

Resources for Climate Change: Resiliency and Preservation

2019 Massachusetts Statewide Preservation Conference
September 20, 2019



Introduction: Climate change is impacting Massachusetts communities in the form of increased temperatures, more intense precipitation events, riverine flooding, sea level rise and other measurable ways. These impacts are motivating citizens, elected officials and planners to physically adapt their buildings, infrastructure and whole neighborhoods and communities in order to make them more resilient. The cities and towns in the Commonwealth have historic resources which are integral to their physical character, economy and sense of psychological self-worth.

Traditional preservation planning and regulatory tools may not be sufficient to address the coming impacts of both climate change impacts themselves and the coming demand for increased resiliency by owners of historic property. Thankfully, there are numerous resources available to preservation advocates on the local level – this listing is a work in progress (recommendations for additions are encouraged to Arnold Robinson (arobinson@fando.com)).

Types of Resources: Before diving into solutions, it is important to understand that the complex world of climate change impacts and the resiliency of historic resources has a few major categories.

- Science of climate change (global)
 - [EPA Climate Change and Water News](#)
 - [Climate Change Indicators in the United States](#)
 - [NASA Jet Propulsion Lab Portal - Sea Level Change: Observations from Space](#)
 - [NOAA Climate Maps](#)
 - [NOAA Sea Level Rise and Coastal Flood Web Tools Comparison Matrix](#)
 - [NOAA Weather and Climate Toolkit](#)
- Mitigating causes on climate change (global and local)
- **Forecasts of impacts (global and local)**
- **Resiliency (regional and local) –**
 - **Adaptation (local)**
 - **Recovery (local)**

International Resources: Climate change impacts and resiliency building efforts are a global issue, and much work is being done by heritage professionals across the globe. While some is applicable to local, technical issues, a great deal is more academic.

1. The International Council on Monuments and Sites (ICOMOS):
<https://www.icomos.org/en/focus/climate-change>
2. Association for Preservation Technology <https://www.apti.org/sustainable-preservation>
3. Global Case studies: e.g.: Dutch Dialogues: a series of local conversation in which US cities have engaged with design and preservation professionals from the Netherlands to share the Dutch

experience and test applicability to American flooding issues. <http://plus.usgbc.org/dutch-dialogues/>

Forecasts of Impacts to Historic Resources

1. Massachusetts Climate Change Adaptation Report: <https://www.mass.gov/service-details/2011-massachusetts-climate-change-adaptation-report>
2. Massachusetts Sea Level Rise and Coastal Flooding Viewer by MA Office of Coastal Zone Management: <https://mass-eocea.maps.arcgis.com/apps/MapSeries/index.html?appid=6f2797652f8f48eaa09759ea6b2c4a95>
3. Boston: Sea Change/Boston mapping tool by Sasaki Associates: <http://seachange.sasaki.com/>
4. Nantucket: Nantucket is partnered with the University of Florida's Historic Preservation Program to create a highly accurate digital map the downtown waterfront and to use it to create a 3D forecast of sea level rise and storm surge impacts: <https://dcp.ufl.edu/historic-preservation/resilient-nantucket/>
5. Massachusetts communities of differing types and focus using their own GIS systems: these vary widely depending on local capacity and motivation.
6. Rhode Island (StormTools web simulation): User-friendly, web-based GIS interface that allows anyone to select scenario options to understand sea level rise and storm surge impacts: <https://www.beachsamp.org/stormtools/>

National Resources

1. National Park Service: The federal agency responsible for historic resources and their preservation, the NPS has played an active role in the development of national information and strategy. One of the most applicable is the 2017 *Cultural Resources Climate Change Strategy* which sets out a vision and broad approach for managing impacts to and learning from cultural resources under modern climate change. <https://www.nps.gov/subjects/climatechange/culturalresourcesstrategy.htm>
2. Federal Emergency Management Administration (FEMA): The federal agency addressing emergencies of all types across the US, FEMA has the mission statement: "Helping people before, during, and after disasters." They are well-versed in historic preservation and have specialized staff that address issues where historic resources are affected by emergencies. Their website has many resources for citizens, property owners and communities. <https://www.fema.gov/>
3. Other Federal Agencies/Resources:
 - a. [EPA Climate Change Adaptation Resource Center](#)
 - b. [U.S. Climate Resilience Toolkit](#)
 - c. [Community Resilience Building](#)
4. National Flood Insurance Program: The National Flood Insurance Program aims to reduce the impact of flooding on private and public structures. It does so by providing affordable insurance to property owners, renters and businesses and by encouraging communities to adopt and enforce floodplain management regulations. These policies and associated regulations can impact the configuration of historic structures. <https://www.fema.gov/national-flood-insurance-program>
5. National Trust for Historic Preservation: As the national non-profit advocacy organization for preservation, the Trust has been focused on climate change impacts through many of its programs. <https://savingplaces.org/climate-and-culture#.XYJKTyhKiUk>
6. Keeping History Above Water (KHAW): KHAW began in Newport, RI as one of the first national conversations to focus on the increasing and varied risks posed by sea level rise to historic coastal communities and their built environments. It has now been replicated in several other historic communities and there are plans for more. Importantly, it was not a conference about climate

change, but about what preservationists, engineers, city planners, legislators, insurers, historic home owners and other decision makers need to know about climate change, sea level rise in particular, and what can be done to protect historic buildings, landscapes and neighborhoods from the increasing threat of inundation <https://historyabovewater.org/about/>

7. Georgetown Climate Center: The nonpartisan Georgetown Climate Center (GCC) seeks to advance effective climate and energy policies in the United States and serves as a resource to state and local communities that are working to cut carbon pollution and prepare for climate change. The GCC is a well-indexed and searchable clearinghouse of information, including the topic of historic resources. <https://www.georgetownclimate.org/adaptation/featured.html>

Massachusetts State and Regional Resources

1. Executive Office of Energy and Environmental Affairs: One of the State agencies responsible for assisting communities and agencies in addressing climate change impacts.
 - o www.resilientMA.org – a clearing house of information related to resiliency in MA
 - o State Hazard Mitigation and Climate Adaptation Plan: <http://www.resilientma.org/resources/resource::2156>
2. Massachusetts Office of Coastal Zone Management: CZM is the lead policy, planning, and technical assistance agency on coastal and ocean issues within the Executive Office of Energy and Environmental Affairs (EEA) and implements the state’s coastal program under the federal Coastal Zone Management Act. <https://www.mass.gov/orgs/massachusetts-office-of-coastal-zone-management>
3. Massachusetts Historical Commission (SHPO): MHC was established to identify, evaluate, and protect important historical and archaeological assets of the Commonwealth. <https://www.sec.state.ma.us/mhc/>
4. Preservation Massachusetts: Preservation Massachusetts educates and empowers people to preserve and reuse historic resources that are important to them and their community. <https://www.preservationmass.org/>
5. Regional Planning Agencies: Massachusetts has twelve (12) regional agencies to serve the local governments and citizens in the region by dealing with issues and needs that cross city, town, county and even state boundaries through communication, planning, policymaking, coordination, advocacy and technical assistance. <http://www.apa-ma.org/resources/massachusetts-regional-planning-agencies/>
6. Other regional resources
 - o [Connecticut Institute for Resilience & Climate Adaptation \(CIRCA\)](#)
 - o [Rhode Island Climate Adaptation Knowledge Exchange \(CAKE\)](#)

Massachusetts Municipal Vulnerability Preparedness (MVP) Program

<https://www.mass.gov/municipal-vulnerability-preparedness-mvp-program>

1. Planning Grants for Municipal Vulnerability Plans: These grants enable all cities and towns to rapidly complete an assessment of potential hazards and local vulnerabilities. These are prioritized by local community members and are the basis for local action (resiliency-building).
 - a. Program information: <https://www.mass.gov/service-details/mvp-planning-grant-eligibility-criteria>
 - b. Map of communities completing MVP Planning projects: <https://www.mass.gov/files/documents/2019/07/10/mvp-program-status-map-july-2019.jpg>

- c. Copies of all completed community reports <https://www.mass.gov/lists/2018-2019-municipal-vulnerability-preparedness-mvp-program-planning-reports>
- 2. MVP Action Grants: State-funded program to support cities and towns to complete projects that are most important to their resilience. <https://www.mass.gov/service-details/mvp-action-grant-eligibility-criteria>
- 3. Regional Coordinators

Local Resources for Historic Preservationists – Advocating for Your Historic Resources in the Resiliency Planning and Adaptation Process

- 1. MVP Planning Process
 - a. Is your local assessment and plan complete? In process? Upcoming?
- 2. MVP Implementation – Team or Committee
- 3. Town Planners
- 4. Resiliency Plan/Committee
- 5. Hazard Mitigation Planning

Best Practices

- 1. Nantucket: MVP Action Grant for Historic District Commission <https://www.nantucket-ma.gov/1126/Community-Resilience-Planning>
- 2. Boston: Citywide Approach through Climate Ready Boston <https://www.boston.gov/departments/environment/climate-ready-boston>
- 3. Sandwich/Cape Cod Commission: Guidance for local interpretation of Flood Insurance Program and historic preservation design
- 4. Annapolis, MD: Citywide approach deeply integrated with historic preservation <https://www.annapolis.gov/885/Weather-It-Together>
- 5. Schenectady, NY: Addressing riverine flooding through neighborhood strategies and adaptation <https://www.stockaderesilience.com/>
- 6. Gulf Coast Post-Katrina recovery and adaptation lessons learned