



# Department of Environmental Protection

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## 2024 MCP Amendments Q&A

**March 29, 2024** – This document contains Q&As related to the 2024 amendments to the Massachusetts Contingency Plan (MCP), 310 CMR 40.0000. The Bureau of Waste Site Cleanup will be adding additional Questions and Answers to this document and revising the date of the document to indicate updates have been made. Questions on the MCP, including the 2024 MCP amendments, may be submitted to [BWSC.Regulations@mass.gov](mailto:BWSC.Regulations@mass.gov).

### Climate Change

**Q: Why did MassDEP include the consideration of climate change impacts in the 2024 MCP amendments?**

**A:** The MCP requirement to consider climate impacts at 21E sites stems from Executive Order 569 (link [here](#)) and the Commonwealth’s 2018 State Hazard Mitigation and Climate Adaptation Plan (2018 MA SHMCAP, link [here](#).) The 2018 MA SHMCAP was revised in 2023 and renamed as the 2023 ResilientMass Plan, or 2023 MA SHMCAP (link [here](#).)

Executive Order 569 states “WHEREAS, our state agencies and authorities, as well as our cities and towns, must prepare for the impacts of climate change by assessing vulnerability and adopting strategies to increase the adaptive capacity and resiliency of infrastructure and other assets.”

The 2018 MA SHMCAP detailed the requirements for Executive Order 569 and directed all Executive Office of Energy and Environmental Affairs (EOEEA) agencies to “review, evaluate, and implement revisions as needed to environmental and energy policies, regulations, and plans.” For MassDEP, this included revising the MCP to address the assessment and mitigation of potential impacts related to climate change at disposal sites.

**Q: What are the MCP requirements related to potential climate change impacts at disposal sites?**

**A:** The MCP climate change-related requirements are found in the definition of Conceptual Site Model (CSM) at 310 CMR 40.0006, in the Response Action Performance Standard (RAPS) provisions at 310 CMR 40.0191, and in the “Defining Foreseeable Period of Time for Purposes of a Permanent Solution” provision at 310 CMR 40.1005(1).

The Conceptual Site Model definition has been revised to reference “current and foreseeable” site characteristics and risk. The change at 310 CMR 40.1005(1) adds to the description of foreseeable period of time for a Permanent Solution, “considering existing site conditions and reasonably foreseeable future changes in site conditions, including anticipated impacts associated with climate change.” This foreseeable period of time definition is cross-referenced in RAPS at 310 CMR 40.0191(1).

Other climate change-related changes to RAPS include referencing the Executive Office of Energy and Environmental Affairs (EOEEA) as a source of relevant policies and guidelines to reflect that EOEEA is the appropriate source for information on climate change forecasts. Also added to RAPS is a general requirement that the MCP Response Action Performance Standard include consideration of “response actions that incorporate climate change resilience to the extent practicable and consistent with response action requirements.”

Together, these changes are intended to ensure that anticipated climate change impacts are taken into account as part of a Permanent Solution and are otherwise generally incorporated into the overall response action approach at a disposal site.

**Q: When considering a Permanent Solution, what timeframe is appropriate for assessing “reasonably foreseeable future changes in site conditions, including anticipated impacts associated with climate change”?**

**A:** The MCP does not specify a timeframe that applies to all sites. The timeframe will vary based on the nature of the contamination that remains on-site, as well as the vulnerability of the site and the surrounding area. LSPs should exercise professional judgment in identifying an appropriate timeframe considering site-specific information in combination with forecasts of climate change impacts.

Most of the forecasts related to Executive Order 569 and the 2023 ResilientMass Plan use planning ranges between the years 2050 and 2100. Selecting a target date that falls within these years (30, 50 or 80-years out) will allow the assessment of the Permanent Solution against specific climate change scenarios.

**Q: To what extent do the MCP requirements to consider climate change impacts at a disposal site apply to a Temporary Solution or Remedy Operation Status?**

**A:** The climate change related references in the RAPs provisions at 40.0191(2) and (3) and in the Conceptual Site Model (CSM) definition that includes consideration of “current and foreseeable future site characteristics and risk” apply to the overall and long-term response strategy at the site and therefore are relevant to the achievement of Temporary Solutions and Remedy Operation Status. Achieving Temporary Solution and/or Remedy Operation Status requires evaluating the feasibility of achieving a Permanent Solution, which requires considering “existing site conditions and reasonably foreseeable future changes in site conditions, including anticipated impacts associated with climate change.”

**Q: How is vulnerability to climate impacts at 21E sites to be assessed?**

**A:** As described in the 2018 MA SHMCAP, vulnerability to climate change is a function of “Exposure,” “Sensitivity,” and “Adaptive Capacity” relative to four primary climate changes:

- Precipitation (e.g., inland flooding, drought, landslide);
- Sea Level Rise (e.g., coastal flooding, coastal erosion, tsunami);
- Rising Temperature (e.g., average/extreme temperatures, wildfires, invasive species); and
- Extreme Weather (e.g., hurricanes/storms, nor’easters, tornadoes).

“Exposure” to these changes can be determined by using available climate models/forecasts, such as those at ResilientMA.org (link [here](#).)

Site-specific “Sensitivity” factors to consider include:

- Location within exposure area(s) and relative to environmentally sensitive resources;
- Demographics (e.g., population proximity and density, Environmental Justice communities);
- Vulnerability of equipment and structures still in use (e.g., wells, site/remediation equipment);
- Status of the Remedial Action at the disposal site, including whether there are active systems (Active Remedial Systems, Active Exposure Pathway Mitigation Measure), sensitive human or environmental exposures (Imminent Hazard, Critical Exposure Pathway), and/or long-term considerations (NAPL, Activity and Use Limitation); and
- Contaminant nature, concentration, and fate & transport (e.g., degradation rates, remobilization as a bulk material, adsorption/desorption, volatilization and/or dissolution).

“Adaptive Capacity” addresses the potential for modification of operations, policies, or other functions in response to changing natural hazards and climate change impacts.

Consulting applicable professional standards and practices, such as those described in the “MCP Climate Change Toolkit” published by the Licensed Site Professional Association (LSPA) Climate Change Subcommittee (link [here](#)), may be helpful in performing this analysis. This Toolkit includes a “Climate Vulnerability Assessment Checklist,” flow chart, glossary, list of tools & resources, and case studies.

**Q: Do these climate vulnerability assessment requirements apply to all 21E sites?**

**A:** The requirement to consider potential climate impacts applies to all sites, but the level of effort will depend on the site sensitivity factors. A detailed climate vulnerability assessment would not be necessary, for example, at a disposal site where risk due to these sensitivity factors is shown to be absent and/or the site has been restored to background concentrations of oil and/or hazardous materials (OHM). Conversely, a comprehensive assessment would be appropriate where elevated levels of a toxic contaminant are capped at a location that climate change forecasts predict to be susceptible to future storm surges and coastal flooding.

**Q: How should climate-related impacts to groundwater be assessed?**

**A:** Correlations and estimations of climate impacts on groundwater levels are possible using various methods, but the uncertainty and complexity of these predictions are significant. Because there are and will continue to be climate change-related impacts on groundwater elevations, broader and more direct fate and transport questions that apply are: “What happens to contamination in the vadose zone when inundated with water if groundwater levels rise?” and, conversely, “What happens to contamination if groundwater levels drop?” These questions should be considered as an element of a climate vulnerability assessment regardless of any analytical/statistical groundwater level prediction variabilities.

**Q: What adaptive/resilience measures should be considered?**

**A:** Resilience measures, or best management practices (BMPs), for potential climate change impacts should be considered during the entire MCP process and implemented as part the selected response actions, as appropriate. Some examples of resilience BMPs are included in Section 4 of the Commonwealth’s Climate Resilience Design Standards and Guidelines Project by the Resilience Massachusetts Action Team (RMAT, link [here](#)), EPA's Superfund Climate Resilience Webpage (link [here](#)), and in the ITRC Sustainable Resilient Remediation Guidance (ITRC SRR, link [here](#).)

**Q: Does MassDEP plan to re-visit previously closed sites on the basis of climate change?**

**A:** MassDEP does not intend to revisit previously closed sites on the basis of climate change impacts as long as the activities, uses or exposures upon which a Permanent Solution is based do not change in a way that increases potential for human or environmental exposure to OHM and pose significant risk. An example of an impact that could affect a Permanent Solution is the erosion of a cap over contaminated soil as a result of flooding at a closed site where the person responsible for maintaining the cap has failed to undertake response actions to repair it.

**Q: Do the MCP climate change related provisions affect Activity and Use Limitations?**

**A:** The climate change MCP provisions do not directly affect AUL requirements and need not affect the manner in which an AUL documents a property owner's ongoing obligations and conditions for maintaining a condition of No Significant Risk. For example, an AUL may say "maintain the integrity of the cap, including repairing as needed. Inspect annually at a minimum." If there are impacts over time, the AUL requires the cap to be repaired over time, regardless of the climate change vulnerability assessment.

**Q: What technical resources and climate forecasts are recommended for performing assessments of potential climate change impacts?**

**A:** Most of the technical information needed to conduct vulnerability assessments is included in ResilientMA.org (link [here](#).) which is a resource:

"...produced to ensure continued access to information and provide communities with the best science and data on expected climate changes, information on community resiliency, and links to important grant programs and technical assistance. This website also catalogs specific vulnerabilities, risks and strategies concerning agriculture, forestry, local government, education, energy, recreation, and transportation. All of the climate projections included on the website are specific to Massachusetts... includes an interactive map so that users can understand how climate change will affect their specific location and the resources they manage."

ResilientMA.org and its associated contents are reviewed and updated regularly and it is the primary resource for this work. The site includes a map tutorial video (link [here](#)) and a data graphing tutorial video (link [here](#).)

In addition, the LSPA's "MCP Climate Change Toolkit" (link [here](#)) provides a "Climate Vulnerability Assessment Checklist," flow chart, glossary, list of tools & resources, and case studies.

Other helpful resources to consider include, but are not limited to:

- RMAAT Climate Resilience Design Standards and Guidelines Project (link [here](#))
- Massachusetts (MA) Office of Technical Assistance and Technology (OTA) Mapping Toxics in Communities and Assessing Climate Vulnerability (link [here](#))
- MA Coast Flood Risk Model (MC-FRM) (link [here](#))
- ITRC SRR Guidance (link [here](#))
- EPA Superfund Climate Resilience webpage (link [here](#))
- EPA 2021 Climate Adaptation Plan (link [here](#))
- EPA 2021 Climate Smart Brownfields Manual (link [here](#))
- First Street Foundation Defining America's Flood Risk (link [here](#))
- Federal Emergency Management Agency (FEMA) National Risk Index for 18 natural hazards (link [here](#))
- Coastal Zone Management (CZM) Massachusetts Sea Level Affecting Marshes Model (SLAMM) viewer (link [here](#))
- ASTM Standard Guide for Remedial Action Resiliency to Climate Impacts (ASTM E3249-21) (link [here](#))

**Q: What funding sources are available for this work?**

**A:** At this time, there are no funding sources specifically targeted for addressing climate change impacts at MCP sites. However, the Municipal Vulnerability Preparedness (MVP) grant program (link [here](#)) provides support for cities and towns across the Commonwealth to identify climate change vulnerabilities, prioritize critical actions, and build community resilience.