
**GWSA Clean Energy and Climate Plan for 2020**
**Adaptation Subcommittee Recommendations**

January 28, 2013

Priority Infrastructure and Preparedness Strategies and Projects

And

Potential Organizational Structures for Addressing
Climate Change Adaptation in Massachusetts

*The attached list of strategies and projects, and ideas for an organizational structure to move forward with climate preparedness and adaptation in Massachusetts, are based on the outcome of an Adaptation Subcommittee meeting held December 17, 2012 and a subsequent subgroup meeting to refine subcommittee recommendations. These topics will be the focus of discussion during the IAC meeting on January 31 2013.*

**Adaptation Subcommittee Recommendations**

Priority Infrastructure and Preparedness Strategies and Projects

## Data Collection, Updated Information

- LiDAR: Collect high resolution elevation data (Light Detection and Ranging- LiDAR) for the central and western regions of the state. LiDAR data currently exists for almost all of eastern Massachusetts. LiDAR can be used to help predict the impact of flooding and sea level rise and identify neighborhoods, businesses, and infrastructure at risk.
- Integrate data such as LiDAR, NOAA sea level rise projections, and MassDOT-USGS flood frequency equations to develop scenarios of sea level rise and riverine flooding.

## Assessments of Risk and Vulnerability to sea level rise, precipitation, and temperature for:

- **Utilities**, such as water and wastewater treatment facilities, power generation and transmission infrastructure, waste facilities
- **Transportation**, i.e. for all modes of transportation – T, roadways, air, railways, ports
- **Critical facilities**, such as hospitals, emergency centers
- **Select urban centers**, such as areas of high populations, economic activity, and important services

## Retrofits & Infrastructure Protection

Transportation:

- Reconstruct, remove, or relocate vulnerable infrastructure such as resizing stormwater management structure to accommodate future storm events;
- Adjust standard maintenance and inspection procedures of transportation infrastructure to account climate change impacts; Increase the frequency of routine inspections of coastal zone and inland bridges and drainage structures; and initiate comprehensive regional asset damage inventories after major storm events.

Water and Wastewater:

Flood-proof facilities and increase emergency backup provisions.

Energy:

- Prevent Service Interruptions;
- Deploy smart grid technologies to reduce peak load, analyze opportunities for micro-grids to increase resilience; accelerate use of energy efficiency technologies;
- Analyze climate effects on infrastructure and develop storm response.

Use and Promote Ecosystem Services Functions / Green Infrastructure to protect Infrastructure:

- Identify existing and new locations where natural systems reduce risk and provide a buffer to the built infrastructure; protect and restore these area;
- Identify and prioritize anthropogenic barriers such as undersized culverts and habitat-fragmenting and high risk dams that should be replaced or removed.

## Assistance to Local Communities

Provide technical and financial assistance to communities to ensure accessibility and adoption of best practices, updated design standards, more responsive local planning and land use practices.

## Enhance Emergency Preparedness

- Update hazard mitigation, evacuate , and emergency response plans;
- Update emergency tools and capabilities to respond to extreme events (such as the State Risk Assessment Inventory, the State Comprehensive Emergency Management Plan, the State Hazard Mitigation Plan);
- Identify locations of Vulnerable Populations; assess and develop adequate emergency responses and means of communication for these populations.

**Potential Organizational Structures for Addressing Climate Change Adaptation in Massachusetts**

## Background

EEA advanced the public discussion on adaptation in the Commonwealth with the release of the first-ever Massachusetts Climate Change Adaptation Report in September 2011 (http://www.mass.gov/eea/air-water-climate-change/climate-change/climate-change-adaptation-report.html). The process that supported development of the report involved five subcommittees that provided policy advice and technical support to the MA Climate Change Adaptation Advisory Committee. The committees were: Natural Resources and Habitat, Key Infrastructure, Human Health and Welfare, Local Economy and Government, and Coastal Zone and Ocean.

The devastation of our neighboring states caused by Hurricane Sandy has further sharpened our focus on the need take action on climate change adaptation. Following Hurricane Sandy, the GWSA Implementation Advisory Committee's (IAC) Adaptation Subcommittee was directed by the IAC Co-Chairs to develop options for structuring a committee to most effectively address climate change adaptation and the implementation of adaptation-related strategies across the Commonwealth.

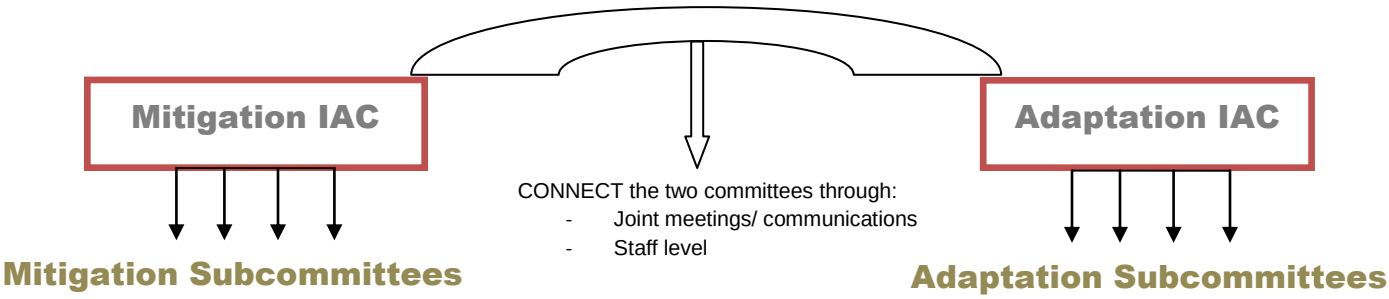
At its December 17, 2012 meeting, the Adaptation Subcommittee voiced the following principles concerning the preferred structure for addressing climate change adaptation:

- Adaptation needs to be elevated and given more prominence. It should be put on an equal footing with mitigation.
- The adaptation committee needs higher (CEO, executive director) level participation and representation from other sectors such as emergency management, solid and hazardous waste, insurance, energy, and the legislature; and additional representation from regional planning agencies, and local government.
- Need an independent adaptation committee, one that is parallel to the mitigation committee. However, if adaptation is addressed by a separate group or process, it should still be connected to mitigation.
- The adaptation and mitigation committees should regularly communicate and meet with each other. They should coordinate on cross-cutting and conflicting strategies.
- Unlike for mitigation, clear quantitative goals have not been established for adaptation in Massachusetts. We should develop goals and priorities.

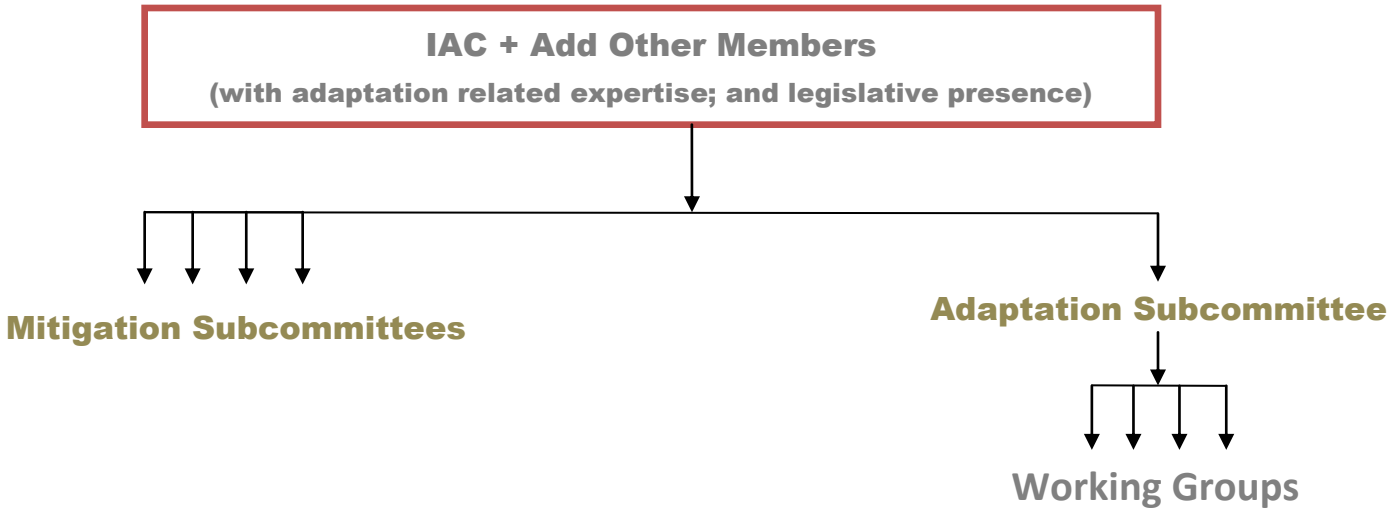
## Potential Structures

The options were further refined by a smaller subgroup of the Adaptation Subcommittee. This subgroup developed the following three options for consideration by the IAC, with Option 1 as the subgroup recommendation. The group advised that subcommittees could be organized based on: (i) type of impact (e.g. sea level rise); or (ii) particular task, project, or tool; or (iii) sector.

## OPTION 1 (recommended) – Separate Mitigation and Adaptation Committees




## OPTION 2 – Adaptation as a Subcommittee with Additional IAC Members and 4-5 Working Groups




## OPTION 3 – IAC with Additional IAC Members and 4-5 Adaptation Subcommittees