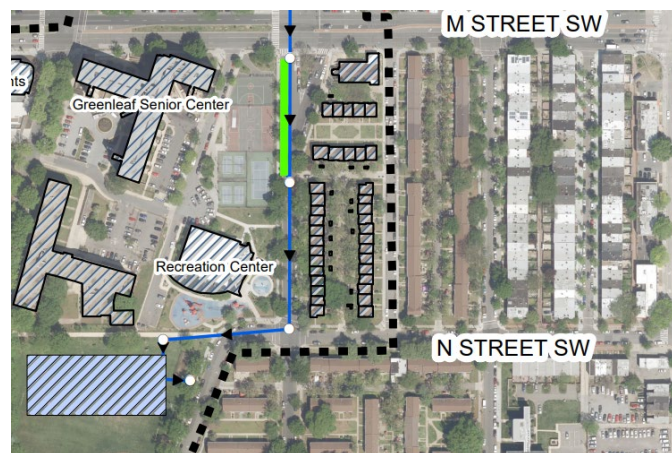


# Mitigating the Risk of Extreme Temperatures with Hazard Mitigation Assistance Funds

FEMA’s Hazard Mitigation Assistance (HMA) grant programs provide funding for eligible mitigation measures that build climate resilience. These funds can be used to plan for and mitigate risks posed by natural hazards, including extreme temperatures. This fact sheet identifies opportunities for hazard mitigation assistance, provides an overview of considerations and identifies other available FEMA resources.

The climate crisis is making heat waves more intense and frequent, taking a toll on health across the country—sending tens of thousands of Americans to the emergency room, increasing risks of heart and respiratory problems, and especially endangering our workers, children, seniors, people with underlying health conditions, and underserved and overburdened communities. Extreme cold can similarly endanger our most underserved and vulnerable populations.



**Figure 1: Fiscal Year 2020 BRIC Selection: Blue/Green Stormwater Flood Mitigation in Southwest Washington, DC provides flood risk reduction and heat island mitigation benefits.**

Extreme heat and extreme cold impact us differently, but both pose a significant risk to infrastructure (including [Community Lifelines](#)) as well as human health and safety. Morbidity and mortality, and physical damage to infrastructure, are increasingly likely during extreme temperature events.



# FEMA

Planning for and implementing mitigation actions for extreme temperatures on a local or regional scale can reduce impacts to help save lives, protect infrastructure, reduce energy demands and improve work productivity and community comfort. The [Climate Mapping For Resilience and Adaptation](#) (CMRA) Assessment Tool, released in September 2022, is one tool to help you better understand the past, present and future climate conditions to understand exposure in your area to effectively plan and build more resilient infrastructure in your community.

## Potential Extreme Temperature Activities Under HMA

Activities that mitigate the risk of extreme temperature events can be broadly categorized into four areas:

- 1. Mitigation Planning:** Mitigation planning is the foundation of community resilience. Understanding risk and developing actionable community-driven plans are fundamental steps in tackling extreme temperatures and natural hazards more broadly. State, local, tribal and territorial (SLTT) governments can use community planning efforts, including hazard mitigation planning, to engage residents, businesses and partners in efforts to design projects and initiatives that reduce risk and build resilience. Partners can bring resources, data and additional funding to the planning process. Partners may also represent underserved communities and vulnerable populations to ensure a participatory process and accountability. As communities learn more about the current and future impacts of extreme heat and cold, it is important to update Hazard Mitigation Plans as they are the foundation for determining if a project is eligible for FEMA mitigation funding. FEMA mitigation funding fosters greater community resilience and can also be used for other planning-related activities, which may include mapping heat islands to support the vulnerability analysis of the hazard mitigation plan.



Ice covers electrical sources  
Source: Shutterstock

### **Figure 2: Nebraska and Kansas Electrical System Ice and Wind Storm Mitigation Projects hardened power lines against high winds and winter storm loads**

- 2. Multi-Hazard Risk Reduction Projects:** Each year, FEMA receives many requests to fund flood control projects, a type of project that can often be designed with a dual purpose of reducing risk related to extreme heat and delivering other resilience benefits. For example, [nature-based solutions](#) and green infrastructure can provide shade or natural cooling, water management and other natural benefits.
- 3. Climate-Smart Building Materials:** Mitigation projects can incorporate finishings or construction materials in the project that reduce or help withstand extreme temperatures. These projects may incorporate materials or surfaces that reduce ambient temperatures, often as a co-benefit of another risk reduction activity. These

projects could use a lighter color roof surface as part of a wind retrofit project or a flood risk reduction project, or incorporate paving materials that reflect solar energy, enhance water evaporation or have been otherwise modified to mitigate extreme temperature. Projects could also incorporate extreme temperatures into the design criteria, such as considering winter storm impacts on power lines.

4. **Resilience Hubs:** Critical facilities and community infrastructure are important assets that should be designed to meet the needs of underserved communities during extreme weather events. Hazard mitigation projects can reduce the impacts of extreme heat or extreme cold by providing temperature-controlled environments to protect most at-risk populations. Examples of projects that may fall under this category include:
  - Backup power for heating or cooling centers
    - If a cooling or heating center is designated as a critical facility by the subapplicant, a project could include installation of a secondary source of power to ensure critical functions continue to operate during utility power outages.
  - Heating or cooling systems in publicly owned nonresidential and multifamily residential structures where extreme temperature can increase mortality/morbidity to most at-risk populations
    - In these cases, a clear connection is needed between the proposed mitigation activity and the reduced mortality/morbidity to most at-risk populations to support the evaluation of the project.

## How Can FEMA HMA Programs Help?

The Building Resilient Infrastructure and Communities (BRIC), Flood Mitigation Assistance (FMA),<sup>1</sup> Hazard Mitigation Grant Program (HMGP) and HMGP Post-Fire grant program may provide funding to plan for and mitigate the impacts of extreme temperatures.

Examples of opportunities to mitigate the impacts of extreme temperature using FEMA's HMA programs include mitigation planning (mitigation plan updates and mitigation planning-related activities, including integrated hazard mitigation and planning for safer, more resilient, equitable communities), climate smart building materials (retrofitting buildings, including heating or cooling systems), resilience hubs (emergency power for warming or cooling centers), and multi-hazard mitigation projects (providing shade or cool surfaces in public places, or implementing projects that mitigate other hazards and provide a heat reduction co-benefit).

Visit the [HMA web page](#) to learn more about the timing and program-specific requirements of FEMA's HMA programs. Visit FEMA's [Hazard Mitigation Planning](#) web page to learn more about mitigation planning policies and resources.

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<sup>1</sup> Per section 1366 of the National Flood Insurance Act (42 USC 4104c), mitigation actions under FMA must **reduce the risk of flood damage** to structures covered under the National Flood Insurance Program.

## MITIGATION PLANS AND PROJECTS

- SLTTs governments can apply for mitigation planning and project grants to reduce the risk or impact of extreme temperatures. Projects must conform with an approved Hazard Mitigation Plan and be sufficiently developed that the application demonstrates technical feasibility and cost-effectiveness. Mitigation planning grants can be used to help SLTTs update mitigation plans to include a comprehensive range of actions to reduce risk or impact from extreme temperatures.
- Phased projects, available under BRIC, FMA, HMGP and HMGP Post Fire may be used when the subapplicant lacks the technical and financial resources to provide the complete technical information required for a full eligibility or Environmental Planning and Historic Preservation (EHP) review of a complex project. The subapplicant can apply for assistance to develop a complete body of technical data, which may include design (such as mapping heat islands), engineering and EHP feasibility studies or analysis (also referred to as a Phase I study).

Pre-award costs directly related to developing a subapplication that are incurred prior to the date of the grant award may be allowed, subject to FEMA approval at the time of the award. Pre-award costs may be incurred, for example, when gathering data for a National Environmental Policy Act analysis or developing a Benefit-Cost Analysis (BCA), preparing design specifications, or when holding workshops or meetings related to reviewing proposed alternatives and designs.

## CAPABILITY- AND CAPACITY-BUILDING

The following assistance strategies, available under BRIC, FMA, HMGP and HMGP Post Fire, can be used to develop mitigation plans and activities:

- Planning
  - To develop or update state, local or tribal hazard mitigation across the country, FEMA funds mitigation planning grants. This assistance provides SLTTs with necessary resources to engage in mitigation planning, bring new partners to the table, update risk assessments based on current projections and develop a comprehensive range of activities to create more resilient communities from extreme weather and other future hazard events.
- Planning-Related Activities
  - To strengthen hazard mitigation across the country, FEMA supports a variety of planning-related activities. This assistance provides flexibility to SLTTs to reduce risk from extreme temperatures and integrate hazard mitigation principles into planning for resilience. This assistance for planning-related activities provides SLTT governments flexibility to further reduce risk and integrate hazard mitigation and resilience principles into mitigation plans as well as other types of ongoing planning and development activities, such as integration of inclusive partnerships, updating risk and vulnerability assessments, and making land use ordinances and building codes more disaster resilient.

- **Project Scoping/Advance Assistance**
  - Project scoping/advance assistance are the activities that enable applicants and subapplicants to develop mitigation strategies and obtain data to prioritize, select and develop complete applications in a timely manner. For example, project scoping/advance assistance may be used to identify a vulnerable population, develop a mitigation solution and prepare a subgrant application for extreme temperature mitigation projects. FEMA will accept applications from SLTTs for project scoping/advance assistance. In the application, the SLTT may reflect its intent to ask local communities to perform some of the eligible activities.
- **Technical Assistance (Financial and Nonfinancial)**
  - Financial technical assistance awards are only available under FMA and allow applicants to maintain a viable FMA program over time. Eligible activities include program promotion, site visits, application development and review, planning and grants management workshops, and staff assistance.
  - Nonfinancial Direct Technical Assistance (DTA) is available under the BRIC grant program to help communities identify their mitigation needs, design transformational projects and help them develop tools needed to successfully apply for resilience funding. Through nonfinancial BRIC DTA, FEMA will provide support for both activity-specific needs and community-wide resilience needs. Refer to the [BRIC Direct Technical Assistance](#) web page on FEMA.gov for more information.
- **Management Costs**
  - FEMA may provide financial assistance to reimburse the recipient and subrecipient for eligible and reasonable indirect costs, direct administrative costs, and other administrative expenses associated with a specific mitigation measure or project. Management costs are not automatically provided or calculated and recipients/subrecipients must include management costs in their subapplications.

## Technical Feasibility Considerations

Mitigation projects submitted for funding consideration through our HMA programs must conform with the approved mitigation plan and be both feasible and effective at mitigating the risks of the hazard for which the projects are designed.

In the project narrative, the subapplicant may need to demonstrate the engineering practices, established codes and standards, or modeling applicable to the project. FEMA accepts the engineering design for a project if a state-authorized professional (for example, licensed professional engineer or architect) certifies that the design meets the appropriate code or industry design and construction standards. FEMA will accept the certified engineering design instead of the FEMA comprehensive technical feasibility review.

- Projects that mitigate extreme heat as a co-benefit while also providing risk reduction from another hazard must demonstrate risk reduction of the primary hazard and should discuss how the project has an additional co-benefit for heat reduction.

- Projects that directly mitigate the loss of life to most at-risk populations must demonstrate, through data and narrative, that the project will be designed and constructed to appropriate standards and support that the project will effectively mitigate the impacts of extreme heat events.

## Cost-Effectiveness Considerations

Only cost-effective mitigation measures that conform to the approved Hazard Mitigation Plan are eligible for potential funding from the HMA programs. FEMA created the [BCA Toolkit](#) to help applicants perform BCAs and provides [pre-calculated benefits](#) that can be applicable in certain scenarios. Pre-calculated [ecosystem services benefits](#) can help show these projects to be cost-effective.

- Projects that mitigate extreme heat while also reducing risk from another hazard (e.g., nature-based solutions projects that mitigate flood or wind retrofit projects that mitigate high wind) may be able to demonstrate cost-effectiveness using the decreased risk to people, buildings and infrastructure. These projects often rely on the risk reduction benefits of the other hazards to demonstrate cost-effectiveness with the heat islanding reduction serving as a co-benefit that may or may not be directly quantified in the BCA. The BCA would be based on the benefits of the primary mitigation activity. A narrative of heat-islanding reduction should also accompany the BCA to highlight the mitigation benefit of a nature-based solutions compared to grey infrastructure.
- Projects that directly mitigate the loss of life to most at-risk populations may be able to consider the life-safety benefits of the project to demonstrate cost-effectiveness. These projects must clearly identify the at-risk population, the risk to that population by extreme temperatures and the risk reduction of implementing the proposed mitigation action.

## Additional Resources

Contact your [State Hazard Mitigation Officer](#) or visit FEMA's [HMA web page](#) and [Hazard Mitigation Planning web page](#) on FEMA.gov for information on HMA and Mitigation Planning programs.

FEMA also provides information about actions that individuals can take to prepare for extreme temperature events:

- [Extreme Heat \(fema.gov\)](#)
- [Winter Storm \(fema.gov\)](#)
- <https://www.ready.gov/heat>

The National Integrated Heat Health Information System provides heat and health information at [HEAT.gov](#).

The Centers for Disease Control and Prevention (CDC) also has information on the use of cooling centers at:

- [Use of Cooling Centers to Prevent Heat-Related Illness: Summary of Evidence and Strategies for Implementation \(cdc.gov\)](#)
- [FACT SHEET: President Biden's Executive Actions on Climate to Address Extreme Heat and Boost Offshore Wind - The White House](#)