Climate Ready Boston: Municipal Vulnerability to Climate Change

**City of Boston Climate Preparedness Task Force**

Convened by Mayor Thomas M. Menino &

Brian R. Swett, Chief of Environment and Energy

**Task Force Members**

**Task Force Contributing Staff**

**Written by**

Carl Spector & Leah Bamberger

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# Summary and Key Findings

In the past 12 months, Superstorm Sandy, nor'easter Nemo, and this summer's three heat waves have reminded Bostonians of our vulnerability to natural forces. As the climate changes Boston will become more vulnerable to these types of events. Sea-level rise, rising temperatures, and more intense storms will increase the vulnerability of all parts and sectors of the city. That is why the City of Boston is taking steps to prepare for climate change and make Boston the most resilient city in the country.

Building on initiatives dating back to his 2007 executive order on climate action, Mayor Menino, in February 2013, directed his cabinet to form a Climate Preparedness Task Force to assess the vulnerability of municipal facilities, operations, services, and policies in light of climate change and to recommend next steps to better understand and reduce that vulnerability. To complete this task, City Hall staff relied on local projections of the effects of climate change in Boston and their considerable internal knowledge of the City's assets, programs, and constituents. The Task Force did not undertake a community-wide vulnerability assessment, but the 2014 update of Boston’s Climate Action Plan will have climate preparedness as its primary focus.

Climate preparedness is a long-term responsibility; many City departments have made good starts. The Boston Water and Sewer Commission is two-thirds through a capital planning process for the city's sewer and storm water system that will determine how the Commission will ensure that its infrastructure is ready for sea-level rise and more intense precipitation over the next 25 years. The Office of Emergency Management has incorporated many climate concerns into the City's updated Natural Hazards Mitigation Plan, currently in draft form. As the Mayor directed last February, the Boston Redevelopment Authority is examining the climate preparedness of new large projects so that anything constructed in Boston today will be ready for conditions of the future.

The departmental assessments included in the appendix detail the next steps to better understand and reduce the vulnerability of individual buildings to flood or heat, maintain or increase the level of service that the City provides, and increase its safeguarding of health and safety as the climate changes. Based on these specific evaluations, the Task Force has five key findings.

*Climate preparedness must be an important and explicit criterion in the City’s capital planning.*

The City of Boston and its agencies are Boston’s largest property owners with approximately 16 million square feet of property in 300 buildings. As many departments noted, the construction of new buildings and the repair and renovation of existing ones are critical opportunities for increasing preparedness. Possible measures include increased flood-proofing; elevating sensitive equipment, such as electrical equipment; installing or increasing cooling capacity; and, in some cases, in the long-term, relocating buildings to less vulnerable areas. These considerations should also apply to vehicles to ensure, for example, that the City has the best vehicle fleet to cope with emergencies. Individual departments are best equipped to determine their priorities; however, on a City-wide basis, a climate preparedness analysis should be part of every capital decision.

*IT infrastructure on the first floor of City Hall and the facilities at Frontage Road require particular attention.*

Most of City Hall is well above projected levels of flooding for the rest of the century, but the first floor is not. The Department of Innovation and Technology (DoIT) identified a variety of digital and communications infrastructure located on the first floor as a high-priority vulnerability; and many other departments identify their reliance on this infrastructure for the their core operations as a high concern. Changes to the building and to the IT hardware and software systems may be necessary to eliminate this as a concern going forward.

The Frontage Road facilities serve as the major hub for vehicles and off-road equipment for many departments, including Public Works and Transportation. Moreover, it is already prone to flooding. Both short-term and long-term vulnerability need to be addressed.

*The effects of rising temperatures should be a high priority.*

Discussions of climate preparedness in Boston usually turn first to sea-level rise and coastal flooding. However, excessive heat can be just as—or more—deadly than a flood. Those who are vulnerable include: the poor and elderly who may not have air-conditioning, and the homeless; Parks or Public Works personnel—as well as employees of private businesses—who must work outside; attendees at summer festivals and other events. Fortunately, the City has many tools available at a relatively low cost to address these risks including: improving and expanding the capacity of its cooling-center system; revisiting operational procedures to ensure worker safety; requiring event organizers to provide spray-mist fans and more drinking water; and aggressively continuing Grow Boston Greener’s tree-planting program. Grow Boston Greener is an example of a preparedness measure with multiple benefits; in addition to helping cool the city, it improves stormwater management, and beautifies neighborhoods.

*Municipal emergency plans should be reviewed in light of the expanded risks posed by climate change.*

Many departments recognized their continuity of operations plans (CoOPs), which every department is responsible for updating annually, as the appropriate mechanism for improving their ability to fulfill their core responsibilities during emergencies. The Office of Emergency Management (OEM), which is responsible for overseeing these plans, helps departments refine their plans and ensure that they are sufficient to meet the increasing risks from climate change. It may be particularly important to examine systemic effects—for example, if a department located in City Hall has designated 1010 Massachusetts Avenue as a secondary location, 1010 Mass. Ave. may not be operational as well. City departments and OEM should undertake an in-depth updating of all CoOPs.

Beyond the CoOPs, the climate assessments will assist OEM in its update of the City's emergency operations plan (EOP) to reflect the effects of climate change. One crucial area raised by many City departments is the ability to communicate effectively, both within City government and with the public. The Office of Emergency Management should review the City's EOP in conjunction with the review of CoOPs to ensure that all of these concerns are addressed. EOM should also work with departments to insert, as appropriate, new measures into the City's Natural Hazards Mitigation Plan, while it is still in draft form, or later, as amendments to an approved plan.

*Close coordination with regional, Commonwealth, and federal partners is necessary to address cross-jurisdictional issues.*

The City of Boston does not have authority over much of Boston’s critical infrastructure. Examples include the Central Artery/Tunnel and the MBTA, the Charles River Dam, the Deer Island Waste Water Treatment Plant, Storrow Drive, Morrissey Boulevard and the Jamaicaway, and the electric and gas distribution systems. As a result, the City cannot directly address long-term vulnerability or manage short-term conditions during emergencies. Several departments highlighted the limitations on their ability to ensure the safety of Boston residents because of these jurisdictional restrictions.

Over the past few years, Boston has worked with many offices of the Commonwealth, with regional authorities, and with municipal neighbors specifically on climate preparedness. In some areas, for example, the work of the Massachusetts Water Resources Authority and MassPort, progress has been excellent. This progress, however, has not been uniform. Given Governor Patrick's recent statement that climate adaptation will be a major priority for the rest of his term, the Mayor and all City officials need to ensure that the Commonwealth and its agencies work with the City to address important needs.

Federal support is also important. For example, the federally-funded Muddy River Project, which will greatly reduce the risk of flooding to the surrounding communities, involved a partnership with multiple federal agencies, the Commonwealth, and several local cities and towns. Securing additional federal support for climate preparedness capital projects will be critical for the City.