very High
Executive Office of Housing and Economic Development	Massachusetts Office of Travel and Tourism (MOTT)	MOTT: Research and assess and potential effects of climate change on Commonwealth travel and tourism industry and assets.	3-5 years	Medium
Executive Office of Housing and Economic Development	Office of Public Safety and Inspections (OPSI)	OPSI: Review the state building code to assess feasibility of incorporating hazard mitigation and resilience.	3-5 years	High
Executive Office of Public Safety and Security	Executive Office of Public Safety and Security (EOPSS)	EOPSS: Create a statewide Threat and Hazard Identification and Risk Assessment (THIRA). In conjunction with the development of the THIRA conduct a statewide capabilities gap assessment.	3-5 years	Medium
Executive Office of Public Safety and Security	Massachusetts Emergency Management Agency (MEMA)	MEMA: Partner with stakeholders in Massachusetts to develop and implement regional and local multi-hazard mitigation plans by providing training and technical assistance.	3-5 years	Medium
Executive Office of Technology Services and Security	Executive Office of Technology Services and Security (EOTSS)	EOTSS: Migrate HRCMS/MMARS to the cloud.	3-5 years	High
Executive Office of Administration and Finance	Division of Capital Asset Management and Maintenance (DCAMM)	DCAMM: Incorporate hazard and climate change vulnerability into capital planning, master planning, and facilities management functions.	Greater than 5 years	High
Executive Office of Education	Executive Office of Education (EOE)	EOE: Review and recommend standards for the safety and health of students in the Commonwealth informed by climate science.	Greater than 5 years	Low

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Executive Office:	Agency:	Action:	Completion Time Frame:	Agency Priority Score:
Executive Office of Energy and Environmental Affairs	Department of Environmental Protection (DEP)	DEP: Resiliency Grants for Water Infrastructure.	Greater than 5 years	Low
Executive Office of Energy and Environmental Affairs	Division of Ecological Restoration (DER)	DER: Develop an implementation strategy and updated prioritization scheme to work with federal, state, and local partners and non-profit organizations to remove unwanted state-owned dams to reduce risk, increase resilience to extreme weather and climate change, and restore aquatic habitat.	Greater than 5 years	Medium
Executive Office of Energy and Environmental Affairs	Division of Fisheries and Wildlife (MassWildlife)	MassWildlife: Dam removals at the Merrill Ponds Wildlife Management Area.	Greater than 5 years	Medium
Executive Office of Health and Human Services	Department of Public Health (DPH)	DPH: Strengthen DPH health care systems and services to prepare for climate impacts.	Greater than 5 years	High
Executive Office of Health and Human Services	Department of Public Health (DPH)	DPH: Strengthen environmental health programs to respond to climate-related impacts.	Greater than 5 years	Very High
Executive Office of Public Safety and Security	Massachusetts Emergency Management Agency (MEMA)	MEMA: Update the State Hazard Mitigation and Climate Adaptation Plan and submit for FEMA review and approval every 5 years.	Greater than 5 years	Very High
Executive Office of Technology Services and Security	Executive Office of Technology Services and Security (EOTSS)	EOTSS: Migrate Beacon, Meditech and FamilyNet to the cloud.	Greater than 5 years	High
Executive Office of Technology Services and Security	Executive Office of Technology Services and Security (EOTSS)	EOTSS: For Registry of Motor Vehicle systems that must remain on-premises (not cloud), evaluate migration options or relocations to third party on premises.	Greater than 5 years	High
Executive Office of Technology Services and Security	Executive Office of Technology Services and Security (EOTSS)	EOTSS: Re-platform MA21 and MMIS to enable cloud migration.	Greater than 5 years	High
Massachusetts Department of Transportation	Massachusetts Bay Transit Authority (MBTA)	MBTA: Complete system-wide vulnerability assessment.	Greater than 5 years	Very High

3.2.3 Actions Sorted by Executive Office and Agency

Table D-14: Executive Office of Administration and Finance – Executive Office of Administration and Finance (A&F)

Action:	Completion Time Frame:	Partner(s):	Agency Priority Score:
A&F: Budgeting, coordinating administrative functions, and planning.	3-5 years	Administration-wide	High

Table D-15: Executive Office of Administration and Finance – Division of Capital Asset Management and Maintenance (DCAMM)

Action:	Completion Time Frame:	Partner(s):	Agency Priority Score:
DCAMM: Incorporate hazard and climate change vulnerability into capital planning, master planning, and facilities management functions.	Greater than 5 years	EOHHS	High

Table D-16: Executive Office of Administration and Finance – Human Resources Division (HRD)

Action:	Completion Time Frame:	Partner(s):	Agency Priority Score:
HRD: Incorporate hazard and climate change vulnerability into personnel and workplace policies, training, and guidance as appropriate.	3-5 years	Administration-wide	Medium

Table D-17: Executive Office of Education – Executive Office of Education (EOE)

Action:	Completion Time Frame:	Partner(s):	Agency Priority Score:
EOE: Review and recommend standards for the safety and health of students in the Commonwealth informed by climate science.	Greater than 5 years	DESE, EEC, MSBA, DCAMM, EOEEA, MEMA	Low

Table D-18: Executive Office of Energy and Environmental Affairs – Department of Conservation and Recreation (DCR)

Action:	Completion Time Frame:	Partner(s):	Agency Priority Score:
DCR: Track and assess asset vulnerability by adding climate change/resiliency categories as part of the Asset Management Modernization Project.	Less than 3 years	DCAMM	High

Action:	Completion Time Frame:	Partner(s):	Agency Priority Score:
DCR: Update the State Forest Action Plan to enhance climate change mitigation and adaptation strategies.	Less than 3 years	MassWildlife	Medium
DCR: Incorporate climate vulnerability in all planning efforts.	3-5 years	MassWildlife, DER, CZM	High
DCR: Upgrade and strengthen control systems for both the New Charles River and Amelia Earhart dams.	3-5 years	Army Corps	Very High
DCR: Develop strategy to implement priority DCR infrastructure projects in its Coastal Inventory.	Greater than 5 years	A&F	Medium
DCR: Revise current review procedures for DCR-managed dams and other flood control structures to incorporate climate change data.	Greater than 5 years	DER	High
DCR: Work in strong coordination with EOEEA to monitor coastal shoreline sediment migration.	Greater than 5 years	EOEEA and CZM	Medium

Table D-19: Executive Office of Energy and Environmental Affairs – Department of Energy Resources (DOER)

Action:	Completion Time Frame:	Partner(s):	Agency Priority Score:
DOER: Build energy resiliency.	Greater than 5 years	DCAMM, Municipalities, Universities	High

Table D-20: Executive Office of Energy and Environmental Affairs – Department of Environmental Protection (DEP)

Action:	Completion Time Frame:	Partner(s):	Agency Priority Score:
DEP: Vulnerability assessment of hazardous waste sites.	Less than 3 years	OTA	Medium
DEP: Promulgate wetlands regulations to establish performance standards for work in land subject to coastal storm flowage.	3-5 years		High
DEP: Update precipitation data used by wetlands program.	3-5 years	University of Massachusetts at Boston and Amherst, Cornell University, MassDOT	High
DEP: Develop a Statewide River Hydraulic Model.	3-5 years	USGS New England Division. MassDOT, Northeast Climate Adaptation Science Center, EOEEA	Medium
DEP: Develop Future Extreme River Flow Projections.	3-5 years	USGS New England Division. MassDOT, Northeast Climate Adaptation Science Center	High
DEP: Improve Mapping to Enhance Resilience and Emergency Preparedness of Water Utilities.	3-5 years	DPH, Water utilities/DPWs, Local municipal emergency managers	High
DEP: Regional water quality monitoring initiative.	3-5 years	MassWildlife, DER, CZM	Medium

Action:	Completion Time Frame:	Partner(s):	Agency Priority Score:
DEP: Enhance the Water Utility Resilience Program (WURP).	Greater than 5 years	Water utilities, EPA, MWWA, MEMA	High
DEP: Implement Updated Stream crossing culvert replacement guidance.	Greater than 5 years	Coastal Zone Management, Department of Fish and Game, Division of Ecological Restoration, NOAA, U.S. Fish and Wildlife Service, American Rivers, and other conservation partners	High
DEP: Resiliency Grants for Water Infrastructure.	Greater than 5 years		Low
DEP: Demand strategies educational campaign.	Greater than 5 years		Medium

Table D-21: Executive Office of Energy and Environmental Affairs – Department of Public Utilities (DPU)

Action:	Completion Time Frame:	Partner(s):	Agency Priority Score:
DPU: Power system planning that incorporates climate change risk.	3-5 years	DOER	High
DPU: Facilitate a program for sharing resources between municipalities for tree maintenance.	Greater than 5 years	Municipalities, Electric distribution companies, Community organizations	Medium
DPU: Review storm preparedness best practices from other regional distribution systems.	Greater than 5 years	Public utility commission and distribution companies in areas reviewed	High
DPU: Regional power grid planning and incorporation of climate change data.	Greater than 5 years	Municipalities, Electric Distribution Companies, Community Organizations, Neighboring States, ISO-NE	Medium

Table D-22: Executive Office of Energy and Environmental Affairs – Division of Ecological Restoration (DER)

Action:	Completion Time Frame:	Partner(s):	Agency Priority Score:
DER: Update and share a dam removal decision support tool that directly incorporates new climate change projections, climate adaptation benefits and helps municipalities and others prioritize dams for removal.	Less than 3 years	Office of Dam Safety; MassGIS. Users of the tools will include municipalities, NGOs, state agencies, and others.	Medium
DER: Develop a prioritization and implementation strategy for barrier removal on cold water streams most impacted by warming temperatures to allow climate adaptation and habitat restoration.	3-5 years	Municipalities; Office of Dam Safety; state and federal regulatory agencies; EOEEA; NOAA; U.S. Fish and Wildlife Service; NGOs	Very High
DER: Develop an implementation plan to reprioritize and accelerate tidal wetland restoration for climate adaptation and habitat restoration.	3-5 years	Municipalities; state and federal regulatory agencies; EOEEA; NOAA; U.S. Fish and Wildlife Service; NRCS, NGOs	High
DER: In support of EOEEA's efforts on MVP, build the capacity of regional organizations to implement climate adaptation and habitat restoration at the local level.	3-5 years	NGOs	High
DER: Develop an implementation plan to complete priority water quality restoration projects for climate adaptation and habitat restoration.	3-5 years	DEP, CZM	Medium
DER: Develop an implementation plan to build municipal capacity to replace undersized, deteriorated culverts with larger, safer structures that are resilient to extreme storms and provide passage for fish and wildlife.	Greater than 5 years	Municipalities; state and federal regulatory agencies; EOEEA; NOAA; U.S. Fish and Wildlife Service; National Fish and Wildlife Foundation; The Nature Conservancy; American Rivers	Very High
DER: Develop an implementation strategy and updated prioritization scheme to work with federal, state, and local partners and non-profit organizations to remove unwanted state-owned dams to reduce risk, increase resilience to extreme weather and climate change, and restore aquatic habitat.	Greater than 5 years	Office of Dam Safety at DCR; EOEEA, DFG, DCR, state and federal regulatory agencies; NOAA; U.S. Fish and Wildlife Service; NGOs	Medium
DER: Develop an implementation strategy for retired cranberry bog restoration for climate adaptation and habitat restoration by working with landowners, federal, state, and local partners and non-profit partners for climate resiliency, habitat quality, flood and water quality protection, and wildlife.	Greater than 5 years		Medium
DER: Restore streamflow to flow-stressed rivers to increase resiliency for aquatic ecosystems and for water supplies.	Greater than 5 years	Municipalities; watershed organizations; water suppliers; DEP; EOEEA; DCR; federal agencies; and others	Medium

Table D-23: Executive Office of Energy and Environmental Affairs – Division of Fisheries and Wildlife (MassWildlife)

Action:	Completion Time Frame:	Partner(s):	Agency Priority Score:
MassWildlife: Evaluation of climate change impacts on common species.	3-5 years		Low
MassWildlife: Updates to BioMap2.	3-5 years	NGOs	High
MassWildlife: Work with MassDOT to incorporate habitat and cold water fisheries considerations into MassDOT climate vulnerability assessments, adaptation projects, and community planning tools.	3-5 years	MassDOT	Medium
MassWildlife: Evaluation of shifts in habitats and species distributions	3-5 years		Medium
MassWildlife: In partnership with CZM, improve management of beach nourishment projects and other shoreline protection strategies and incorporate habitat considerations into coastal storm disaster response habitat and infrastructure on barrier beaches.	3-5 years	USFWS	Medium
MassWildlife: Study impact of climate change on fish hatcheries held by MassWildlife.	3-5 years		Low
MassWildlife: Identification of areas with high native aquatic biodiversity to help prioritize aquatic adaptation actions as the climate changes.	Greater than 5 years		Medium
MassWildlife: Identification of cold water climate refugia and transitional waters for protections of CFRs.	Greater than 5 years	UMass-Amherst, Northeast Climate Adaptation Science Center, US Geological Survey, Division of Ecological Restoration	Medium
MassWildlife: Dam removals at the Merrill Ponds Wildlife Management Area.	Greater than 5 years	DER	Medium
MassWildlife: Mapping and control of invasive plant species.	Greater than 5 years	DER	Medium
MassWildlife: Great Marsh Pilot Ditch Remediation Project.	Greater than 5 years	NGOs	Medium

Table D-24: Executive Office of Energy and Environmental Affairs – Office of Energy and Environmental Affairs (EOEEA)

Action:	Completion Time Frame:	Partner(s):	Agency Priority Score:
EOEEA: Develop and implement a communications strategy to build state agency, municipal and public awareness of climate change resiliency issues and adaptation strategies.	Less than 3 years	MEMA, EOPSS, Climate Change Coordinators	Low
EOEEA: Reassess and develop a climate change resiliency framework and criteria for all EOEEA agency land acquisition and grant funding for land acquisition to support natural resource conservation, wildlife, human health and public safety.	Less than 3 years	All EOEEA agencies will be involved. Support from NGO's may be sought.	High
EOEEA: Create and deploy a SHMCAP project database.	3-5 years	MEMA	Medium
EOEEA: In consultation with DCAMM, MassDOT, and EOHEd develop climate change design standards.	3-5 years	DCAMM, A&F, EOHEd	Medium
EOEEA: Maintain and enhance climate change projections and specific climate change data sets to support different groups of end users.	3-5 years	Northeast Climate Adaption Science Center	High
EOEEA: Update and maintain the resilientMA.org climate change clearinghouse site to include a Vulnerability Assessment Wizard for MVP communities, a clearinghouse to grant programs to fund MVP actions, and a dynamic version of the SHMCAP.	3-5 years	All EOEEA agencies will be involved. Support from NGO's may be sought.	High
EOEEA: Incorporate information on climate change risk and vulnerability from the SHMCAP and subsequent studies into all capital budget planning.	3-5 years	A&F	High
EOEEA: Review, evaluate, and implement revisions as needed to environmental and energy policies, regulations, and plans.	Greater than 5 years	A&F	High
EOEEA: Utilize available climate change projections and risk assessment data to assess vulnerabilities of all EOEEA properties. Support efforts across the administration to assess facilities held by other Executive Offices.	Greater than 5 years	All EOEEA agencies, DCAMM	High
EOEEA: Accelerate implementation of priority actions identified through the Municipal Vulnerability Preparedness (MVP) program, increase municipal participation in planning program, conduct program review and revise planning and action grant program as needed.	Greater than 5 years	MEMA, NGOs	High
EOEEA: Review habitat management, land stewardship, coastal zone management, agricultural and invasive species programs and policies to develop strategies that promote coordination among agencies and support climate change adaptation and mitigation goals.	Greater than 5 years	All EOEEA Agencies	High

Action:	Completion Time Frame:	Partner(s):	Agency Priority Score:
EOEEA: Based on results of vulnerability assessment for EOEEA properties and vulnerability assessments from other agencies, use climate change projections to develop stormwater management actions and projects.	Greater than 5 years	NGOs, MWRA, Cities and towns	Medium

Table D-25: Executive Office of Health and Human Services – Department of Public Health (DPH)

Action:	Completion Time Frame:	Partner(s):	Agency Priority Score:
DPH: Provide support and direct care to vulnerable populations susceptible to climate change impacts.	Less than 3 years	EOEEA	High
DPH: Update and expand DPH and DPH provider/vendor Emergency Operations Plans (EOPs) and Continuity of Operations Plans (COOPs) to address climate impacts.	3-5 years		Very High
DPH: Strengthen DPH health care systems and services to prepare for climate impacts.	Greater than 5 years	Health Care Systems, Providers	High
DPH: Strengthen environmental health programs to respond to climate-related impacts.	Greater than 5 years		Very High

Table D-26: Executive Office of Housing and Economic Development – Department of Housing and Community Development (DHCD)

Action:	Completion Time Frame:	Partner(s):	Agency Priority Score:
DHCD: Facilitate and coordinate development of guidelines and best practices for climate change adaptation and resilience for state-aided housing development.	Greater than 5 years	LHA, Quasi-public authorities	High

Table D-27: Executive Office of Housing and Economic Development – Executive Office of Housing and Economic Development (EOHED)

Action:	Completion Time Frame:	Partner(s):	Agency Priority Score:
EOHED: Incorporate climate change resilience/adaptation standards into grant programs including MassWorks.	Less than 3 years	EOEEA	Very High

Table D-28: Executive Office of Housing and Economic Development – Massachusetts Office of Travel and Tourism (MOTT)

Action:	Completion Time Frame:	Partner(s):	Agency Priority Score:
MOTT: Research and assess and potential effects of climate change on Commonwealth travel and tourism industry and assets.	3-5 years	DCR	Medium

Table D-29: Executive Office of Housing and Economic Development – Massachusetts Permit Regulatory Office (MPRO)

Action:	Completion Time Frame:	Partner(s):	Agency Priority Score:
MPRO: Review Chapter 40A and existing regulatory framework to evaluate incorporation of feasibility and practicality of climate change hazard mitigation measures.	Greater than 5 years		Medium

Table D-30: Executive Office of Housing and Economic Development – Office of Public Safety and Inspections (OPSI)

Action:	Completion Time Frame:	Partner(s):	Agency Priority Score:
OPSI: Review the state building code to assess feasibility of incorporating hazard mitigation and resilience.	3-5 years	BBRS	High
OPSI: Voluntary resilience audits for private property.	3-5 years	Electric utilities	Medium
DLS: Review and consider updates to MASSsafetyWorks! resources given increased expectations of extreme weather events.	Less than 3 years		Low

Table D-31: Executive Office of Public Safety and Security – Executive Office of Public Safety and Security (EOPSS)

Action:	Completion Time Frame:	Partner(s):	Agency Priority Score:
EOPSS: Create a statewide Threat and Hazard Identification and Risk Assessment (THIRA). In conjunction with the development of the THIRA conduct a statewide capabilities gap assessment.	3-5 years	Administration-wide and Federal partners	Medium
EOPSS: Incorporate climate change resilience into business continuity planning for state government.	Greater than 5 years	A&F, EOTSS, MEMA	High

Table D-32: Executive Office of Public Safety and Security – Massachusetts Emergency Management Agency (MEMA)

Action:	Completion Time Frame:	Partner(s):	Agency Priority Score:
MEMA: Apply for available federal HMA funding to implement and update the completed and approved multi-jurisdictional and local hazard mitigation plans.	Less than 3 years	RMAAT Agencies	High
MEMA: Hire a Disaster Survivor Assistance Planner.	Less than 3 years		Medium
MEMA: Plan and host hazard mitigation grant workshops for state agencies and local governments after natural disasters, especially immediately following Presidential Disaster Declarations.	Less than 3 years	FEMA and Communities	High
MEMA: Prepare hazard mitigation best practices and case studies.	Less than 3 years	DCR, EOEEA, CZM, DER	Medium
MEMA: Create an Earthquake Risk Reduction Program.	Less than 3 years	USGS, FEMA, Northeast Stated Emergency Consortium (NESEC), Weston Observatory, State Building Code Officials, Structural Engineers, Academic Partners	Medium
MEMA: Perform a statewide risk analysis for all hazards to include in future updates to this state hazard mitigation plan and other related plans. Address data deficiencies and improve analysis, when available, by partnering with federal, state, local, and other subject matter experts.	3-5 years	EOEEA and RMAAT	Very High
MEMA: Build out a mechanism to incorporate new data and recommendations from the FEMA-approved regional and local mitigation plans into the SHMCP, ArcGIS online and/or Climate Clearinghouse, especially locations of critical facilities and assessments of vulnerability and estimates of potential losses by jurisdiction.	3-5 years	EOEEA, CZM, DCR, Towns	Medium
MEMA: Improved Local Comprehensive Emergency Management Plan (CEMP) Program.	3-5 years		Medium
MEMA: Partner with stakeholders in Massachusetts to develop and implement regional and local multi-hazard mitigation plans by providing training and technical assistance.	3-5 years	FEMA, EOEEA, MVP Program Staff, NGOs	Medium
MEMA: Update the State Hazard Mitigation and Climate Adaptation Plan and submit for FEMA review and approval every 5 years.	Greater than 5 years	EOEEA and RMAAT	Very High
MEMA: Encourage state granting agencies in the Commonwealth, such as the Massachusetts Department of Housing and Community Development’s review of Community Development Block Grants, to work together with MEMA to assist in providing the Non-federal cost share in Disaster Recovery and Hazard Mitigation Grants to maximize the federal funding available to the Commonwealth and its communities.	Greater than 5 years	DHCD, EOEEA, DCR, EOHED, Others	High

Action:	Completion Time Frame:	Partner(s):	Agency Priority Score:
MEMA: Enhance the effectiveness of 406 funding by working to further integrate mitigation into the FEMA Public Assistance Program.	Greater than 5 years	FEMA , DCR, CZM, DEP, EOEEA	High
MEMA: Work with communities to implement cost-effective, environmentally sound, and feasible mitigation projects to severe repetitive loss properties.	Greater than 5 years	Communities as Sub-grantees	High

Table D-33: Executive Office of Technology Services and Security – Executive Office of Technology Services and Security (EOTSS)

Action:	Completion Time Frame:	Partner(s):	Agency Priority Score:
EOTSS: Migrate CommVault to the cloud.	Less than 3 years		High
EOTSS: Migrate critical operational systems to the cloud (MITC); move critical communications infrastructure to Markley.	Less than 3 years	Administration-wide	High
EOTSS: Migrate email to the cloud.	Less than 3 years	Administration-wide	High
EOTSS: Migrate HRCMS/MMARS to the cloud.	3-5 years	Comptroller, A&F, HRD	High
EOTSS: Migrate Beacon, Meditech and FamilyNet to the cloud.	Greater than 5 years	EOHHS	High
EOTSS: For Registry of Motor Vehicle systems that must remain on-premises (not cloud), evaluate migration options or relocations to third party on premises.	Greater than 5 years		High
EOTSS: Re-platform MA21 and MMIS to enable cloud migration.	Greater than 5 years		High

Table D-34: Massachusetts Department of Transportation – Massachusetts Bay Transit Authority (MBTA)

Action:	Completion Time Frame:	Partner(s):	Agency Priority Score:
MBTA: Incorporate climate resiliency into capital planning activities.	Greater than 5 years	MassDOT	Very High
MBTA: Complete system-wide vulnerability assessment.	Greater than 5 years	Consultant support	Very High

Table D-35: Massachusetts Department of Transportation – Massachusetts Department of Transportation (MassDOT)

Action:	Completion Time Frame:	Partner(s):	Agency Priority Score:
MassDOT: Incorporate climate resiliency into capital planning activities.	Less than 3 years	Highway Division staff, Consultants	Very High
MassDOT: Pilot Deerfield Watershed Stream Crossing Resilience Project.	3-5 years	Staff and Consultants	High
MassDOT: Incremental Development of Resiliency-Oriented Design Guidelines.	3-5 years	Internal Staff, Consultants, State partners, Federal partners, AASHTO, TRB	High
MassDOT: State-wide Transportation Asset Vulnerability Assessment (inland flooding).	3-5 years	Highway Division	High
MassDOT: Expand and improve the Boston Harbor Flood Risk Model to create the Massachusetts Coastal Flood Risk Model.	Greater than 5 years	EOEEA, Coastal Zone Management (CZM), UMass Boston	High
MassDOT: Utilize the Boston Harbor Flood Risk Model and data from the vulnerability assessments to identify current and future high risk areas and strengthen emergency management with local, state and federal agencies.	Greater than 5 years	FHWA, Cities of Boston and Cambridge and Stakeholders	High
MassDOT: Assess the feasibility of recommendations from the Commission on the Future of Transportation in the Commonwealth.	Greater than 5 years	EOEEA	High
MassDOT: Capture and document institutional knowledge on vulnerabilities from staff using the Mapping Our Vulnerable Infrastructure Tool (MOVIT).	Greater than 5 years	Highway Division	Medium
MassDOT: Coordinate with state and federal agencies to evaluate environmental regulation and permitting processes to address current roadblocks in climate change.	Greater than 5 years	Regulatory Agencies	High
MassDOT: Develop climate change adaptation design guidance and provide resources and training for project managers and design teams on bridge and culvert design interaction with emerging fluvial geomorphology practices.	Greater than 5 years	Highway Division staff, Consultants	High
MassDOT: Incorporate climate change adaptation into the MassDOT Highway Division Transportation Asset Management Plan and coordinate Asset Management across divisions and partner agencies.	Greater than 5 years	Federal Highway Administration	High
MassDOT: Incorporate resiliency review items into the Early Environmental Coordination Checklist.	Greater than 5 years	Highway and Bridge Design, Consultants	High
MassDOT: Leverage permit granting authority and ability to influence M.G.L. Section 61 findings and mitigation.	Greater than 5 years	Highway Division	High
MassDOT: Require a holistic evaluation of all vulnerability, environmental, transportation and social data sets in the earliest project planning phases.	Greater than 5 years	Massachusetts Department of Transportation Planning, Consultant support	High

4. Funding Sources for Hazard Mitigation and Climate Adaptation Actions

This section identifies some traditional funding sources for hazard mitigation and climate activities, in addition to some of the more recent and emerging sources that may be available to the Commonwealth of Massachusetts to support plan implementation in the years ahead.

4.1 Traditional Funding Sources

4.1.1 Commonwealth of Massachusetts

[Community Coastal Resilience Grant Program](#)

The Office of Coastal Zone Management (CZM) administers the Coastal Resilience Grant Program to provide financial and technical support for local efforts to increase awareness and understanding of climate impacts, identify and map vulnerabilities, conduct adaptation planning, redesign vulnerable public facilities and infrastructure, and implement non-structural (or green infrastructure) approaches that enhance natural resources and provide storm damage protection. Managed through CZM's StormSmart Coasts program, grants are available for a range of coastal resilience approaches—from planning, public outreach, feasibility assessment, and analysis of shoreline vulnerability to design, permitting, construction, and monitoring.

The Coastal Resilience Grant Program is open to the 78 municipalities located within the Massachusetts coastal zone. Certified 501(c)(3) nonprofit organizations with vulnerable coastal property that is open and accessible to the public are also eligible for funding for natural storm-damage protection (or green infrastructure) projects.

[Community Clean Energy Resiliency Initiative](#)

The Department of Energy Resources (DOER) administers the Community Clean Energy Resiliency Initiative. Launched in 2014, this \$40 million initiative provides grant awards that are focused on municipal resilience projects that use clean energy technology solutions to protect

communities from interruptions in energy services due to severe climate events made worse by the effects of climate change.

Culvert Replacement Municipal Assistance Grant Program

The Department of Fish and Game, Division of Ecological Restoration (DER) administers the Culvert Replacement Municipal Assistance Grant Program. The program was developed to assist municipalities interested in replacing an undersized, perched, and/or degraded culverts located in an area of high ecological value. The purpose of this funding is to encourage municipalities to replace culverts with better designed crossings that meet improved structural and environmental design standards and flood resiliency criteria.

Dam and Seawall Repair or Removal Program

The Executive Office of Energy and Environmental Affairs (EOEEA) administers the Dam and Seawall Repair or Removal Program, established in 2013 by the Massachusetts Legislature to promote public health, public safety, and ecological restoration. The program offers financial resources to qualified applicants for projects that share EOEEA's mission to enhance, preserve, and protect natural resources and the scenic, historic and aesthetic qualities of the Commonwealth. It has provided significant funding to municipalities across Massachusetts to address deteriorating dams and refurbishing critical coastal infrastructure, which in turn improves their storm readiness and resiliency to climate change.

DER Priority Restoration Projects

The Department of Fish and Game, Division of Ecological Restoration (DER) administers the Priority Restoration Projects program. Each year DER selects wetland, river and flow restoration projects through a state-wide, competitive process. They choose high-priority projects that bring significant ecological and community benefits to the Commonwealth, including those that reduce flood hazard risks and increase climate readiness. All of DER's restoration projects and services improve the resilience of ecosystems by removing or upgrading critical infrastructure and reducing impairments to ecosystem health.

Land and Recreation Grants & Loans

EOEEA administers various grants and loans for land and recreational projects, including the acquisition and/or conservation of areas that are vulnerable to the adverse effects of natural hazards and climate change. EOEEA has incorporated resiliency criteria into many of these programs.

Massachusetts State Revolving Fund

EOEEA administers the State Revolving Fund, from which grants may be provided to assist communities in funding stormwater management projects which help to reduce or eliminate flooding in areas of poor drainage.

4.1.2 Federal Emergency Management Agency

The Federal Emergency Management Agency (FEMA) makes grant funding for mitigation available via several Hazard Mitigation Assistance (HMA) programs, each of which is administered by the State. These grant programs provide funding for eligible mitigation activities that reduce disaster losses and protect life and property from future disaster damages. They are not intended to fund repair, replacement, or deferred maintenance activities but are rather designed to assist in developing long-term, cost-effective improvements that will reduce risk to natural hazards. FEMA also encourages the incorporation of methods to mitigate the impacts of climate change into eligible HMA funded risk reduction activities. Local jurisdictions are eligible to apply for funding through the State as subgrantees, and assistance with application development and project eligibility criteria are available through MEMA. The following brief descriptions provide an overview of the current HMA grant programs available to the Commonwealth.

Pre-Disaster Mitigation (PDM) Program

The Pre-Disaster Mitigation Program was authorized by Part 203 of the Robert T. Stafford Disaster Assistance and Emergency Relief Act (Stafford Act), 42 U.S.C. 5133. The PDM program provides funds to states, territories, tribal governments, communities, and universities for hazard mitigation planning and implementation of mitigation projects prior to disasters, providing an opportunity to reduce the nation's disaster losses through pre-disaster mitigation planning and the implementation of feasible, effective, and cost-efficient mitigation measures. Funding of pre-disaster plans, and projects is meant to reduce overall risks to populations and facilities. Federal funding for this nationally-competitive grant program is generally an annual allocation (subject to Congressional appropriation).



Flood Mitigation Assistance (FMA) Program

The FMA program was created as part of the National Flood Insurance Reform Act (NFIRA) of 1994 (42 U.S.C. 4101) with the goal of reducing or eliminating claims under the National Flood Insurance Program (NFIP). FEMA provides FMA funds to assist states and communities with implementing measures that reduce or eliminate the long-term risk of flood damage to buildings, manufactured homes, and other structures insurable under the NFIP. The long-



term goal of FMA is to reduce or eliminate claims under the NFIP through mitigation activities. One limitation of the FMA program is that it is generally used to provide mitigation for structures that are insured or located in Special Flood Hazard Areas (SFHAs). Federal funding for this nationally-competitive grant program is generally an annual allocation (subject to Congressional appropriation).

[Hazard Mitigation Grant Program \(HMGP\)](#)

The HMGP is authorized under Section 404 of the Robert T. Stafford Disaster Relief and Emergency Assistance Act. The HMGP provides grants to states and local governments to implement long-term hazard mitigation measures after a major disaster declaration. The purpose of the HMGP is to reduce the loss of life and property due to natural disasters and to enable mitigation measures to be implemented during the immediate recovery from a disaster. A key purpose of the HMGP is to ensure that any opportunities to take critical mitigation measures to protect life and property from future disasters are not lost during the recovery and reconstruction process following a disaster. HMGP is typically available only in the months subsequent to a federal disaster declaration. Because the State administers HMGP directly, application cycles will need to be closely monitored after disasters are declared.



[Emergency Management Preparedness Grant \(EMPG\) Program](#)

Separate from the above HMA programs, the EMPG program plays an important role in the implementation of the National Preparedness System by supporting the building, sustainment, and delivery of core capabilities essential to achieving the National Preparedness Goal of a secure and resilient nation. Pending the availability of funds, MEMA, through an annual sub-grant application process, makes EMPG funding available to all communities and Tribes in the Commonwealth through their local emergency management department. This is a reimbursement-based grant program with a goal to assist local emergency management departments in building and maintaining an all-hazards emergency preparedness system. Communities may use EMPG funds towards planning; organizational support; equipment; training; and exercises.

4.1.3 U.S. Department of Housing and Urban Development

The U.S. Department of Housing and Urban Development (HUD) provides Community Development Block Grant (CDBG) funding for projects that achieve local community and economic development objectives. Although administered by the Department of Housing and Community Development (DHCD), eligible activities must still meet national program objectives that include benefiting low and moderate-income persons, eliminating slum and blight, or addressing an urgent need.

Community Development Block Grant (CDBG) Program

The CDBG program provides financial assistance to eligible municipalities in order to develop viable communities by providing affordable housing and suitable living environments, as well as expanding economic opportunities, principally for persons of low and moderate income. It is possible that the CDBG funding program could be applicable for floodproofing and elevating residential and nonresidential buildings, depending on eligibility of those buildings relative to the program requirements. Other possible activities may include stormwater drainage improvements, the use of low impact development or green infrastructure to reduce hazard risks, and more.

Community Development Block Grant – Disaster Recovery (CDBG-DR) Program

Through CDBG-DR, HUD provides flexible grants to help cities, counties, and States recover from Presidentially declared disasters, especially in low-income areas, subject to availability of supplemental appropriations. The CDBG-DR program is designed to meet the unmet needs of communities most impacted by disasters including the costs of repairs, reconstruction and new construction that insurance, FEMA and any other sources of funding does not cover. In response to Presidentially declared disasters, Congress may appropriate additional funding for the CDBG-DR program to rebuild the affected areas and provide crucial seed money to start the recovery process. Since CDBG-DR assistance may fund a broad range of activities, including those related to disaster recovery but also long-term risk reduction, the Commonwealth can use these funds to help communities and neighborhoods become more resilient in ways that otherwise may not be possible due to limited resources. The Commonwealth has been capable of securing CDBG-DR grants in the past and should be prepared to maximize their use following future funding opportunities.

4.1.4 Natural Resources Conservation Service

The U.S. Department of Agriculture's Natural Resources Conservation Service (NRCS) provides technical assistance to individual landowners, groups of landowners, communities, and soil and water conservation districts on land use and conservation planning, resource development, stormwater management, flood prevention, erosion control and sediment reduction, detailed soil surveys, watershed/river basin planning and recreation, and fish and wildlife management. Financial assistance is available to reduce flood damage in small watersheds and to improve water quality. Two major programs are described below.

Emergency Watershed Protection (EWP) Program

Through the EWP program, the NRCS can help communities address watershed impairments that pose imminent threats to lives and property. Most EWP work is for the protection of threatened infrastructure from continued stream erosion. NRCS may pay up to 75% of the construction costs of emergency measures. The remaining costs must come from local sources and can be made in cash or in-kind services. No work done prior to a project agreement can be

included as in-kind services or part of the cost share. EWP projects must reduce threats to lives and property; be economically, environmentally, and socially defensible; be designed and implemented according to sound technical standards; and conserve natural resources.

Watersheds and Flood Prevention Operations

This program element contains two separate and distinct programs, "Watershed Operations" and "Small Watersheds." The purpose of these programs is to cooperate with state and local agencies, tribal governments, and other federal agencies to prevent damages caused by erosion, floodwater, and sediment and to further the conservation, development, utilization, and disposal of water and the conservation and utilization of the land. The objectives of these programs are to assist local sponsors in assessing conditions in their watershed, developing solutions to their problems, and installing necessary measures to alleviate the problems. Measures may include land treatment and structural and nonstructural measures. Federal cost sharing for installation of the measures is available. The amount depends upon the purposes of the project.

4.1.5 U.S. Army Corps of Engineers

The U.S. Army Corps of Engineers (USACE) provides 100% funding for floodplain management planning and technical assistance to states and local governments under several flood control acts and the Floodplain Management Services (FPMS) Program. Specific programs used by USACE for mitigation are listed below.

Section 205 – Small Flood Damage Reduction Projects

This section of the 1948 Flood Control Act authorizes USACE to study, design, and construct small flood control projects in partnership with nonfederal government agencies. Feasibility studies are 100% federally funded up to \$100,000 with additional costs shared equally. Costs for preparation of plans and construction are funded 55% with a 35% nonfederal match. In certain cases, the nonfederal share for construction could be as high as 50%. The maximum federal expenditure for any project is \$7 million.

Section 14 – Emergency Streambank and Shoreline Protection

This section of the 1945 Flood Control Act authorizes USACE to construct emergency shoreline and stream bank protection works to protect public facilities such as bridges, roads, public buildings, sewage treatment plants, water wells, and nonprofit public facilities such as churches, hospitals, and schools. Cost sharing is similar to Section 205 projects above. The maximum federal expenditure for any project is \$1.5 million.

Section 208 – Clearing and Snagging Projects

This section of the 1954 Flood Control Act authorizes USACE to perform channel clearing and excavation with limited embankment construction to reduce nuisance flood damages caused by

debris and minor shoaling of rivers. Cost sharing is similar to Section 205 projects above. The maximum federal expenditure for any project is \$500,000.

Section 205 – Floodplain Management Services

This section of the 1950 Flood Control Act, as amended, authorizes USACE to provide a full range of technical services and planning guidance necessary to support effective floodplain management. General technical assistance efforts include determining the following: site-specific data on obstructions to flood flows, flood formation, and timing; flood depths, stages, or floodwater velocities; the extent, duration, and frequency of flooding; information on natural and cultural floodplain resources; and flood loss potentials before and after the use of floodplain management measures. Types of studies conducted under FPMS include floodplain delineation, dam failure, hurricane evacuation, flood warning, floodway, flood damage reduction, stormwater management, floodproofing, and inventories of flood prone structures. When funding is available, this work is 100% federally funded.

In addition, USACE also provides emergency flood assistance (under Public Law 84-99) after local and state funding has been used. This assistance can be used for both flood response and post-flood response. Corps assistance is limited to the preservation of life and improved property; direct assistance to individual homeowners or businesses is not permitted. In addition, USACE can loan or issue supplies and equipment once local sources are exhausted during emergencies.

4.1.6 U.S. Department of the Interior, Fish and Wildlife Service (FWS) Coastal Program

The Coastal Program is a voluntary, incentive-based program that provides direct technical assistance and financial assistance in the form of cooperative agreements to coastal communities and landowners to restore and protect fish and wildlife habitat on public and private lands. Coastal Program staff coordinate with project partners, stakeholders and other Service programs to identify geographic focus areas and develop habitat conservation priorities within these focus areas. Geographic focus areas are where the Coastal Program directs resources to conserve habitat for federal trust species. Project work plans are developed strategically, in coordination with partners, and with substantial involvement from Service field staff. Projects must advance FWS's mission, promote biological diversity, and be based upon sound scientific biological principles. Program strategic plans inform the types of projects funded under this opportunity.

4.1.7 U.S. Environmental Protection Agency (EPA) Healthy Communities Grant Program

The Healthy Communities Grant Program is EPA New England's main competitive grant program to work directly with communities to reduce environmental risks, protect and improve

human health and improve the quality of life. The Healthy Communities Grant Program achieves this through identifying and funding projects that:

- Target resources to benefit communities at risk [areas needing to create community resilience, environmental justice areas of potential concern, sensitive populations (e.g. children, elderly, tribes, urban/rural residents, and others at increased risk)].
- Assess, understand, and reduce environmental and human health risks.
- Increase collaboration through partnerships and community-based projects.
- Build institutional and community capacity to understand and solve environmental and human health problems.
- Advance emergency preparedness and ecosystem resilience.
- Achieve measurable environmental and human health benefits.

To qualify as eligible projects under the Healthy Communities Grant Program, proposed projects must: (1) be located in and/or directly benefit one or more of the Target Investment Areas that include: Areas Needing to Create Community Resilience, Environmental Justice Areas of Potential Concern, and/or Sensitive Populations.

4.2 New and Emerging Sources of Funding

4.2.1 Municipal Vulnerability Preparedness (MVP) Grant Program

The MVP Grant Program supports Executive Order 569 by providing direct funding and technical support to cities and towns to complete and implement community-driven climate change vulnerability assessments and priority action plans to improve the municipality's resilience to top natural and climate-related hazards. The MVP program is split into Planning Grants, which result in a completed assessment process and MVP plan, leading to designation as an "MVP Community;" and MVP Action Grants, which seek to implement key priorities and projects identified through the MVP Planning Grants. MVP Action Grants are provided to help MVP Communities address climate change impacts resulting from extreme weather, sea level rise, inland and coastal flooding, severe heat, and other climate impacts. Projects that propose nature-based solutions or strategies that rely on green infrastructure or conservation and enhancement of natural systems to improve community resilience will receive higher scores.

4.2.2 Massachusetts Environmental Bond Bill

On August 21, 2018 Governor Charlie Baker signed legislation to authorize over \$2.4 billion in capital allocations for investments in safeguarding residents, municipalities and businesses from the impacts of climate change, protecting environmental resources, and improving recreational

opportunities. *An Act Promoting Climate Change Adaptation, Environmental and Natural Resource Protection and Investment in Recreational Assets and Opportunity* (Bill H. 4835) enables critical environmental investments at the state and local levels and puts into law essential components of Governor Baker’s Executive Order 569, including the MVP grant program identified in Section 4.2.1 and this SHMCAP.

Recognizing the significant impact of climate change on coastal and inland communities, the legislation authorizes \$501 million to respond to and prepare for extreme weather, sea level rise, inland flooding and other climate impacts:

- \$290 million will be used to fund improvements and repairs to dams and seawalls and to implement diverse coastal resiliency strategies
- \$75 million will provide planning and action grants to communities through the MVP program
- \$100 million will be invested in implementing the Commonwealth’s SHMCAP.

Further expanding Executive Order 569, the legislation codifies the commitments under the Executive Order, including issuance of, and ongoing updates to, an integrated, state-wide hazard mitigation and climate adaptation plan, continuation of the MVP program, and support for ongoing state agency climate change vulnerability assessments.

4.2.3 Northeast Regional Ocean Council

The Northeast Regional Ocean Council (NROC) is a state/federal partnership that facilitates the New England states, federal agencies, regional organizations, and other interested regional groups in their efforts to address ocean and coastal issues from a regional perspective. NROC builds capacity of New England communities through training and a small grants program to improve the region's resilience and response to impacts of coastal hazards and climate change. The Commonwealth should access NROC grants as applicable projects are advanced from this plan.

4.2.4 NOAA Regional Coastal Resilience Grants

The National Oceanic and Atmospheric Administration (NOAA) is committed to helping coastal communities address increasing risks from extreme weather events, climate hazards, and changing ocean conditions. To that end, NOAA's National Ocean Service is providing funding through competitive grant awards through the Regional Coastal Resilience Grants program. Awards are made for project proposals that advance resilience strategies, often through land and ocean use planning; disaster preparedness projects; environmental restoration; hazard mitigation planning; or other regional, state, or community planning efforts. Successful proposals demonstrate regional coordination among project stakeholders, leverage resources (such as

funds, programs, partnerships, and others), and create economic and environmental benefits for coastal communities. Project results are evaluated using clear measures of success, with the end goal being improved preparation, response, and recovery.

Eligible applicants include nonprofit organizations; institutions of higher education; regional organizations; private (for profit) entities; and local, state, and tribal governments. Award amounts typically range from \$500,000 to \$1 million for projects lasting up to 36 months. Cost sharing through cash or in-kind matches is expected. Applicants must conduct projects benefiting coastal communities in one or more of the 35 U.S. coastal states or territories.

4.2.5 Regional and National Design Competitions

Although the Rebuild By Design (RBD) competition and National Disaster Resilience Competition (NDRC) are complete, they have provided a new model for screening and selecting resilience grant awardees in the United States. The Commonwealth should keep abreast on future design competitions and consider pursuing these competitions as an individual applicant (if eligible), or with a group of municipalities and/or regional entity as appropriate.