

Municipal Vulnerability Preparedness Program Action Grant Case Study

Municipality: Cambridge, MA and Metro Mayors Coalition (MMC)

Project Title: Building Resilience to Climate Driven Heat in Metro Boston

Award Year (FY): FY2021

Grant Award: \$ 268,820

Match: \$ 97,647.50

Match Source: in-kind staff hours from private foundation source, and Metro Mayors Coalition municipal staff hours (45 hours per municipality).

One or Two Year Project: 2 year project (FY21-FY22)

Municipal Department Leading Project: Cambridge

Project Website URL:

<https://www.mapc.org/resource-library/mmc-heat-resilience/>

[MMC Heat Prep Plan FY22 Deliverables](#)

Community Overview:

The City of Cambridge applied for an MVP Action grant in Spring 2020 on behalf of the Metro Mayors Coalition (MMC) taskforce. Cambridge is located across the Charles River from Boston and neighbors the City of Somerville. Cambridge has a population of 117,822 as of the 2020 census.

The Metro Mayors Coalition is a 15-municipality coalition facilitated by the Metropolitan Area Planning Agency (MAPC). The municipalities in this region are some of the most densely developed communities in the State, with a diverse range of social vulnerabilities. While many of the climate impacts that the region faces are similar to other areas of the State, its unique characteristics as both coastal and urbanized region make for complex challenges.

All 15 municipalities in MMC have at least one environmental justice population (according to the 2020 Census) of income, minority population, or English isolation. The municipalities of Boston, Cambridge, Brookline, Somerville, Revere, Chelsea, Everett, Malden, Medford, and Quincy all have populations meeting the three EJ criteria. In the city of Cambridge, 84.7% of the

population meets at least one of the EJ criteria and 13,725 of the total population are seniors, who are among the population that are more prone to heat-related health concerns.

Project Description and Goals:

The “Building Resilience to Climate Driven Heat in Metro Boston” project’s aim was to bring together municipal staff from the Metro Mayors Coalition (MMC) Climate Preparedness Taskforce, to collaborate regionally on heat response and preparedness efforts in the urban core. The goals of the project, as outlined in the proposal, are as follows;

1. Establishing a heat preparedness group as a Subcommittee of the Climate Preparedness Taskforce to coordinate regional planning and implementation, The Subcommittee will include staff focused on planning, climate and sustainability, public health, housing, and emergency management and public safety.
2. Develop a science-based, regional heat preparedness and adaptation plan that incorporates best available climate projections, heat, social vulnerability, and public health data.
3. Coordinate regionally and develop tools and collective strategies for communications, education, and outreach about climate change and extreme heat.

The regional heat preparedness and adaptation plan utilized and adapted the Center for Disease Control’s (CDC’s) Building Resilience Against Climate Effects (BRACE) framework, which establishes a clear process for planning a response to public health impacts of climate change. This project also incorporated the concept of “social determinants of health” which examines how social, environmental, and behavioral conditions influence health outcomes. By utilizing these two frameworks, the project aims at understanding how existing social vulnerabilities and systemic inequalities interact with the extreme heat hazards. This research was used to create a framework to identify and prioritize appropriate public health interventions. The resulting regional plan is intended to provide a clear roadmap for action and implementation, through the specific action items and recommendations for potential departments that could move the work forward outlined in the plan.

The MMC Climate Taskforce since its creation identified extreme heat and rising temperatures as a key climate issue. Many of the municipal partners had also identified heat as a priority in their local MVP Plans or Climate Vulnerability Assessments and Preparedness Plans. The project

“Building Resilience to Climate-Driven Heat” is a critical step towards regionalizing solutions and centering a public health lens in the climate plan.

The project met the over-arching goal to collaborate regionally on heat response and preparedness efforts. The project attempted to cover some key elements that are priorities for EEA, including:

- **Nature Based Solutions:** In Task 7 we analyzed the impacts of land use changes on urban heat over time and proposed solutions that are nature-based. Task 7.1 memo includes a strategic plan to encourage the use of green infrastructure for reducing heat in both public space and private development. In Task 7.2 of this project, MAPC built upon existing and emerging research and provided a memo on the necessary changes to State and local policies that would encourage both energy efficient buildings, as well as zoning ordinances to incentivize GI. This will be used to create a road map to guide the Climate Preparedness Taskforce’s work around heat mitigation in years to come.
- **Environmental Justice/Public Regional Benefits:** The Heat Preparedness and Adaptation Plan centers environmental justice by using the “social determinants of health” framework. The plan seeks to understand how existing social vulnerabilities and systemic inequalities interact with extreme heat hazards. The ‘cool communities’ section of the plan identifies and prioritizes appropriate public health interventions. Task 2.9 used the Statewide LST Index to generate a statewide heat exposure metric, and then combined that exposure metric with measures of adaptive capacity and sensitivity to heat from the existing MAPC Climate Vulnerability Index (climate-vulnerability.mapc.org). This index describes vulnerability to climate hazards in percentile and categorical terms at the census tract level. EEA can use these materials to prioritize work and allocate funds, among other applications.
- **Public Involvement:** The Community Engagement task focused on engagement of several different stakeholder groups including the staff of Metro Mayors municipalities, various partner agencies and organizations, community-based organizations and non-profits, the general public and populations vulnerable to extreme heat. In summer 2021, we released a multiple language survey to gauge how people living, working and going to school in the region experience and are impacted by extreme heat. In addition, three Extreme Heat and Health Policy Focus Groups were held virtually in February 2022.

Results and Deliverables:

- **Task 0. Project Management**
 - 0.1B Monthly reporting
 - 0.2B Internal team meeting agendas
 - 0.3B Updates to MMC Climate Taskforce- Agendas and Slides

- **Task 1B. Heat Preparedness Committee**
 - This task included the formation of the Heat Preparedness (sub)Committee under the Metro Mayors Coalition Climate Taskforce.
- **Task 2. Data Collection, Analysis, and Modeling**
 - Continuation of Deliverables from FY21:
 - Task 2.3 Future Heat Scenarios
 - Task 2.5 Public Health and Heat Emergency Data
 - 2.6 Data Management and Stakeholder Engagement
 - 2.7B Statewide Land Surface Temperature (LST) Index Map and Technical Memorandum
 - 2.8B Statewide LST Index Data Publication
 - 2.9B Statewide Heat and Social Vulnerability Index
- **Task 5. Developing and Implementing a Climate Driven Heat Preparedness Plan**
 - 5.1 Draft heat prep plan
 - 5.2 Revised draft
 - 5.3 Synthesis of feedback and revised draft
 - 5.4 Final draft
- **Task 6. Community Engagement**
 - 6.4B Public forum
 - Mini-grants for community liaisons-summary included in memo
 - Translation of materials
- **Task 7. Regional Land Use Planning**
 - 7.1 Methodology for strategic placement GI and shade structures-Memo
 - 7.2 Zoning and land use- Memo
 - 7.3 Integrating extreme heat preparedness and resilience into programs that retrofit existing buildings- Memo
- **Task 8. Project Communications**
 - 8.3B Created process and protocol for announcing regional heat emergencies – protocol recommendations
 - 8.4B 6 blog posts
- **Task 9. Metrics and Evaluation**
 - 9.1 Developed quantitative and qualitative metrics to evaluate the impact of the plan

Lessons Learned:

Longer term investments are required to build data partnerships to access information, and then to support data partners in anonymizing and organizing the data for analysis. A priority for the future continues to be working with members of the MMC Heat Subcommittee,

researchers, health care representatives, and others to understand what work has already been completed in this domain and what work must still be done.

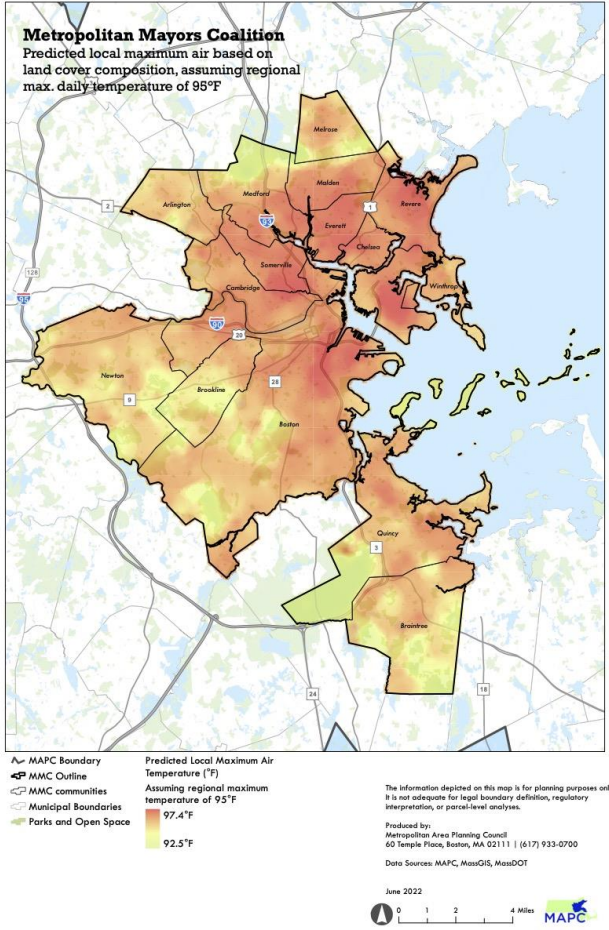
Additionally, the MMC members marked all actions regarding extreme heat outlined in the plan as a high priority, emphasizing the great need in this sector. Also evident throughout the report are actions that need to be taken in coordination across local and state governments in partnership with community-based organizations.

Lastly, this is the first regional multi-municipal coalition to work together on a plan such as this. We have found that by working together as a region on a heat preparedness plan created a sense of ownership of the actions outlined for each of the communities represented.

Partners and Other Support:

- Metro Mayors Coalition Members: Arlington, Boston, Braintree, Brookline, Cambridge, Chelsea, Everett, Malden, Melrose, Medford, Newton, Quincy, Revere, and Somerville.
- Metropolitan Area Planning Council
 - Clean Energy, Environment, Land Use, Public Health, Communications, Community Engagement, and Data Services Departments
- City of Cambridge
 - Public Health, Community Development

Project Photos:



Document Path: \\data001\public\datasec\services\Projects\Current_Projects\Climate_Change\WVP_MMC_Heat_MVP\Project_Files\Task2_3_AirTemp_Scenarios\220527_NewPro_Project\220

Keeping Metro Boston Cool: Building a Heat Resilient R...

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A Public Forum on Building a Heat-Resilient Region

Tuesday, May 24, 2022, 6:30pm EST

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