



MVP Toolkit: Public Health and Healthcare

Address the impacts of climate change hazards on public health and the healthcare sector through the Municipal Vulnerability Preparedness (MVP) grant program.

Note regarding COVID-19 from the MVP Team: In light of the current public health emergency, it is more important than ever to take steps to safeguard public health across the Commonwealth. With climate change expected to exacerbate current and future vulnerabilities in our communities, municipalities may benefit from approaching their [MVP Planning Grant](#) and [Action Grant](#) projects with a strong public health focus. The MVP team developed this toolkit to help prospective grant applicants consider ways to craft proposals that address the intersection of climate change and public health. Please share your thoughts and feedback with us as we work to improve this “living document” as a resource for Massachusetts communities. Comments can be emailed to carolyn.meklenburg@mass.gov.

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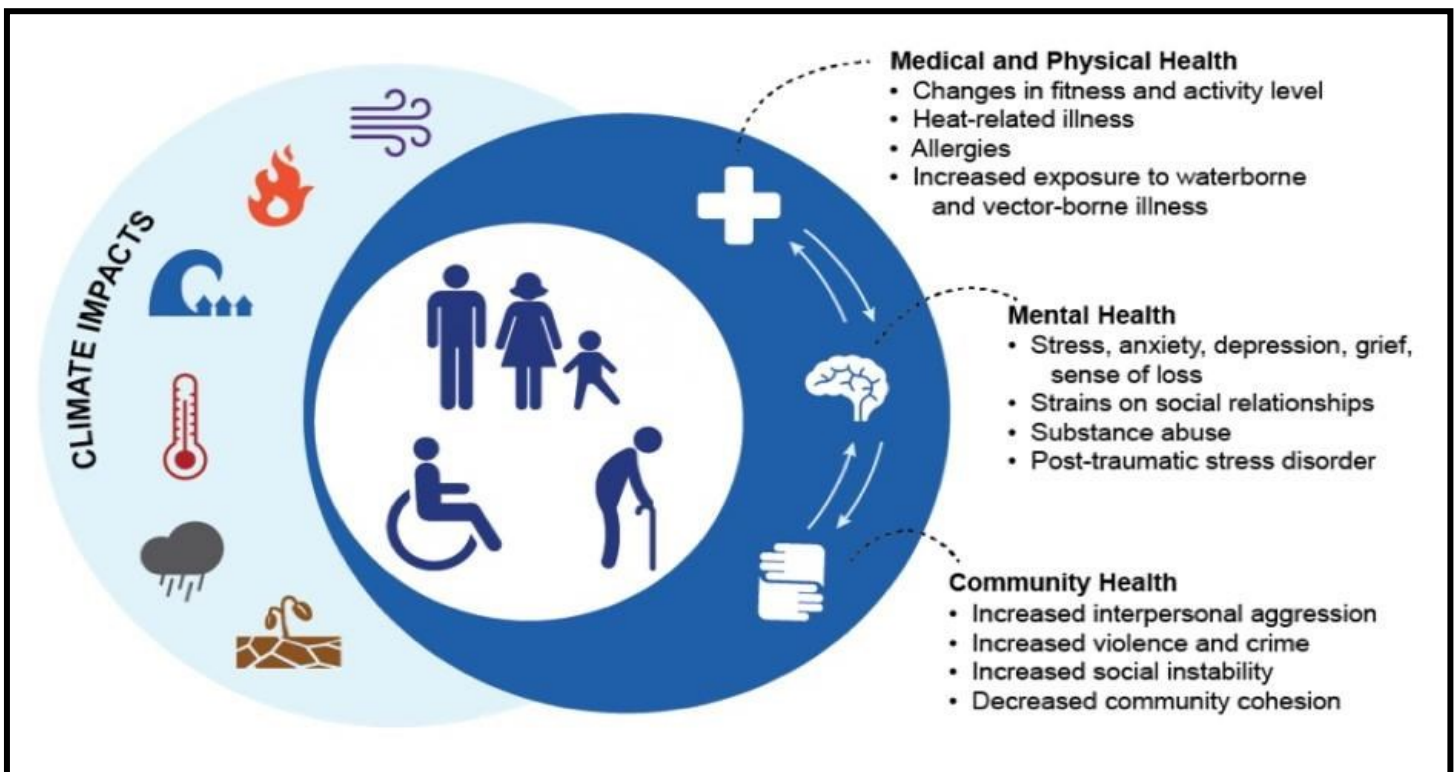


Learn about the intersection of climate change and health.

Climate change presents new challenges for our healthcare and public health sectors, and demands a new approach for protecting the health of our communities. By partnering with stakeholders in these fields and using available health data, municipalities can integrate health into their [MVP Planning Grant](#) process, or craft competitive [MVP Action Grant](#) proposals with strong public health benefits.

Key Terms:

- **Healthcare**: the system that focuses on the health of an individual and that individual's medical needs
- **Public Health**: the field that “promotes and protects the health of people and the communities where they live, learn, work and play” (American Public Health Association, 2020)
- **Social Determinants of Health**: the conditions in which people are born, grow, live, work, and age, which contribute to health inequities



The impacts of climate change on human health in the United States. [Image Source: U.S. Global Change Research Program. 2016.](#)



Learn about the intersections of climate change and health.

Climate change hazards experienced in communities across the Commonwealth impact our health and our healthcare sector's ability to provide necessary services. A history of systemic injustice means that climate change disproportionately affects communities of color and low-income communities (as described in [EEA's 2017 EJ Policy](#)). As a result, these communities are more likely to experience the negative health impacts of climate change that range from medical and physical health impacts to mental health and community health impacts.

Explore the following links to better understand how climate change impacts public health and equity.

Massachusetts resources:

- The "Public Health Sector" webpage on the **MA Climate Change Clearinghouse** explains more on the ways in which rising temperatures, changes in precipitation, extreme weather and sea level rise generally impact public health across the Commonwealth. [\(WEBPAGE\)](#)
- Explore the **MA Environmental Public Health Tracking tool**, which provides community profiles for each municipality in the Commonwealth, as well as additional health and environmental data. [\(DATABASE\)](#)
- The **Massachusetts Healthy Aging Collaborative** provides municipal-level health data on the older adult population for every city and town across the Commonwealth. [\(DATABASE\)](#)
- If there is a non-profit hospital that serves your community, it will have completed a **Community Health Needs Assessment** and/or a **Community Health Improvement Plan** that includes local health data. [\(DATABASE\)](#)
- Your **regional planning agency** may also have public health data that they can share about your region.
- The **Massachusetts State Hazard Mitigation and Climate Adaptation Plan** details the impacts of climate change hazards on Commonwealth residents. [\(WEBSITE\)](#)

General information on climate & health:

- American Public Health Association, **Climate Change** [\(WEBSITE\)](#)
- American Public Health Association, **2018 Lancet Countdown on Health and Climate Change Brief for the United States of America** [\(PDF-REPORT\)](#)



Learn about the intersections of climate change and health.

- Climate for Health, **Let's Talk Health & Climate: Communication Guidance for Health Professionals** ([PDF-GUIDE](#))
- U.S. Centers for Disease Control and Prevention, **How Climate Affects Community Health** ([VIDEO](#))
- U.S. Centers for Disease Control and Prevention, **Health Harm Cards** ([PDF- HANDOUT](#))
- U.S. Centers for Disease Control and Prevention, **Climate and Community Health Infographic** ([PDF- INFOGRAPHIC](#))
- American Psychiatric Association, **Climate Change and Mental Health Connections** ([WEBSITE](#))
- Harvard T. H. Chan School of Public Health, **C-CHANGE: Center for Climate, Health and the Global Environment Resources** ([WEBSITE](#))
- U.S. Climate Resilience Toolkit, **Building Healthcare Sector Resilience** ([WEBSITE](#))
- The Kresge Foundation, **Climate Change, Health & Equity Resources and Materials** ([WEBSITE](#))
- EcoAdapt, **The State of Climate Adaptation in Public Health: An Assessment of 16 U.S. States** ([PDF-REPORT](#))
- EcoAdapt and the Strong, Prosperous, and Resilient Communities Challenge (SPARCC), **EcoAdapt: Climate-Informed Health Activities in SPARCC States** ([PDF-REPORT](#))
- Climate Adaptation Knowledge and Exchange (CAKE), **Public Health Topic Page** ([WEBSITE](#))

Guides for local health departments:

- American Public Health Association (APHA), **Climate Change, Health and Equity: A Guide for Local Health Departments** ([PDF-REPORT](#))
- U.S. CDC Climate Program, **Assessing Health Vulnerability to Climate Change: A Guide for Health Departments** ([PDF- REPORT](#))
- National Association of County & City Health Officials, **Essential Actions for Climate Resilience in Local Health Departments Fact Sheet** ([PDF- HANDOUT](#))
- George Mason University Center for Climate Change Communication, **Conveying the Human Implications of Climate Change: A Climate Change Communication Primer for Public Health Professionals** ([PDF- REPORT](#))



Learn about the intersections of climate change and health.

Example resilience projects with health components:

- Antioch University's **overview of a climate and health adaptation plan created in Monadnock, NH** [\(VIDEO\)](#)
- U.S. Centers for Disease Control and Prevention, **Preparing for the Regional Health Impacts of Climate Change in the United States** [\(PDF- REPORT\)](#)
- George Mason University Center for Climate Change Communication, **Climate Action for Healthy People, Healthy Places, Healthy Planet: Urban Greening & Green Infrastructure, Climate Change and Health Fact Sheet** [\(PDF- REPORT\)](#)
- On US EPA's **Climate Change: Resilience and Adaptation in New England Program** [website](#), you can search adaptation plans and projects implemented throughout New England that focus specifically on public health. [\(DATABASE\)](#)



Team up with partners in public health and healthcare.

Who could provide expertise on the public health needs and vulnerabilities in your community?



These experts may include:

- Public Health Director/ Local Board of Health
- Healthcare professionals at a variety of facilities (i.e., hospitals, rehabilitation centers, nursing homes, outpatient surgical centers, clinics, medical offices, urgent care facilities, dialysis centers)
- Independent healthcare professionals (i.e., home healthcare workers)
- Mental health professionals
- Healthcare facility emergency managers
- Healthcare staff and other community stakeholders serving on a Community Benefits Committee at a local non-profit hospital
- Public health and healthcare faculty and researchers at nearby higher education institutions
- Individuals with health needs or vulnerabilities that are particularly sensitive to climate impacts (i.e., those with asthma)
- Farmers, food system workers, and food pantry volunteers or staff
- Non-profits or community-based organizations with a focus on public health and healthcare



Team up with partners in public health and healthcare.

MVP Partnership Spotlight: Plymouth and Beth Israel Deaconess Hospital

The Town of Plymouth pursued the MVP Planning Grant process with a focus on public health. In broadening the scope of the traditional MVP planning process, they branded the effort [Climate-Ready Healthy Plymouth](#). The Plymouth branch of Beth Israel Deaconess (BID) Hospital served as a key partner. The Senior Director of Public Safety and Support Services for BID-Plymouth was a member of Plymouth's MVP Core Team, and prior to the COVID-19 crisis, BID-Plymouth had offered to host the traditional MVP planning workshop (which was instead held online). BID-Plymouth's Community Health Needs Assessment further informed the MVP planning process to ultimately create their final climate change and health vulnerability assessment.

For additional recommendations for stakeholders who can help you understand the public health needs in your community, see the U.S. Centers for Disease Control and Prevention's infographic on climate and community health. Click the image on the next page for a closer look.



Team up with partners in public health and healthcare.

CLIMATE AND COMMUNITY HEALTH

Working together, communities can prepare for and respond to the critical health effects of our changing climate. Here are just a few examples of the diverse partners that play a role.

MEDIA / METEOROLOGISTS

HOW THEY HELP

- Report on the health impacts in your community
- Report extreme weather alerts with recommended protective actions
- Provide information on available community assistance, such as evacuation shelters and cooling centers

LOCAL HEALTH DEPARTMENT

HOW THEY HELP

- Monitor health trends to identify new and emerging threats
- Identify at-risk groups and mobilize community partners
- Provide information on available community assistance
- Provide extreme weather and air pollution alerts with recommended protective actions
- Work with state health department to prepare

HEALTH CARE PROVIDERS

HOW THEY HELP

- Educate patients about increased risks and protective actions
- Develop emergency response plans for extreme weather

LOCAL GOVERNMENT

HOW THEY HELP

- Develop emergency response plans for extreme weather
- Cool urban areas by adding heat-reflective surfaces and planting trees
- Develop and implement long-term adaptation plans
- Review building standards for increased resiliency
- Work with state government to prepare

COMMUNITY-BASED GROUPS

HOW THEY HELP

- Provide emergency shelter and cooling centers
- Provide transportation to emergency shelters
- Distribute information on community assistance
- Provide counseling after extreme weather events

SCHOOLS

HOW THEY HELP

- Provide emergency shelter and cooling centers
- Safeguard student athletes during extreme heat
- Provide counseling after extreme weather events
- Integrate asthma education and support



Centers for Disease
Control and Prevention
National Center for
Environmental Health

CLIMATE-READY STATES
AND CITIES INITIATIVE
cdc.gov/climateandhealth

Communities are developing a coordinated response to health risks by using CDC's Building Resilience Against Climate Effects (BRACE) framework, a five-step process for climate adaptation.



Craft projects that build climate resiliency and promote health in your community.

Look through the priority action items in your municipality's Community Resilience Building Workshop Summary of Findings Report from the MVP planning process. Consider which ones directly or indirectly relate to some aspect of public health or healthcare. How could that priority action be adjusted to strengthen its public health benefits? With your project partner/partners, decide what kind of project best suits this priority action item.

Planning

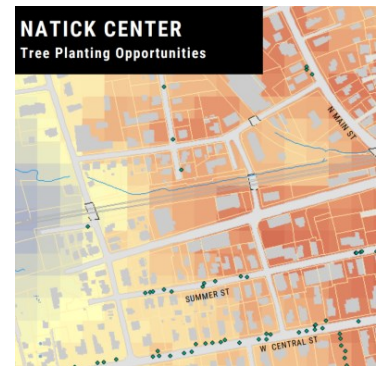


Image Source: U.S. CDC, Town of Wellesley, Town of Natick

Is there an assessment or analysis that could be performed to improve your understanding of the intersection between climate hazards and public health in your community?

- In addition to the Community Resilience Building Framework and other more targeted health/climate assessments, consider using the [BRACE Framework](#) offered through the [MA Department of Public Health](#). This includes a planning process focused specifically around climate change impacts on public health.

Other assessments that address climate change and health may include:

- Heat islands in socially vulnerable areas of your community and how they could be addressed with green infrastructure
 - **Natick:** The Town assessed land surface temperature in highly developed areas to study the urban heat island effect. They then identified ideal locations for planting trees to cool these areas. Read more in their [FY18 MVP Action Grant Project report here](#).



Craft projects that build climate resiliency and promote health in your community.

- Drinking water supply and how increased droughts may impact your community
 - **Belchertown:** After identifying vulnerabilities to a public water supply storage tank during their CRB workshop, the Town received an FY19 MVP Action Grant to design and permit the construction of a new water tank that could withstand projected climate hazards. They also used their Action Grant to promote water conservation by exploring stormwater harvesting and reuse methods for irrigating the athletic fields at Belchertown High School. Read more in their [FY19 MVP Action Grant Project report here.](#)
- Vulnerability of wastewater, sewer or septic infrastructure in your community considering climate hazards
 - **Scituate:** The Town assessed the vulnerabilities of their wastewater treatment system to current and projected coastal flooding. This assessment included their central wastewater treatment plant, nine pump stations, and 32 miles of sewer. Read more in their [FY18 MVP Action Grant Project report here.](#)
- Prevalence and causes of vector-borne disease in your community, and ways to reduce risk to residents
 - **Project underway in Uxbridge:** The Town's FY20 MVP Action Grant seeks to develop an integrated vector-borne disease management plan.
- Other assessments that further study [public health risks of climate change](#) in your community

Featured Example: Building Resilience to Climate Driven Heat in Metro Boston

As a member of the Metropolitan Area Planning Council's Metro Mayors Coalition Climate Preparedness Task Force, the City of Cambridge is leading a regional MVP Action Grant that will develop a regional heat preparedness and adaptation plan based on the BRACE Framework. This plan will also consider the social determinants of health, a framework that examines the ways in which social, environmental and behavioral factors impact health. Together, these two frameworks will assess how social vulnerabilities and systemic injustices interact with extreme heat effects on residents in the Metro Boston region.



Craft projects that build climate resiliency and promote health in your community.

Are there guidelines or regulations that could be improved or developed to protect public health in light of climate change hazards?

- Consider developing guidelines or zoning regulations that promote low-impact development/nature-based solutions in your community that will improve and/or protect both ecological and public health
 - **Boston:** The City developed a design guidelines document for a proposed Coastal Flood Resilience Overlay Zoning District that seeks to reduce the negative impacts of coastal flooding from sea-level rise on people and the City's built and natural environments. In May 2020, the American Planning Association's Sustainable Communities Division awarded Boston with the 2020 APA Excellence in Sustainability Award in the Policy, Law or Tool category for this work. Read [their report from this FY18 MVP Action Grant here.](#)
 - **Brookline:** The Town of Brookline performed a comprehensive assessment of their local bylaws and regulations to identify opportunities to incorporate climate adaptation and resilience. They also developed design guidelines that promote low-impact development (LID) across town that have many climate resilience/public health co-benefits including reduced urban heat island effect and improved air quality. Read [these documents produced through their FY18 MVP Action Grant here.](#)
 - **Project underway in Granby:** The Town's FY21 MVP Action Grant will fund a regulatory review of zoning bylaws, their stormwater management and erosion control bylaw, and subdivision regulations to promote low impact development and green infrastructure in order to reduce stormwater flooding and related pollution.



Craft projects that build climate resiliency and promote health in your community.

Implementation



Image Source: City of Northampton, Town of Falmouth, City of Boston

Are there natural resources that, if enhanced or preserved, would significantly improve public health?

Through supporting healthy ecosystems, nature-based solutions offer multiple public health services to communities. Consider:

- Planting trees to reduce air pollution and resulting asthma occurrences, as well as reducing nitrogen dioxide and particulate matter. Trees planted in developed areas can also reduce heating and cooling needs of adjacent buildings.
- Identifying parcels for ecological restoration or “climate smart” park development, providing opportunities for cooling, exercise, stress reduction, and help with healing for environmental justice or climate vulnerable populations. In addition to these public health benefits, “climate smart” parks can also incorporate green infrastructure to improve water quality, air quality, and more.
 - **Project underway in Northampton:** With their FY20 MVP Action Grant, the City is currently restoring a public golf course to its natural ecology, improving the health and resiliency of the overall watershed and providing for passive recreation.
 - **Project underway in Boston:** The City created conceptual designs and assessed necessary permitting for climate adaptation enhancements to Moakley Park, a large coastal park that will protect vulnerable neighborhoods in Boston - including two public housing developments - from flooding while also providing opportunities for cooling, recreation, and connecting with nature.



Craft projects that build climate resiliency and promote health in your community.

- Restoring wetlands and water systems to protect against damaging floods and provide clean drinking water to residents
 - **Falmouth:** A wide array of partners has worked for decades to restore the Coonamessett River in Falmouth. With their FY19 MVP Action Grant, the Town significantly improved the flood storage capacity of the river, right-sized a culvert to updated stream-crossing standards, and increased public access to this valuable natural resource. Read the [case study from their FY19 MVP Action Grant here](#).
- Implement regenerative agricultural practices to support ecological health and provide food security to our growing population.

Are there healthcare facilities or other infrastructure that, if damaged by a climate change related hazard, would severely threaten public health?

- Consider wastewater treatment plants, sewer and/or septic systems, drinking water supplies, transportation networks surrounding hospitals, evacuation routes, pieces of the medical and pharmaceutical supply chain, and the food distribution network. Also consider improving energy resilience for any of these facilities.
 - **Project underway in Newburyport:** The City is rebuilding a stone revetment and constructing an elevated berm to protect their coastal wastewater treatment facility. As a part of this FY21 MVP Action Grant, they are also constructing a public walking trail along the berm for added co-benefits.

Special thanks to the following experts and leaders in public health and healthcare for their support during the creation of this toolkit: Kate Adams, Amara Azubuike, Meg Blanchet, David Burson, Lisa Churchill, Adam Delmolino, Jessica del Rosario, Kim Etingoff, Robin Guenther, Nate Horwitz-Willis, Katie Kemen, Stacey Kokaram, Paul Lipke, Shaun McAuliffe, Jeanette Pantoja, Catherine Ratte, Bill Ravanesi, Darci Schofield, and Heidi Stucker.