

The future won't be like the past: Its time to include climate change in hazard mitigation planning

Evidence of a changing climate is growing. Massachusetts' coastal communities are vulnerable to threats associated with climate change. The potential impacts pose significant challenges to coastal communities. Sea level rise and shoreline erosion are prime problems. Impacts from tidal surges and flooding associated with Nor'easters and hurricanes will likely become more severe with time. Climate-induced changes in inland systems, including rainfall from intense storms, are also predicted to affect coastal areas. As the climate changes past weather will be less and less indicative of future weather. For example, sea level rise alters the way storm surge impacts coastal lands. Changing precipitation patterns alters stormwater flow volumes. Heat waves may come more often.

Communities need to plan for the threats associated with climate change. Hazard mitigation planning is one tool that municipalities can use to prepare for weather and climate related threats.

Hazard mitigation plans prioritize hazard mitigation strategies that reduce or eliminate risks to people and property. According to the Federal Emergency Management Agency (FEMA), examples of mitigation actions include "adopting and enforcing regulatory tools to guide and inform land use, development, and construction decisions in areas affected by hazards" or mitigation projects that "retrofit critical facilities to withstand extreme wind events or ground shaking from earthquakes" (From FEMA, Mitigation Planning Fact Sheet, www.fema.gov/library/viewRecord.do?id=2066). The benefits of a hazard mitigation plan are improved preparedness, as well as eligibility for certain kinds of hazard mitigation funding from the federal government.

Hazard mitigation planning, as defined by FEMA, is the process by which State, Tribal, and local governments identify risks and vulnerabilities associated with natural disasters and develop long-term strategies for protecting people and property from future hazard events.

Hazard mitigation strategies can be designed to prevent damages, accommodate risks, and retreat from potential future harm of climate change. Hazard mitigation strategies include activities that:

- Prevent the risks from a hazard from getting worse
- Protect property faced vulnerable to a hazard
- Raise public awareness
- Protect natural resources that protect communities from hazards
- Ensure effective emergency services
- Support implementation of structural barriers

There are no requirements to consider the risks from climate change in a hazard mitigation plan.

However, by considering the effects of climate change on hazards and risks communities can be better prepared, reduce costs in the long-term, and initiate long-term adaptations.

Factoring climate change into hazard mitigation planning better prepares and protects communities.

The risks from extreme weather that may be exacerbated by climate change can be proactively addressed by identifying opportunities for co-benefits and low-regret actions such as:

- Improving routine maintenance and replacement
- Elevating access to wastewater pumping stations
- Protecting future capital investments (e.g., waste water treatment facilities)
- Identifying opportunities for long-term adaptations
- Implementing new building codes for new housing stock
- Requiring or promoting storm-safe construction
- Identifying properties for natural retreat of coastal vegetation and dunes
- Informing residents of best practices to protect properties
- Encouraging low-cost landscaping strategies to reduce stormwater runoff

Hazard Mitigation Planning Resources

Federal Emergency Management Agency (FEMA) Hazard Mitigation Grant Program.

<http://www.fema.gov/hazard-mitigation-grant-program>

Massachusetts Emergency Management Agency (MEMA) Hazard Mitigation Program

<http://www.mass.gov/eopss/agencies/mema/hazard-mitigation/>

Examples of plans that integrate natural hazards and climate change

City of Boston (2013). Boston Natural Hazards Mitigation Plan 2013 Update. Available at:

www.cityofboston.gov/environment/mitigationplan.asp

City of Lewes (2011). Hazard mitigation and climate change adaptation plan: A community guide developed to improve public safety, minimize losses and create greater city-wide resilience.

Available at:

www.ci.lewes.de.us/pdfs/Lewes_Hazard_Mitigation_and_CClimate_Adaptation_Action_Plan_FinalDraft_8-2011.pdf

VCAPS resources

The *Vulnerability, Consequences, and Adaptation Planning Scenarios (VCAPS)* process is a proven screening and decision making tool to help individuals, organizations and governments manage problems associated with climate change. VCAPS is a facilitated conversation that produces scenarios linking climate and weather changes to local consequences. Short- and long-term management and adaptation actions are identified as part of the scenarios. For more information visit www.vcapsforplanning.org

The City of Boston used the VCAPS process while preparing its 2013 Natural Hazard Mitigation Plan Update.



This factsheet was funded through a grant from MIT Sea Grant to the Social and Environmental Research Institute, Amherst, MA (www.seri-us.org)