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Collaborative Action in Massachusetts to Counter Extreme Heat

Through partnership with the Doris Duke Foundation, FAS is building bridges between the environmental community and the health community around extreme heat. Informed by the [Metropolitan Area Planning Council's and Boston University's symposium](#) on heat-health action and partnerships in Massachusetts, FAS seeks to showcase how local and state governments are working across sectors to address extreme heat. With heat being a rising cause of illness and death, these case studies show how governments are engaging in [policy entrepreneurship](#) to protect lives through targeted data collection, research, and policy and program design. Lessons learned from these cases can inform how state and local governments can leverage their existing capabilities to reduce risk and improve health outcomes.

Promising examples of progress are emerging from the Boston metropolitan area that show the power of partnership between researchers, government officials, practitioners, and community-based organizations. These include efforts to (1) assess the risk that heat poses to populations, operations, and ways of life, (2) reduce the potential for harmful exposures, and (3) strengthen the public health response. The following cases draw from examples shared at “[Fostering Collaborations: A Symposium to Advance Equitable Heat Health Actions](#)”, hosted by Boston University and the Metropolitan Area Planning Council (MAPC) in June of 2025, and show what historically cold places can do to adapt to extreme heat. These cases serve as a resource for documenting progress made across the region. The recommendations in this report are informed by the cases and build from the Metro Mayors Climate Taskforce’s “[Keeping Metro Boston Cool: A Regional Heat Preparedness and Adaptation Plan](#)” and upon leading practices identified in MAPC’s [Climate Resilience Playbook](#) (a guide of resilience actions for Massachusetts municipalities).

Case studies in this brief include:

- [Targeting Assistance to the Most Heat-Impacted Homes and Buildings](#)
- [Data-Informed Land Use and Urban Planning Solutions to Cool Blocks and Communities](#)
- [Leveraging an Ecosystem of Health System Partnerships to Advance Extreme Heat Emergency Management](#)

Many people traditionally associate extreme heat with “hot” places, like the Southwest, Texas, and the Southeast, and their record-breaking heat and humidity. While stark, these places are more likely to have the infrastructure (such as widespread adoption of cooling systems) and policies and practices (such as Chief Heat Officers, heat response plans, and protections like utility shutoff prevention and indoor cooling standards) needed to safeguard populations from [excess heat exposure](#). While there is still a lot to do, many

communities in the southern United States have already begun to adapt daily life and routines to extreme heat conditions.

The northern United States is at a frontier of grappling with extreme heat. Places with typically colder climates, like Massachusetts – state motto, “By the sword we seek peace, but peace only under liberty”– are experiencing extreme heat. The populations here are neither acclimatized to extreme heat nor equipped with the necessary adaptations. This is putting significant pressure on people’s health and livelihoods, the built environment, and the local economy. For example, this summer, the City of Boston declared three heat emergencies, including a June heat wave that smashed previous early season records as [temperatures soared to 102°F](#). In total, the Boston metropolitan area experienced 19 days over 90°F in 2025. By 2030, less than five years away, the area could experience nearly [40 days over 90°F](#).

Health Dangers of Extreme Heat

Extreme heat exposure causes [heat-related illnesses](#) such as heat stress and heat stroke and puts significant pressure on the [cardiovascular system](#) and the [kidneys](#), and [strains the health of populations](#) with pre-existing conditions or on medications that impact sweat production. While extreme heat can impact everyone, certain [populations face higher risks](#), including children, elderly adults, pregnant mothers, those without access to air conditioning, and outdoor workers. Heat related health impacts [are on the rise in Boston](#).

Protecting human health from extreme heat requires a combination of approaches, including preventing exposure, minimizing risk, increasing adaptive capacity, and bolstering health system preparedness:

- To prevent exposure, decision makers need to consider the “[settings](#)” where populations spend the most time from day to day, like homes, schools, child and elder care facilities, workplaces, public transportation, and outdoor recreation spaces, and the institutions and policies that can determine the physical design and operations of these spaces.
- To minimize risk, populations that are more vulnerable need to be made aware of and protected by strategies that minimize heat gain, such as wearing optimal clothing and reducing behaviors that increase metabolic rate and generate heat.
- To increase adaptive capacity, populations will need to engage in strategies that help their bodies [acclimatize](#) to the hotter temperatures as well as recognizing symptoms of over-exposure and taking steps to seek protection or care.
- To bolster health system preparedness, public safety and health care institutions need to be [readied and supported](#) to act quickly and effectively to save lives.

Massachusetts’ Heat Policy Heats Up

Strong policies that support public health response to heat can reduce the risk of systemic failures and protect more lives. To succeed, these policy efforts require public-private partnerships, empowered public health responses, and strong community engagement.

There is a growing ‘community of practice’ on heat in Massachusetts, consisting of local and state government leaders, academic partners, non-profits, health care institutions, and private sector actors seeking to advance solutions to safeguard lives during heat emergencies and build towards a heat resilient future. **Effective partnerships help**

understand the extreme heat problem, realize new heat-health interventions, develop the evidence around effectiveness, and foster shared accountability. At this critical juncture of [changes](#) to federal policy and governance on heat, effective state and local preparedness for extreme heat *is critical* to safeguard human health, prevent critical infrastructure damages, and secure economic livelihoods. These following cases show what's possible.

Massachusetts' Heat-Health Actions and Innovations

Innovation #1: Targeting Assistance to the Most Heat-Impacted Homes and Buildings

In Massachusetts, most residential buildings and many public buildings were designed for a climate with cold winters and temperate summers and were not built with air conditioning (AC) and other cooling systems. The cost and difficulty of retrofitting these buildings for increasingly hot summers is a significant barrier to being better prepared for heat. Many homeowners, renters, and public building operators [rely on window AC units](#), which are both less effective and less efficient than central AC. This in turn increases the cost of operation and monthly energy bills.

For housing, the role of public policy is threefold: (1) establishing minimum habitability standards that affirm a right to cooling, such as indoor temperature maximums for rental housing, (2) maintaining access to energy during extreme heat events through utility shut off moratoriums and expanded energy bill assistance, and (3) streamlining available funds to systematically improve the housing stock to make it more adapted to rising temperatures. The Massachusetts state government can play their part in this ecosystem of protections by regulating utility companies to ensure consumer protections during extreme heat events, improving the floor of minimum habitability through the state sanitation code, bringing together state, federal, and private funding resources that can be used to retrofit the housing stock and develop new housing stock more resilient to extreme heat. Municipal governments' can play their part by setting beyond code measures to ensure safe indoor temperatures, bringing together resources to serve households in need of housing upgrades, coordinating and empowering local partners to serve the most energy insecure populations and upgrading the public housing stock under their management. *Given limited public resources, the most important first step is to prioritize where support should be directed.*

Data gathering about risk and vulnerability can help communities get started. With investment from the state of [Massachusetts' Municipal Vulnerability Preparedness](#) program, cities and towns in the Boston metropolitan area, like Everett, have been able to identify their [community "hot spots"](#), where residents experience higher ambient temperatures as a result of urban design choices. This is a part of a broader trend in the Boston metro region to map heat vulnerability, such as the [Wicked Hot Mystic Campaign](#) and the [Framingham-Natick-Ashland-Holliston Heat Watch Campaign](#). These higher ambient temperatures can also lead to [overheating indoors](#), requiring more mechanical cooling to maintain habitable temperatures and also limiting the use of passive ventilation cooling at night as cities take longer to cool down.

With the hot spots identified, key anchor institutions like [Cambridge Health Alliance](#) and community organizations like [Everett Community Growers](#) are working together to meet the needs of the most [vulnerable residents](#), which includes improving housing's resilience to extreme heat. One-stop shops for [residential weatherization](#), such as [Philadelphia's](#)

[Built to Last](#) program, can bring all sources of funding for home improvements under one roof with technical support, making it easier for low-income residents to access available resources. Further, as places like Everett seek to [expand their housing supply](#), it is critical that new stock is built to withstand rising temperatures, mitigate urban heat island effects, and is affordable to current residents.

Boston University's [C-Heat Study](#) is another example of a community-engaged temperature sampling study to understand the lived experiences of residents during extreme heat events. This study places sensors inside of people's homes in Chelsea and East Boston to see how hot it gets indoors. **Many of the homes sampled exceeded temperatures widely recognized as "comfortable"** by international standards bodies like the [American Society of Heating, Refrigerating and Air-Conditioning Engineers](#) (ASHRAE) **in spite of 100% of households having some form of air conditioning.** Factors that impacted household's ability to cool include whether they could use their AC (e.g. due to cost), AC-type, location of the unit, and roof type. Through this [critical participatory research](#), the research team and the community partners developed a set of policy recommendations to mitigate heat's impacts indoors. These include updates to the state sanitary code or municipal ordinances that set indoor temperature maximums and require AC, weatherization, and other strategies in rental units to maintain safe indoor temperatures, as well as [creating programs](#) that encourage landlords to retrofit rental housing. Looking ahead, it will be essential to ensure that the energy needed to run these AC systems is affordable, especially as energy prices rise. The proposed legislation "[Energy Affordability, Independence, and Innovation Bill](#)" seeks to lower the cost of energy while also protecting people from utility shutoffs while "[An Act Promoting Resilience Against the Heat-Related Impacts of Climate Change](#)" seeks to create energy assistance programs for cooling-related costs.

[Publicly-owned buildings](#) and other [infrastructure](#) also need to be retrofitted to be more resilient to temperature extremes through cooling system upgrades and passive cooling designs. These strategies benefit populations that spend a significant amount of time in public buildings, such as school-aged children and their instructors. ***Understanding the scope and scale of the problem is also essential for these buildings.*** For example, researchers at Boston University (BU) are partnering with Boston Public Schools (BPS) to understand the conditions inside of classrooms. Dr. Patricia Fabian of BU and BPS have installed temperature sensors in over 3,600 rooms within school buildings and created a one-of-a-kind dataset of the state of heat inside of schools. Their results show that within a single school building, the difference between the coolest and hottest classrooms [could be more than 50°F](#). Understanding which classrooms cannot stay cool on extreme heat days is critical for facilities managers and school leadership to be aware of and capable of responding to. It also helps to identify places to target cooling interventions, and justify infrastructure upgrades. The proposed [Mass Ready Act](#) would create sources of funding that could be used to finance these identified improvements.

Opportunity Areas for Further Action:

- Expand community-led and cross-sector partnerships to study indoor temperatures and its impacts on population health, wellbeing, and livelihoods.
- Secure near-term access and affordability to cooling by creating programs that provide financial assistance to households that struggle to pay their energy bills.

- Institutionalize cooling in building and housing policy by crafting and implementing building codes and public health regulations that formally integrate thermal safety.
- Retrofit infrastructure for climate resilience, targeting the most vulnerable buildings and homes first. One stop shops for housing upgrades are especially beneficial to reduce the application burden on the most vulnerable homeowners.
- Ensure new construction is built to keep occupants comfortable in the face of anticipated future extreme temperatures.

Innovation #2: Data-Informed Land Use and Urban Planning Solutions to Cool Blocks and Communities

Community-wide cooling solutions can lower ambient outdoor temperatures, reducing the load on indoor cooling systems and mitigating the health risks of being outside. **Public policy is a critical enabling function.** For example, [zoning policy](#) can be leveraged to require or encourage strategies that [cool communities](#), such as urban forestry, shade infrastructure, cool pavements, walls, and roofs, and green roofs. [Outdoor spaces under public ownership](#) can be also outfitted with these heat-mitigation strategies, benefiting populations that use transit or primarily walk or bike as well as populations that spend significant amounts of time outdoors.

Municipal governments in Massachusetts have oversight over land use and zoning as well as own, manage and maintain some public outdoor spaces and right-of-ways. Thus, municipal governments can introduce zoning regulations to drive innovation in heat-resilient design through new construction or upgrades to existing construction. For example, the Massachusetts state government operate the public transportation system, either through the Massachusetts Bay Transportation Authority or 15 Regional Transportation Authorities, [manages land and property](#), and reviews local zoning ordinances for consistency with state law. Thus, the state is responsible for ensuring transportation users have adequate protection from extreme heat exposure and can also be a partner to local governments implementing heat-resilient zoning. The state also is a source of funds, bringing in revenue and also distributing federal dollars. *Data on the current impacts of heat can inform the work of land use and urban planners to design high-impact solutions that minimize future heat exposures while also educating the public on heat's risks.*

Governments in the Boston metropolitan area are developing innovative solutions to understanding urban heat. For example, the [Boston Region Metropolitan Planning Organization \(MPO\)](#), the transportation planning agency for the region, was awarded a \$1 million dollar grant from the State of Massachusetts to assess heat's risk to pedestrians and bikers. The "[Neutralizing Onerous Heat Effects on Active Transportation](#)" (NO-HEAT) study produced a new set of microclimate data focused on human-scale perception of heat and leveraged that alongside mobility data to identify high-volume routes in vulnerable communities with high risk of heat exposure. Following identification of priority corridors in partnership with Dr. Rounaq Basu of the Georgia Institute of Technology, the project leads from the MPO are now working with [municipal staff and advocacy organizations](#) to understand the impacts of this heat risk on people who are walking/biking and [identifying solutions that minimize exposure](#). The project will also make its analysis of heat risk along walk/bike routes public on the Boston Region's MPO's website. In addition, an app will be piloted that can guide community members on how to choose

transportation routes with more shade and greenery. Going forward, this work could be expanded to the [impacts of heat on public transportation users](#) and how to [mitigate that risk](#), such as through [shaded bus shelters](#) and cooling inside T-stations.

Municipalities are also utilizing their existing resources and policy levers to drive urban transformation. In the City of Cambridge, planners are turning well-known heat islands in the city into gathering spaces with public art installations that reduce heat exposure. The [Shade is Social Justice Program](#) partners the City with local and regional artists, such as Massachusetts-based [Art for Public Good](#), on installations around Cambridge that create shaded “third spaces” for public gathering and programming during hotter days. Through art and design, the City of Cambridge is facilitating both public education about extreme heat and its risks, reducing exposure, and creating forums to build community relationships that are key for community resilience. Beyond this work, the City of Cambridge is a leader in resilient land-use policy, creating one of the first performance-based standards for extreme heat mitigation. The “[cool score](#)” seeks to drive uptake of infrastructure solutions that mitigate urban heat island effects, and is required for all developments subject to the Green Factor Standard (e.g. new buildings, building enlargements of 50% or more, and surface parking area creation). These efforts underscore the importance of local government programs and policy in both providing and enabling shade and other cooling solutions that lower temperatures community-wide, ultimately benefiting businesses and residents who can stay cooler for less money.

Opportunity Areas for Further Action:

- Identify which stakeholders need to be at the table to create standardized heat vulnerability tools and how they guide decision-making. These tools can be used by city planners, public health departments, and community groups to prioritize high-risk areas and align investments.
- Understand all the actors inside of each government and at different levels of government who are creating plans to reduce the risk of extreme heat in the built environment (e.g. MPOs and city planning offices) and de-silo these efforts.
- Craft best practices for heat land use and urban planning policy, such as effective heat action and resilience plans, standardized zoning and land use codes, and design guidance for reducing the risk of heat to transportation system users.
- Continue working with the state and fellow Regional Planning Agencies to implement and align the priorities of ResilientMass with ongoing regional planning work
- Invest in both temporary (e.g. pop up shade structures) and long-term solutions (e.g. expanded tree canopy) that mitigate heat at the local level.

Innovation #3: Leveraging an Ecosystem of Health System Partnerships to Advance Extreme Heat Emergency Management

Across the nation, extreme heat is a public health emergency, causing increased rates of heat-related illness, [emergency room visits](#), [hospitalizations](#), and [deaths](#). These impacts put strain on [public safety systems](#) and [health care systems](#). Yet there is no [widely agreed upon “playbook”](#) for how to respond to public health emergencies caused by extreme weather events and no agreement on what resources should be made available. Federal law is unclear in its expectations of the roles of state and local governments in heat

preparedness and response as well as the federal [role in providing assistance](#). For example, it is unclear if a heat event would qualify for a Major Disaster Declaration under the Stafford Act and/or the Public Health Emergency Declaration under the Public Health Service Act. The [costs to human health and wellbeing](#) are not well-captured by the federal disaster declaration processes, which focus on acute and time-bound structural damage.

The state of Massachusetts has the authority to declare a state of emergency, enabling flexibility to leverage state agency capacity to respond to emerging hazards. There has never been an extreme heat event declared as a state of emergency in Massachusetts. The City of Boston is one of the only municipalities in Massachusetts to have created a local [heat emergency pathway](#) and [declare heat emergencies](#). The threshold for declaring a local emergency in Boston is clear, two or more days with a heat index of 95 degrees, which is below the threshold used by the National Weather Service. During these events, the City of Boston opens cooling centers, splash pads, and public pools, as well as creates [pathways for shelter for the unhoused](#). Response is led by the Office of Emergency Management, which relies on federal funding for its operations and staff, and could be impacted by proposed policy changes at the [federal level](#) to put the onus of emergency preparedness on state and local governments. Boston's model is one to learn from, where understanding the successes and challenges can help determine how to replicate across Massachusetts's municipalities. *Effective emergency management relies on public-private partnerships and the health sector is one of the most critical partners in responding to extreme heat.*

Safeguarding health during acute extreme heat events is a matter of preparedness. To be sufficiently prepared, residents should have access to basic information and support on how to effectively protect themselves from extreme heat, reducing their exposures, securing access to cool spaces, and ensuring adequate hydration. This needs to be done in languages that impacted populations speak, which has been done in [cities like Los Angeles](#). More vulnerable residents should be supported in securing these protections by members of their community and by health care teams. For example, health care providers should [screen patients for pre-existing conditions that make them more vulnerable to extreme heat](#), and be able to identify social services programs that can help them mitigate potential exposures, such as energy assistance. For example, the Boston Medical Center has created an innovative "[Clean Power Prescription](#)" program to provide energy assistance to the most vulnerable patients in their complex care management program. The Harvard T.H. Chan School of Public Health and AmeriCares have also created a [resource guide](#) for physicians and clinics to prepare for extreme heat events, including a 'Heat Action Plan' that can be walked through with patients.

When a heat wave is predicted, it is critical to have [early warning systems](#) that allow people to activate their preparedness plans and brace themselves for the heat. The Bureau of Climate and Environmental Health at the Massachusetts Department of Public Health has created an unhealthy heat forecast which uses statewide hospitalization data to determine health-based "[heat thresholds](#)" for alerting the public and practitioners about upcoming heat events. The Bureau also sends tailored alerts to local public health officials, health care providers, and community-based organizations (this group must opt-in) to help them identify how to spot heat-related illness during the more extreme heat events, three or more days of 85°F. This communication is critical as these personnel are trusted messengers in their communities. Boston-area health systems are also taking action. Mass General Brigham is piloting [artificial intelligence-powered tools](#) that utilize patient records to identify those most at risk (e.g. because of age, health conditions,

medications and where they live) and then provide patient-specific alerts based on that risk. Cambridge Health Alliance [sends email alerts to patients during heat waves](#).

Finally, during a heat event, the emergency response workforce and the health care workforce needs to be prepared and able to triage and treat surges in heat-related and heat-exacerbated illnesses. Many health care providers are not trained on how to identify and effectively treat heat-related illness, which can hamper their effectiveness. That is why physician training programs like Harvard Medical School are integrating climate change into the curriculum for medical students and offering [new fellowships](#) to train climate-ready care providers. Yet these programs are only reaching a small portion of the health professions workforce each year. Scaling these types of programs is needed to ensure a wider swath of the health care workforce knows how to treat heat-illness and its broader impacts on human health, which will in turn improve data accuracy for heat-related health impacts. Additionally, health care systems are also not required to plan for heat and its impacts on care delivery and operations. There is also no regional coordination between systems to manage surges in care needs. Local governments and regional planning organizations like MAPC should be engaged with health care partners about their readiness for extreme heat.

Opportunity Areas for Further Action:

- Test and compare communication strategies (e.g. messages, channels, and messengers) to understand which strategies (e.g. heat alerts in clinical practice) are best at informing and encouraging action-oriented responses from the public.
- Develop screening questions for clinical settings to assess availability of air conditioning, social isolation, and other housing-related conditions as part of health screening.
- Determine what data is needed by municipalities to guide their response actions (e.g. the health impacts of extreme heat) and plan the acquisition of these data sets, like electronic health record data.
- Train local public safety, emergency medical services, health professionals, and other key partners in response to better capture the health impacts of extreme heat.
- Work regionally to develop a heat relief network, such as Maricopa County's Heat Relief Network, to build connections and collaboration as well as resourcing and personnel sharing to ensure that the entire Boston Metropolitan area is ready for extreme heat.

Conclusion

Extreme heat governance is rapidly maturing to meet the needs of communities unaccustomed to extreme heat, particularly at the local and state levels. As described above, this work cannot be done alone: partnerships and collaborations are necessary to make even modest progress and most effective use of limited resources. Further, the above examples showcase how collaborative research in partnership with key stakeholders can be a powerful tool in guiding local and state government decision-making and informing the policymaking process. Through collective effort, real progress can be made to safeguard health in the face of extreme heat.

The opportunity areas identified by participants at [Fostering Collaborations: A Symposium to Advance Equitable Heat Health Actions](#) provide a roadmap for what can come next in local and

state heat action in Massachusetts. Interested in getting involved? Please contact Kat Kobylt at KKobylt@mapc.org and head to our website [here](#) to learn more.