United States Government Accountability Office

Report to Congressional Requesters

September 2025

EXTREME HEAT

Limited FEMA Assistance Highlights Need for Reevaluation of Agency's Role

GAO-25-107474

GAO Highlights

EXTREME HEAT

Limited FEMA Assistance Highlights Need for Reevaluation of Agency's Role

GAO-25-107474 September 2025

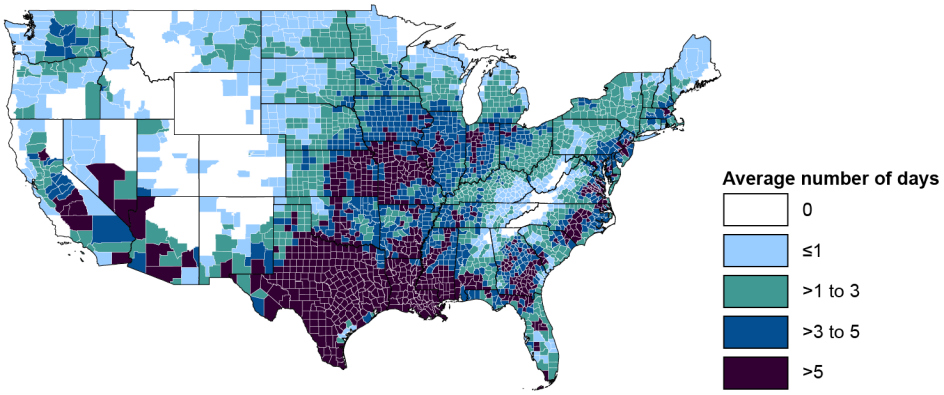
A report to congressional requesters.

For more information, contact: Chris Currie at curriec@gao.gov.

What GAO Found

Between 2018 and 2024, 97 percent of counties across the contiguous U.S. were projected to reach at least level 3, a dangerous level of heat, by the National Weather Services's HeatRisk, a 5-level index for potential heat-related effects. In addition, more than 319 million people lived under a forecast that was at a dangerous level for at least one day during this period of time.

Average Days per Year at HeatRisk Level 3 and Above by County, 2018-2024



Source: GAO analysis based on National Weather Service (NWS) data; U.S. Census Bureau (map). | GAO-25-107474

FEMA has provided limited assistance to tribal, state, and local governments for projects to mitigate against extreme heat. For example, less than 1 percent of the agency's Building Resilient Infrastructure Communities (BRIC) 1,235 grant projects with obligations from fiscal years 2020 through 2023 primarily addressed extreme heat.

Further, there has never been a presidentially declared major disaster for an extreme heat event, which would trigger federal assistance, such as damaged infrastructure, emergency protective measures for survivors, and mitigation assistance. According to FEMA, past extreme heat events have caused little infrastructure damage, a key criterion for approving federal assistance. FEMA officials told us that absent extraordinary circumstances, it was unlikely that a president would ever declare a major disaster for extreme heat. Agency officials reported providing some assistance for extreme heat when responding to other approved disasters, such as distributing commodities to Houston, Texas after Hurricane Beryl.

However, FEMA has not evaluated its role in helping tribal, state, and local governments to plan for and implement activities that reduce or mitigate future disaster losses from extreme heat events. Moreover, FEMA has also not assessed how its potential decision to end BRIC may affect the agency's ability to assist these entities. Evaluating FEMA's role and its capabilities for assisting tribal, state, and local governments to prepare, respond, and recover from extreme heat events would help the agency to fully identify any gaps in assisting these governments and determine how to best address them. The evaluation's results could also be incorporated into any upcoming changes to FEMA's role or reform efforts.

Why GAO Did This Study

According to the National Weather Service, extreme heat is the leading weather-related cause of death in the U.S.—killing more people than floods, hurricanes, and tornadoes combined. These events are forecast to grow in intensity, frequency, and duration.

GAO was asked to examine the Federal Emergency Management Agency's (FEMA) support for states and localities experiencing extreme heat events. This report examines (1) where forecast data projected extreme heat could occur; (2) the extent FEMA assisted Tribes, states, and localities to mitigate extreme heat; and (3) the extent that FEMA helped these entities respond to and recover from extreme heat events.

GAO reviewed FEMA documentation; analyzed heat index data from January 2018 through October 2024 and FEMA grant data from fiscal years 2020 through 2023; interviewed emergency management or public health officials, subject matter experts; and FEMA officials.

What GAO Recommends

GAO is making four recommendations, including that FEMA evaluate its role, capabilities and address any program gaps to assist tribal, state and local governments to address extreme heat events. FEMA concurred with three recommendations but did not concur with one recommendation— to establish a plan to incorporate more extreme heat activities into its benefit-cost analysis processes. The agency stated it no longer plans to do this effort. Stakeholders reported that calculating extreme heat-related project benefits was a challenge. GAO maintains its recommendation could help FEMA alleviate the burden on communities to demonstrate their extreme heat projects' cost-effectiveness.

Contents

Tables

Figures

Abbreviations

BRIC	Building Resilient Infrastructure and Communities
FEMA	Federal Emergency Management Agency
NWS	National Weather Service

U.S. GOVERNMENT ACCOUNTABILITY OFFICE
441 G St. N.W.
Washington, DC 20548

September 30, 2025

Congressional Requesters

In recent years, several regions of the U.S. have experienced record extreme heat events. For example, according to the National Oceanic and Atmospheric Administration, nearly 1,000 heat records across the country were broken in September 2022.[1] In addition, about 130 million Americans in 22 states were under heat alerts in August 2023.[2] Further, according to the National Weather Service (NWS), extreme heat is the leading weather-related cause of death in the U.S., killing more people than floods, hurricanes, and tornadoes combined.[3] In addition, a 2024 study found that heat-related deaths in the U.S. had increased by 117 percent between 1999 (1,069 deaths recorded) and 2023 (2,325 deaths recorded).[4] During extreme heat events, affected communities frequently report increased deaths, overwhelmed health care systems, and strain to power supply that may affect access to air-conditioning or other vital services.

Moreover, extreme heat events are expected to grow in intensity, frequency, and duration, negatively affecting more people and infrastructure for longer periods.[5] For example, according to a 2021 study, 30 percent of the U.S. population can expect to experience over 100 days

[1]U.S. Climate Summary for September 2022" National Oceanic and Atmospheric Administration. last accessed March 25, 2025. https://www.climate.gov/news-features/understanding-climate/us-climate-summary-september-2022.

[2]Department of Homeland Security (website), "Department of Homeland Security Offers Community Leaders New Resources to Prepare for Extreme Temperature Events as 17 States Experience Record-Breaking Heat" last accessed Apr. 15, 2025. https://www.fema.gov/press-release/20250122/department-homeland-security-offers-community-leaders-new-resources-prepare.

[3]NWS attributed hurricane or cyclone fatalities, injuries, and damage only to the wind in its estimates. NWS listed other fatalities, injuries, and damage associated with other tropical cyclone hazards such as storm surge inundation, rainfall-induced flooding, and tornadoes within each separate event types (e.g., flood, tornado). See NWS, "Weather related fatality and injury statistics". Last accessed April 10, 2025. https://www.weather.gov/hazstat.

[4]The study also found that a total of 21,518 heat-related deaths were recorded from 1999 through 2023. See Jeffrey T. Howard, PhD1; Nicole Androne, MS1; Karl C. Alcover, PhD2; et al," *Trends of Heat-Related Deaths in the US, 1999-2023", (*Aug. 26, 2024) doi:10.1001/jama.2024.16386.

[5]U.S. Global Change Research Program, *Fifth National Climate Assessment* (Washington, D.C.: 2023).

per year where the daily maximum temperature is above 100 degrees Fahrenheit by 2050.[6] In addition, extreme heat has a significant effect on the economy. In 2021, more than 2.5 billion hours of labor across the U.S. agriculture, construction, manufacturing, and service sectors were lost to heat exposure.[7]

In previous years, we have examined various federal programs that can directly or indirectly be used to mitigate against extreme heat. For example, in 2021, we reported on select jurisdictions' challenges with the Federal Emergency Management Agency's (FEMA) hazard mitigation assistance programs and made six recommendations.[8] We also reported in December 2024 on FEMA wildfire assistance and the challenges tribal, state, and local officials experienced in obtaining assistance, and made six recommendations.[9] For example, we recommended that FEMA establish a formal process to regularly collect and assess nationwide feedback from tribal, state, and local Fire Management and Assistance Grant recipients and incorporate such feedback into program policy, as appropriate. FEMA concurred with this recommendation, but as of May 2025, this recommendation has not been implemented, and FEMA has taken no action to address it.

You requested that we examine FEMA's efforts to support states and localities experiencing extreme heat events. This report examines (1) how federal agencies define extreme heat and what NWS forecast data show about where extreme heat occurs; (2) the extent that FEMA has provided assistance to help tribal, state, and local governments mitigate against extreme heat and any challenges that exist in obtaining this assistance; and (3) the extent that FEMA has provided assistance to help tribal, state, and local governments respond to and recover from extreme heat events,

[6]Atlantic Council, *Extreme Heat: The Economic and Social Consequences for the United States* (Washington, D.C: Aug. 2021).

[7]Romanello, Marina et al. "The 2024 report of the Lancet Countdown on Health and Climate Change: facing record-breaking threats from delayed action" *The Lancet*, Volume 404, Issue 10465, 1847-1896.

[8]GAO, *Disaster Resilience: FEMA Should Take Additional Steps to Streamline Hazard Mitigation Grants and Assess Program Effects,* GAO-21-140 (Washington, D.C.: Feb. 2, 2021). As of June 3, 2025, FEMA has addressed all six of these recommendations.

[9]GAO, *Wildfires: Additional Actions Needed to Address FEMA Assistance Challenges,* GAO-25-106862 (Washington, D.C.: Dec. 18, 2024). As of June 3, 2025, all six recommendations remain unimplemented.

and assessed its future role in assisting their efforts to address extreme heat events.

To address all three objectives, we conducted site visits or virtual semi-structured interviews in three states: Arizona, Washington, and Texas. We selected these states because historic extreme heat events in terms of temperature or duration had occurred in each of them during 2021 through 2024. We also sought to ensure a mixture of states that experience chronic dry heat, chronic heat and humidity, and those that do not regularly experience extreme heat events during the summer months. In each state, we interviewed emergency management or public health officials at the tribal, state, county, and city levels.[10] In total, we met with officials from two Tribes, three states, seven counties, and three cities. In addition, we also interviewed known subject matter experts from five academic institutions who had conducted research on extreme heat.[11] We selected these experts by reviewing pertinent academic literature and recommendations from other subject matter experts.[12]

To address the first objective on defining extreme heat and where it has occurred, we reviewed publicly available agency documentation, such as fact sheets available on FEMA's and the National Integrated Heat and Heat Information System's websites, to determine how federal agencies define extreme heat.[13] In addition, we interviewed relevant NWS and National Oceanic and Atmospheric Administration officials monitoring extreme heat to understand their methods for measuring it, as well as the benefits and challenges of using these metrics for informing decision-making. We interviewed the tribal, state, and local officials identified

[10]We did not interview a Tribe in Texas because representatives from the selected Tribe did not respond to our requests for an interview.

[11]We met with subject matter experts from the Duke University, Texas A&M University, University of Arizona; University of California, Los Angeles; and University of Washington.

[12]Throughout the report, we use the following categories to quantify statements made by interviewees: "some" is defined as statements made by 2 to 5 interviewees, "several" is defined as statements made by 6 to 10 interviewees, and "most" is defined as more than half of the interviewees whose views we summarize. The findings from our interviews and site visits are not generalizable, but they provide useful perspectives and illustrative examples about interviewees' experiences related to addressing extreme heat.

[13]See Ready.gov and Heat.gov. Ready.gov is FEMA's national public service campaign to educate and empower the American people to prepare for, respond to, and mitigate emergencies and disasters. Heat.gov is the web portal for the National Integrated Heat Health Information System. It provides heat and health information to help reduce the health, economic, and infrastructural impacts of extreme heat.

above, and subject matter experts on how, if at all, they define extreme heat and the various factors that contribute to how communities experience it.

To determine what NWS forecast data show regarding where extreme heat occurred from 2018 to 2024, we analyzed NWS's dataset of daily HeatRisk GeoTIFF files for the continental U.S. from January 1, 2018, through October 31, 2024.[14] HeatRisk is an experimental index used to forecast the potential for heat-related effects to occur for a particular area. Because HeatRisk uses multiple factors to assess extreme heat risk, we used HeatRisk data as a proxy for where extreme heat has occurred nationally.[15] To assess the reliability of these data, we reviewed relevant HeatRisk webpages; and conducted interviews with knowledgeable NWS officials about these data and how they are collected. We also conducted tests to determine whether the data requested matched the data received and confirm that there are no null or duplicate values. We found that these data were reliable for our purposes.

To address the second objective on FEMA assistance to mitigate extreme heat and challenges interviewees reported, we reviewed relevant FEMA policy and guidance documents, such as its Hazard Mitigation Assistance Program and Policy Guide, and other relevant information sources to identify assistance potentially available to address extreme heat.[16] To identify the total number and dollar amount of Building Resilient Infrastructure and Communities (BRIC) projects with obligations that primarily addressed extreme heat, we analyzed BRIC grant program data from the fiscal years 2020 through 2023 funding cycles.[17] We chose this

[14]A GeoTIFF file is a tagged image file format (TIFF) used for storing geographical-related information.

[15]These factors include how unusual temperatures are for a particular location and time of year, how long temperatures stay elevated and whether they fall overnight, and whether temperatures are likely to cause negative health effects.

[16]FEMA, *Hazard Mitigation Assistance Program and Policy Guide,* FP-206-21-0001, (Washington, D.C.: Jan. 20, 2025). FEMA released Version 2.1 of this document on August 12, 2025, with a retroactive effective date of January 20, 2025. We made changes throughout the draft in response to this recent change in policy regarding retrofit projects for extreme heat.

[17]An obligation is a definite commitment that creates a legal liability of the government for the payment of goods and services ordered or received. Under BRIC, applicants (i.e. Tribes, states, or territories) select sub-applications to submit to FEMA for award under the BRIC programs. Sub-applicants are entities that submit applications to a state, territory or tribal government, which acts as the applicant for grants under the BRIC program. For the purposes of this report, we refer to subapplications as projects.

time frame because BRIC began providing grants in 2020 as part of the fiscal year, and in April 2025, FEMA announced that it was ending BRIC and canceled the fiscal year 2024 application process.[18]

Further, for objectives two and three, we interviewed tribal, state, and local officials, as described above, to determine any challenges they experienced accessing or obtaining FEMA hazard mitigation assistance for extreme heat, and for responding to and recovering from extreme heat events. We also met with the subject matter experts identified above to obtain additional perspectives on FEMA assistance for extreme heat and any challenges they identified in their research relevant to extreme heat. We also interviewed FEMA officials at headquarters and from Regions 5, 6, 9, and 10 about (1) mitigation assistance the agency provides for extreme heat; (2) how FEMA evaluates tribal and state requests for an emergency or major disaster declaration for extreme heat; (3) the challenges identified by FEMA internal assessments related to providing assistance to tribal, state, and local governments for responding to and recovering from extreme heat events and the actions they have taken to address them; (4) the challenges that interviewees had reported; and (5) any actions taken to address them. We chose these regions because they included the states we selected and, in the case of Region 5, because it had organized and hosted FEMA's annual heat summits.

Finally, we collected and analyzed documentation and interviewed FEMA officials to identify steps FEMA has taken to address these challenges. We assessed FEMA's actions using the federal government's National Heat 2024–2030, the National Mitigation Framework, and standards for project management.[19]

To address the third objective on FEMA assistance to respond to and recover from extreme heat and the challenges interviewees reported, we reviewed relevant FEMA policy documents and guidance, such as its Public Assistance Program and Policy Guide.[20] We did this to identify the

[18]In August 2025, FEMA officials told us that the agency continues to evaluate whether to end or revise the BRIC program. As of August 2025, we have an ongoing review of the BRIC program, as well as a review of the application of the Impoundment Control Act of 1974, 2 U.S.C. §§ 681–688, to the BRIC program.

[19]National Integrated Heat Health Information System, *2024-2030 National Heat Strategy,* (Washington, D.C.: Aug. 2024), and Project Management Institute, A Guide to the Project Management Body of Knowledge, Sixth Edition (Newtown Square, PA: 2017).

[20]FEMA, *Public Assistance Program and Policy Guide*, FP 104-009-2 (Washington, D.C.: Jan. 6, 2025).

types of assistance available for entities to respond to and recover from extreme heat events, as well as the process for applying for such assistance and evaluating these requests. We also reviewed available internal assessments of FEMA regulations, policies, and procedures related to extreme heat to identify any challenges the agency had identified in providing assistance to tribal, state, and local governments, and any actions taken to address these challenges.

We compared FEMA actions to Standards for Internal Control in the Federal Government, which, in part, provides standards for how management responds to changes in operating environments.[21] See appendix I for additional details about our scope and methodology.

We conducted this performance audit from March 2024 to September 2025 in accordance with generally accepted government auditing standards. Those standards require that we plan and perform the audit to obtain sufficient, appropriate evidence to provide a reasonable basis for our findings and conclusions based on our audit objectives. We believe that the evidence obtained provides a reasonable basis for our findings and conclusions based on our audit objectives.

Background

Federal, Tribal, State, and Local Agencies' Roles in Addressing Extreme Heat

Numerous federal agencies have roles in addressing extreme heat including FEMA, the National Oceanic and Atmospheric Administration, and NWS. FEMA, within the Department of Homeland Security, is the lead federal agency responsible for assisting tribal, state, and local, governments with preparing for, mitigating against, responding to, and recovering from natural disasters and emergencies.[22]

The National Oceanic and Atmospheric Administration, NWS, and the National Integrated Heat Health Information System also play important roles in the federal government's response to extreme heat. The National Oceanic and Atmospheric Administration, an agency within the Department of Commerce, has a mission of understanding and predicting changes in the Earth's environment, and conserving and managing the nation's coastal and marine resources. NWS, an office within the National Oceanic and Atmospheric Administration, provides weather, water and

[21]GAO, *Standards for Internal Control in the Federal Government*, GAO-14-704G (Washington, D.C.: Sept. 2014).

[22]See 6 U.S.C. § 313.

climate data, forecasts, warnings, and impact-based decision support to help protect life and property and enhance the national economy. In 2014, NWS developed HeatRisk to forecast the potential risk for heat-related effects on health, industry, and infrastructure, to occur for a particular area.[23] In 2015, the National Oceanic and Atmospheric Administration and the Centers for Disease Control and Prevention launched the National Integrated Heat Health Information System to integrate and coordinate federal efforts to address extreme heat.[24] In 2024, the Information System published the first National Heat Strategy, which was developed by approximately 30 federal agencies, including FEMA.[25]

Extreme Heat and the Stafford Act

Tribal, state, and local governments have primary responsibility for protecting their citizens from extreme heat and helping them recover in their jurisdictions. However, they could seek FEMA assistance if a disaster, such as extreme heat, exceeds, or threatens to exceed, their ability to effectively respond.[26] Additionally, FEMA may provide technical assistance, training, and technological support to eligible tribal, state, and local governments. The Robert T. Stafford Disaster Relief and Emergency Assistance Act (Stafford Act), as amended, establishes the process for states to request a presidential emergency or major disaster declaration.[27] The Stafford Act requires that requests for such declarations are made by the governor of the affected state or the chief

[23]HeatRisk was initially available only for western states. In 2024, NWS expanded HeatRisk across the rest of the contiguous United States.

[24]National Integrated Heat Health Information System's federal partners include the Environmental Protection Agency, Department of Housing and Urban Development, FEMA, Department of Energy, Department of the Interior, U.S. Forest Service, National Park Service, Department of Health and Human Services, National Institutes of Health, National Institute of Environmental Health Sciences, Occupational Safety and Health Administration, and DHS.

[25]National Integrated Heat Health Information System and Extreme Heat Interagency Working Group, *National Heat Strategy, 2024-2030*, (Washington, D.C.: Aug. 14, 2024).

[26]See 42 U.S.C. §§ 5170, 5191.

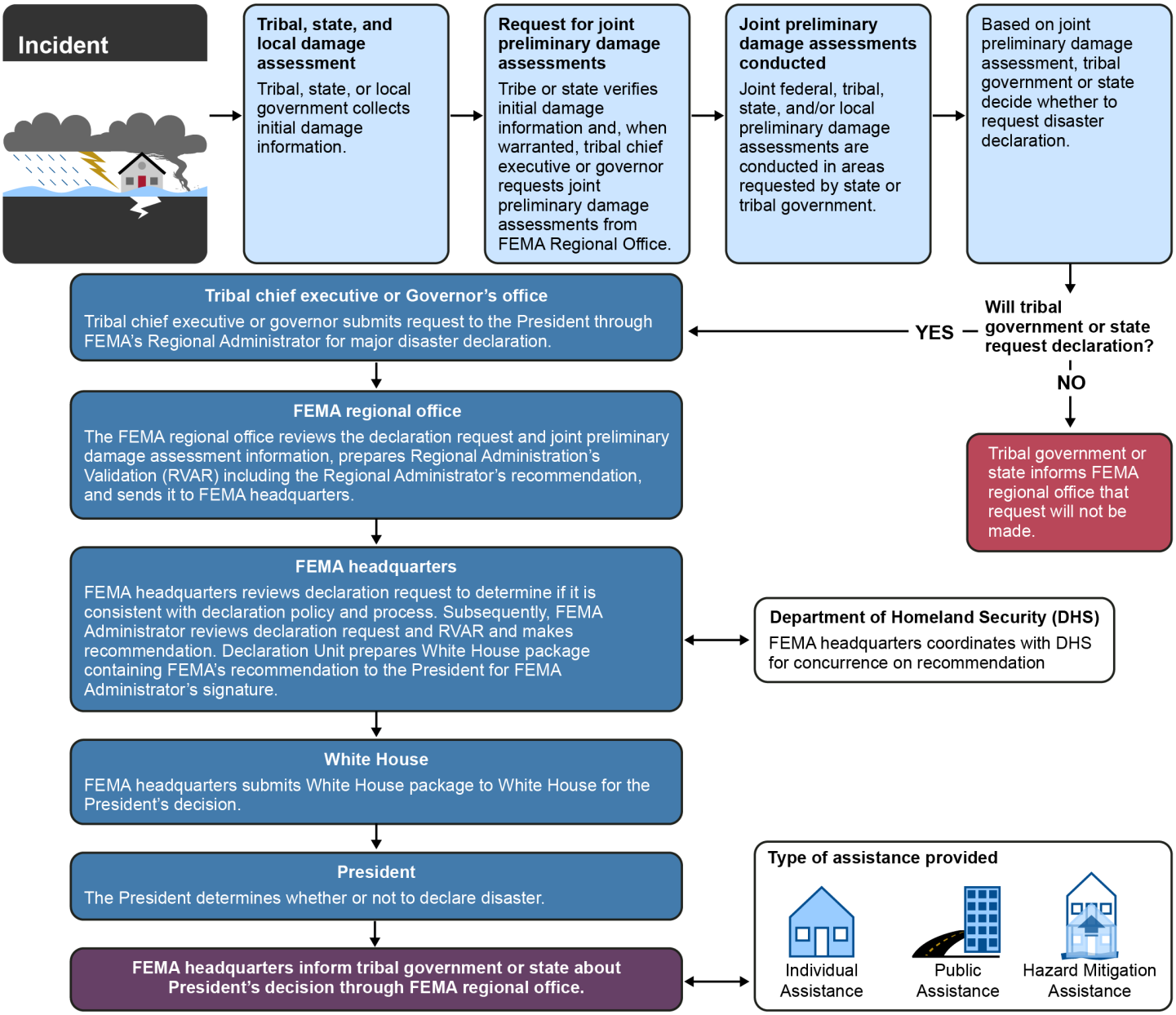
[27]42 U.S.C. § 5121 *et seq*. As discussed later, an extreme heat event could be considered a major disaster or emergency under the Stafford Act. The definition of a major disaster is any natural catastrophe (including any hurricane, tornado, storm, high water, wind-driven water, tidal wave, tsunami, earthquake, volcanic eruption, landslide, mudslide, snowstorm, or drought), or, regardless of cause, any fire, flood, or explosion, in the United States, that the President determines causes damage of sufficient severity and magnitude to warrant major disaster assistance. An emergency is any occasion or instance for which federal assistance is needed to supplement State and local efforts and capabilities to save lives and to protect property and public health and safety, or to lessen or avert the threat of a catastrophe in the United States. 42 U.S.C. § 5122.

executive of a federally recognized Tribe.[28] As part of the request to the President, a governor or tribal chief executive must affirm that the situation is of "such severity and magnitude that effective response is beyond the capabilities of the state and the affected local governments and that federal assistance is necessary."[29] Figure 1 depicts the major disaster declaration process.

[28]The Stafford Act's definition of a state also includes the District of Columbia, Puerto Rico, the Virgin Islands, Guam, American Samoa, and the Commonwealth of the Northern Mariana Islands. 42 U.S.C. § 5122(4).

[29]42 U.S.C. §§ 5170, 5191.

Figure 1: Federal Emergency Management Agency's (FEMA) Major Disaster Declaration Process



Source: GAO analysis and illustrations of FEMA information. | GAO-25-107474

Note: The appeals process is not depicted in this graphic.

Before a tribal chief executive or governor asks for disaster assistance, tribal, federal, state, and local officials usually conduct a joint preliminary

damage assessment to estimate the extent of the disaster and its effect on individuals and public facilities. This information is included in the request to show that the disaster is of such severity and magnitude that federal assistance is necessary, and an effective response is beyond the state, tribal and local governments' capabilities. Normally, the preliminary damage assessment is completed prior to the request's submission. However, when an obviously severe or catastrophic event occurs, the request may be submitted prior to the assessment.

In response to a tribal executive or a governor request, the President may declare that a major disaster or emergency exists. This declaration activates numerous assistance programs from FEMA. It may also trigger programs operated by other federal agencies, such as the Departments of Agriculture and Labor, the Federal Highway Administration, and the Small Business Administration; to assist response and recovery efforts.[30] As part of a presidentially declared disaster or emergency, affected Tribes, states, or localities may apply for several types of assistance.[31] For example:

- **Public Assistance.** Public Assistance reimburses tribal, state, and local governments and certain private nonprofit organizations for the cost of disaster-related debris removal, emergency protective measures to protect life and property, and permanent work to repair damaged or destroyed infrastructure.[32] According to FEMA officials, examples of Public Assistance related to mitigating the effects of

[30]See, e.g., 15 U.S.C. § 636(b); 23 U.S.C. § 125; 42 U.*S.C. § 5177;* 7 C.F.R. § 250.69. Some agencies, including the U.S. Department of Agriculture, the Small Business Administration, and the Federal Highway Administration, have the authority to initiate certain emergency assistance efforts without a presidential disaster declaration. See, e.g., 15 U.S.C. § 636(b); 23 U.S.C. § 125; 7 C.F.R. § 250.70. See GAO, *Disaster Assistance: Improvement Needed in Disaster Declaration Criteria and Eligibility Assurance Procedures*, GAO-01-837 (Washington, D.C.: Aug. 31, 2001).

[31]If the President declares an emergency, rather than a major disaster, the federal response is limited to the immediate and short-term assistance that is necessary to save lives, protect property and public health and safety, or lessen or avert the threat of a catastrophe. FEMA's expenditures may not exceed $5 million under an emergency declaration, unless the President determines that continued emergency assistance is immediately required; there is a continuing and immediate risk to lives, property, public health or safety; and necessary assistance will not otherwise be provided on a timely basis. Further, the President is to report to Congress on the nature and extent of the assistance requirements. 42 U.S.C. § 5193.

[32]42 U.S.C. §§ 5170b, 5172, 5173. Debris removal and emergency protective measures, but not permanent work, are available programs for emergency declarations. 42 U.S.C. § 5192.

extreme heat could include establishing temporary cooling shelters, distributing bottled water and other commodities, supporting local emergency medical capacity, or standing up and operating emergency operations centers.

- **Individual Assistance.** This program provides financial assistance and, if necessary, direct assistance to eligible individuals and households, as well as tribal, state, and local governments to support individual survivors.[33] Eligible recipients are those who, as a direct result of a major disaster or emergency, have necessary expenses and serious needs, and are unable to meet such expenses or needs through other means.[34]

Federal regulations define the factors that FEMA must consider when evaluating requests for major disaster declarations requesting Public or Individual Assistance.[35] FEMA uses these factors, which vary depending on the type of assistance requested, to determine whether to recommend that the President declare a disaster. For example, when considering Public Assistance requests FEMA considers the estimated cost of assistance, insurance coverage, assistance from other federal agency programs, localized effects, previous hazard mitigation efforts, and recent multiple disasters.[36] When considering requests for Individual Assistance, FEMA considers the state's fiscal capacity and resource availability; uninsured home and personal property losses; the profile of the population affected by the disaster; and the disaster's effects to community infrastructure, casualties, and disaster-related unemployment.

Hazard Mitigation Assistance

In addition to the types of assistance described above, FEMA also offers assistance through its Hazard Mitigation Assistance programs. According to FEMA, examples of opportunities to mitigate the effects of extreme temperature using these programs include retrofitting buildings with cooling systems, creating resilience hubs that provide emergency power

[33]42 U.S.C. § 5174.

[34]Individual Assistance is rarely authorized in emergency declarations. Within Individual Assistance, the Individuals and Households Program and crisis counseling are the only programs available for an emergency declaration. 42 U.S.C. § 5192.

[35]44 C.F.R. § 206.48.

[36]FEMA uses a state-wide and county-wide per capita threshold to measure the estimated costs of assistance, which is adjusted annually. For disasters with an incident start date on or after October 1, 2024, FEMA has set a threshold of $1.89 per capita and a county-wide threshold of $4.72 per capita in estimated eligible disaster costs. See 89 Fed. Reg. 84,912, 84,914 (Oct. 24, 2024).

for cooling centers, and adding shade or cool surfaces in public spaces.[37] Some types of Hazard Mitigation Assistance programs include:

- **Hazard Mitigation Grant Program**. Following a presidentially declared major disaster or emergency, applicants may also request assistance through this program.[38] The mitigation measures states choose to implement may address any natural hazard, including extreme heat. For example, according to FEMA officials, a state could choose to retrofit buildings with new heating or cooling systems, or provide emergency and secondary power sources for warming or cooling community centers. A state could also implement multi-hazard mitigation projects, such as providing shade or cool surfaces in public places, or implement projects that mitigate other hazards and provide a heat reduction co-benefit. However, the measures must mitigate against a hazard that is identified in the state's hazard mitigation plan.
- **Building Resilient Infrastructure and Communities (BRIC).** This was a competitive annual grant program designed to help recipients with hazard mitigation activities.[39] For example, recipients could build capability and capacity to reduce risks from disasters and natural hazards, implement cost-effective hazard mitigation projects designed to increase resilience and public safety, and pay for management costs associated with mitigation activities. BRIC was established through the Disaster Recovery Reform Act of 2018 and began its first round of funding in 2020.[40] In April 2025, FEMA announced it was ending the BRIC program.[41]
- **BRIC Direct Technical Assistance.** This initiative allowed FEMA to provide non-financial, direct assistance to recipients by improving their

[37]Pursuant to version 2.1 of FEMA's Hazard Mitigation Assistance Guide, released on August 12, 2025, retrofit projects with extreme temperature mitigation as the primary benefit are no longer eligible as standalone projects. See FEMA, *Hazard Mitigation Assistance Program and Policy Guide*.

[38]See 42 U.S.C. § 5170c.

[39]See 42 U.S.C. § 5133.

[40]Pub. L. No. 115-254, div. D, § 1234, 132 Stat. 3438, 3461 (codified at 42 U.S.C. § 5133).

[41]As previously stated, in August 2025, FEMA officials told us that the agency continues to evaluate whether to end or revise the BRIC program. As of August 2025, we have an ongoing review of the BRIC program, as well as a review of the application of the Impoundment Control Act of 1974, 2 U.S.C. §§ 681–688, to the BRIC program.

capacity to identify projects that enhance resilience. This program also ended as of April 2025, according to FEMA officials.

- **Flood Mitigation Assistance.** This program awards grants to Tribes, states, territories, and local communities for projects and planning that reduces long-term risk of flood damage to structures insured under the National Flood Insurance Program.[42] According to FEMA officials, this program could provide funding to plan for and mitigate the impacts of extreme temperatures as a secondary benefit. For example, a recipient could use funding for nature-based solutions that primarily reduce flooding and erosion but also provide extreme heat mitigation benefits.
- **Safeguarding Tomorrow Revolving Loan Fund.** This program allows FEMA to award capitalization grants to Tribes, states, and territories, which then issue loans to local communities for hazard mitigation projects.[43] Once recipients complete their projects, they repay the loans, with interest, to the fund.
- **Pre-Disaster Mitigation Community Project Funding/Congressionally Directed Spending.** This program awards grants to congressionally designated recipients to help them plan for and implement measures designed to enhance resilience against natural hazards before a disaster occurs.[44]

Federal Agencies Define Extreme Heat in Different Ways and NWS Forecasted It in Different Regions from 2018 to 2024

[42]42 U.S.C. § 4104c. In 1968, the National Flood Insurance Act of 1968 established the National Flood Insurance Program. See Pub. L. No. 90-448, Tit. XIII, 82 Stat. 476, 572. According to FEMA, the National Flood Insurance Program was designed to address the policy objectives of identifying flood hazards, offering affordable insurance premiums to encourage program participation, and promoting community-based floodplain management.

[43]See 42 U.S.C. § 5135.

[44]The program awards grants to recipients enumerated in the joint explanatory statements accompanying the relevant appropriations acts

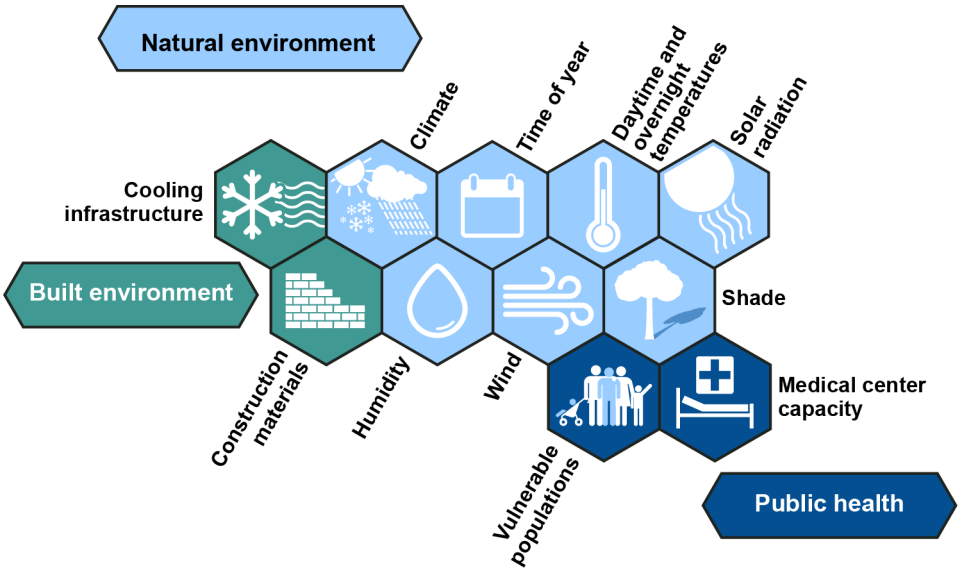
Federal Agencies Define Extreme Heat in Different Ways Depending on Their Mission and Multiple Factors Contribute to How Communities Experience It

Federal agencies define extreme heat in different ways depending on individual agencies' missions. For example, FEMA defines extreme heat as a period of high heat and humidity with temperatures above 90 degrees Fahrenheit for at least two to three days. NWS defines extreme heat as a period of abnormally hot and dangerous temperatures, with or without high humidity, that can negatively impact people, animals, and infrastructure.[45] The Centers for Disease Control and Prevention defines extreme heat as the combination of extremely high temperatures and humidity that causes the air to become oppressive. As a result of these varying definitions, according to subject matter experts we spoke to, applying a uniform definition of extreme heat nationally, or even for a single state, may not be appropriate.

Further, multiple factors—such as the climate and time of year, or the built environment—contribute to how communities experience extreme heat, according to most of the federal officials; tribal, state, and local public health and emergency management agencies; and subject matter experts from academic institutions that we interviewed. These factors, including the natural and built environment, are depicted in Figure 2, below.

[45]NWS issues two different types of heat-related alerts: Heat Advisory and Extreme Heat Warning. These alerts are tailored to local climate and impacts in coordination with emergency and public health partners. A Heat Advisory is issued when the heat index is expected to reach locally defined thresholds (i.e., typically greater than or equal to 100 degrees Fahrenheit in northern areas, or greater than or equal to 105 degrees in southern areas, with overnight lows greater than or equal to 75 degrees). An Extreme Heat Warning is issued for more severe conditions, usually lasting at least two days, with heat index values greater than or equal to 105 degrees in the north or 110 degrees in the south, and similarly warm overnight temperatures. Criteria vary by region due to climatological differences and local vulnerability. NWS forecast offices are strongly encouraged to develop local criteria in cooperation with local emergency and health officials or utilize detailed heat-health warning systems based on scientific research. *See* National Weather Service, *WFO Non-Precipitation Preliminary Assessment Guide, (Washington, D.C.: Aug. 2021) Products Specification*, NWSPD 10-515 (May 16, 2025).

Figure 2: Factors Affecting Community Experience of Extreme Heat



Sources: GAO analysis and illustrations of stakeholder information. | GAO-25-107474

Natural environment. These are factors related to the naturally occurring processes in the local environment that may contribute to or reduce the effects of extreme heat. They include:

- **Climate.** Climate is not uniform across the nation, and different regions have different thresholds for extreme temperatures. Regional FEMA officials told us that Alaskans may begin to experience the effects of extreme heat at much lower temperatures than the rest of the nation, for example. According to these officials, when temperatures in Alaska surpass 50 degrees Fahrenheit, the state experiences five times the number of heat deaths and illnesses compared to the contiguous U.S. On the other hand, a Houston, Texas, emergency management official told us that their city's threshold for activating the city's heat plan is a temperature of 103 degrees Fahrenheit or a heat index of 108 degrees Fahrenheit.

  In addition, climate is not uniform across states or counties. For example, an official from Arizona explained that the state has arid and semi-arid climate regions composed of various biogeographical climate zones, including a forested mountain region and the Sonoran Desert. Additionally, a subject matter expert told us that applying a uniform definition of extreme heat could be challenging in places such

as King County, Washington, because of the microclimates (e.g. maritime to subalpine) that exist within the county itself.[46]

- **Time of Year.** The time of year during which a particular temperature occurs can affect how communities experience it. According to a local emergency management official, higher temperatures occurring earlier in the spring and summer can be more dangerous than those occurring later in the season because the human body is not yet acclimated. Another local emergency management official told us that whether they declare an extreme heat emergency depends in part on the time of the year.
- **Overnight temperatures.** When temperatures remain elevated overnight and do not allow the body to cool down and recover from heat stress, illness and death can occur. For example, a local health official told us that when extreme temperatures continue overnight, elderly individuals without air conditioning in their homes are at a higher risk of dying. To prevent such harm, a tribal emergency management official told us that the tribal government opens cooling centers when there is a forecast of at least 107 degrees Fahrenheit during the day and over 90 degrees Fahrenheit overnight.
- **Humidity, Solar Radiation, and Wind Speed.** According to NWS, the WetBulb Globe Temperature, which estimates the effect of air temperature, relative humidity, and solar radiation on humans, is an effective indicator of heat stress on populations such as outdoor workers and athletes in direct sunlight. Additionally, a subject matter expert told us that humidity, solar radiation, and wind speed were important factors in their development of a comprehensive model measuring the heat-trapping features of urban environments and how those features affect the human body.
- **Shade**. A subject matter expert told us that shade can affect an individual's experience of extreme heat. For example, according to them, an individual standing on concrete in the shade will feel cooler than a person standing on grass who is fully exposed to sunlight.

Built environment. These are factors related to the manmade features in the local environment that may contribute to or reduce the effects of extreme heat. They include:

[46]Maritime climates are predominantly under the influence of the sea, characterized by relatively small seasonal variations and high atmospheric moisture content. Subalpine climates occur on high upland slopes and just below the timberline.

- **Availability of cooling infrastructure.** The availability of air conditioning in private residences or in public and commercial facilities can affect how communities experience extreme heat. For instance, state and local public health officials told us northern cities such as Seattle, Washington, are oriented toward keeping buildings warm in the winter and lack robust cooling infrastructure, making them more vulnerable to extreme heat events. Seattle emergency management officials told us that prior to the 2021 Pacific Northwest Heat Dome event, fewer than 50 percent of homes in the city had air conditioning. Additionally, a Harris County, Texas, emergency management official told us that during power outages, such as the one following Hurricane Beryl, the county may lower its heat threshold to the mid-to-upper 90 degrees Fahrenheit range to account for the lack of available air conditioning.
- **Construction materials.** The types of materials used in the construction of roads and buildings can affect a community's experience of extreme heat. A subject matter expert told us that the amount of ground surface covered by asphalt concrete (i.e., blacktop), for example, can affect the experience of extreme heat at a neighborhood level. This is because asphalt concrete has a high level of heat absorbency and it reradiates absorbed heat, which artificially raises surface temperatures relative to the surrounding environment. These high absorption materials are frequently used in the construction of urban environments.

Public Health. These are factors related to a community's capacity to manage the health of its population:

- **Medical center capacity.** When extreme heat events occur, hospitals and other medical facilities can quickly become overwhelmed. An official from Houston, Texas told us that, following Hurricane Beryl and its ensuing heat wave, Harris County opened an overflow facility at the 125,000-square-foot NRG Stadium. Additionally, an Arizona state official told us that Maricopa County, Arizona experienced a significant increase in mortality during a 16-day heat wave in 2023. The event strained the county's heat relief response, including impacting the office of the medical examiner, emergency medical services, and the healthcare system.
- **Vulnerable populations.** Age, cognitive state, and access to shelter can affect an individual's experience of extreme heat. In communities with high homeless and elderly populations, extreme heat can contribute to increased rates of mortality and require an increased need for shelter. A local public health official told us that the homeless

and persons with substance-abuse disorders are disproportionately represented in extreme heat illnesses and mortality, for example.

NWS's HeatRisk Incorporated Multiple Factors to Forecast Extreme Heat in Varying Regions from 2018 through 2024

In 2014, NWS developed an experimental tool, HeatRisk, which incorporates a number of factors to forecast the potential for heat-related effects using a color-numeric index spanning from 0 to 4.[47] These factors include how unusual temperatures are for a particular location and time of year, how long temperatures stay elevated and whether they fall overnight, and whether temperatures are likely to cause negative health effects based on peer-reviewed research and heat health thresholds created by the Centers for Disease Control and Prevention data sets.[48]

For example, a level 4 forecast indicates an extreme risk of rare or long-duration extreme heat (i.e., in the upper 5% of historical temperatures from 1970 through 2020, lasting for 48 hours or more) with little to no overnight relief that negatively affects anyone without access to adequate cooling or hydration. A level 3 forecast indicates a major risk, affecting all individuals without proper hydration and adequate cooling.[49] Because HeatRisk uses multiple factors to assess extreme heat risk, we analyzed HeatRisk data between calendar years 2018 and 2024 to determine where a level 3 event or above was forecasted in the contiguous U.S. as

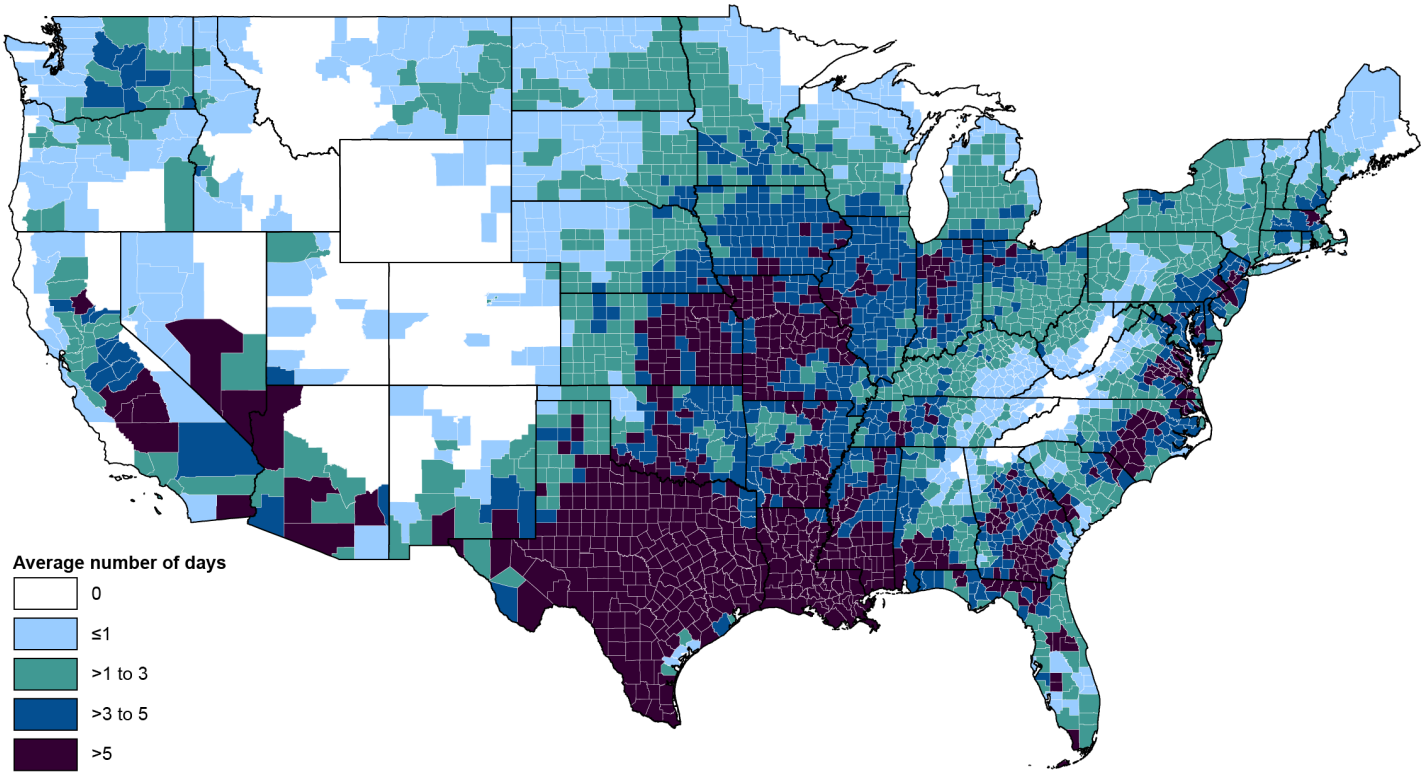
[47]HeatRisk data based on observed temperatures were not yet available for this analysis. NWS provided HeatRisk data based on very short-term forecasts via the NWS National Digital Forecast Database with a spatial resolution of 2.5 km by 2.5 km.

[48]Ambarish Vaidyanathan, Shubhayu Saha, Ana M. Vicedo-Cabrera, Antonio Gasparrini, Nabill Abdurehman, Richard Jordan, Michelle Hawkins, Jeremy Hess, & Anne Elixhauser, "Assessment of Extreme Heat and Hospitalizations to Inform Early Warning Systems", *Proceedings of the National Academy of Sciences*, vol. 116, no. 12 (2019): https://doi.org/10.1073/pnas.1806393116.

[49]The remaining HeatRisk categories are as follows: a value of 0 represents little to no risk of heat-related effects; 1 represents a minor risk, especially among those extremely sensitive to heat; 2 represents a moderate risk, primarily amongst individuals who are sensitive to heat or exposed to heat and especially those without effective cooling or adequate hydration. According to National Oceanic and Atmospheric officials, HeatRisk approximates humidity by dividing the eastern half of the country, which is traditionally more humid, from the western half, which is traditionally more arid, and considering how unusually warm the overnight temperatures are. This is because more humid air leads to warmer overnight temperatures and to a small difference between overnight lows and daytime highs.

a proxy for where extreme heat has occurred.[50] Figure 3 shows the average number of days at level 3 or above for each county in the U.S from 2018 through 2024.

Figure 3: Average Days per Year at HeatRisk Level 3 and above by County, 2018-2024



Source: GAO analysis based on National Weather Service (NWS) data; U.S. Census Bureau (map). | GAO-25-107474

According to our analysis of the data, counties across the U.S were forecasted to reach at least level 3 between 2018 and 2024. For example, our analysis found that 3,031 counties, or 97 percent of all counties in the contiguous U.S. were under a forecast of level 3 or above for at least one

[50]HeatRisk uses forecasted maximum and minimum temperatures at a 2.5 km by 2.5 km grid resolution to calculate the potential effects of extreme heat. Therefore, our analysis reflects locations where HeatRisk level 3 or above was forecasted to occur and not whether they had actually occurred. Because HeatRisk is an experimental predictive model, data on where a level 3 or above occurred historically is not presently available. NWS officials told us that retroactive analyses to determine where HeatRisk levels occurred may be available in the future. HeatRisk only assesses extreme heat risk in the contiguous U.S. and does not presently assess Alaska, Hawaii or the U.S. territories.

day.[51] In addition, more than 319 million people were under a forecast of level 3 or above for at least one day between 2018 and 2024. Counties in Texas overwhelmingly had the highest average number of days per month forecasted at level 3 or above from May through September 2018 to 2024. For example, in August, Zapata County, Texas, averaged 15 forecasted days at level 3 or above compared to a national average of 2.55 days. Other states also had counties forecasted at level 3 or above for a high average number of days depending on the month. For example, in June and September, several counties in Louisiana and Florida were forecasted to have a high average. Table 1 shows the top 10 counties with the highest average number of days forecasted at level 3 or above per month.[52]

Table 1: Counties with Highest Forecasted Average Days at HeatRisk Level 3 or Above Per Month, 2018-2024

May		June		July		August		September	
County	Average Days	County	Average Days	County	Average Days	County	Average Days	County	Average Days
Zapata, TX	5.14	La Salle, TX	10.43	La Salle, TX	13.00	Zapata, TX	15.00	Zapata, TX	6.86
Cameron, TX	4.57	Zapata, TX	9.00	Zapata, TX	11.71	La Salle, TX	14.86	DeSoto, FL	6.57
Starr, TX	4.14	Trinity, TX	8.14	Mitchell, TX	10.43	Karnes, TX	12.86	Monroe, FL	5.43
Willacy, TX	4.14	W. Baton Rouge, LA	8.14	Somervell, TX	10.43	Starr, TX	12.71	Cameron, TX	5.14
Hidalgo, TX	3.86	Cameron, TX	7.86	Trinity, TX	10.29	Trinity, TX	12.71	Starr, TX	5.14
Webb, TX	3.86	Mitchell, TX	7.86	Covington, AL	9.86	Mitchell, TX	12.57	La Salle, TX	5.00
La Salle, TX	3.71	Nolan, TX	7.71	Hood, TX	9.86	Fayette, TX	11.86	Hardee, FL	4.57
Brooks, TX	3.29	Val Verde, TX	7.71	Waller, TX	9.86	San Saba, TX	11.86	Hidalgo, TX	4.43
McMullen, TX	3.29	E. Baton Rouge, LA	7.57	Cameron, TX	9.71	Stephens, TX	11.86	Harris, TX	4.14
Duval, TX	3.00	Iberville, LA	7.57	Travis, TX	9.71[a]	Bastrop, TX	11.71[b]	Lake, FL	4.00

Source: GAO analysis based on National Weather Service (NWS) data. | GAO-25-107474

[a]Cameron, Travis, and Walker Counties were tied for 9.71 days in July.

[b]Bastrop, Hidalgo, Shackelford, and Somervell Counties were tied for 11.71 average days in August.

We also analyzed the number of days that counties were under a level 3 forecast or above each year from 2018 to 2024 to isolate extreme heat events by year. We found that counties in Texas overwhelmingly had the

[51]There are 3,109 counties in the 48 contiguous states.

[52]Numbers have been rounded to the nearest hundredth.

most total days each year forecasted at level 3 or above. However, as shown in table 2, we also found that other counties were forecasted to be in the top 10 by days per year at level 3 or above depending on the year.

2018 and 2019. All of the counties in the top 10 were located in Texas.

2020. Counties in the south and southwest, in Florida, Arizona, and Georgia were most forecasted to be in the top 10.

2021. Counties across the country, in Nevada, California, Idaho, Oregon, and Virginia, were most forecasted to be in the top 10.

2022 and 2023. All of the counties in the top 10 were located in Texas, and 2023 was also the hottest on record according to the National Oceanic and Atmospheric Administration. Zapata County, Texas, was forecasted to have 92 days at level 3 or above in 2023, nearly 30 more than that of the previous year's top county.

2024. Counties in the south, in Texas, Florida, Louisiana, and Mississippi were most forecasted to be in the top 10.

Table 2 shows the 10 counties with the highest number of days at level 3 or above per year from 2018 through 2024.

Table 2: Counties with Highest Forecasted Total Days at HeatRisk Level 3 or Above Per Year, 2018-2024

2018		2019		2020		2021		2022		2023		2024	
County	**Total Days**	**County**	**Total Days**	**County**	**Total Days**	**County**	**Total Days**	**County**	**Total Days**	**County**	**Total Days**	**County**	**Total Days**
Hidalgo, TX	47	Cameron, TX	65	Monroe, FL	45	Zapata, TX	34	Zapata, TX	68	Zapata, TX	92	La Salle, TX	71
Cameron, TX	45	Zapata, TX	63	Graham, AZ	39	Nye, NV	28	Mitchell, TX	61	La Salle, TX	86	Val Verde, TX	64
Starr, TX	35	La Salle, TX	62	DeSoto, FL	37	Butte, CA	26	Trinity, TX	61	Austin, TX	82	DeSoto, FL	62
Throckmorton, TX	34	Starr, TX	60	Pima, AZ	32	Clark, NV	26	Somervell, TX	60	Harris, TX	82	Monroe, FL	52
Zapata, TX	34	Brooks, TX	59	Hardee, FL	30	Kern, CA	24	Taylor, TX	58	Cameron, TX	81	Hardee, FL	45
Hood, TX	33	Hidalgo, TX	56	La Salle, TX	30	Payette, ID	24	Nolan, TX	57	Waller, TX	81	Collier, FL	44

2018		2019		2020		2021		2022		2023		2024	
County	Total Days	County	Total Days	County	Total Days	County	Total Days	County	Total Days	County	Total Days	County	Total Days
Rains, TX	33	Willacy, TX	52	Lake, FL	30	Malheur, OR	23	Walker, TX	57	Karnes, TX	80	E. Baton Rouge, LA	44
Haskell, TX	32	Webb, TX	50	Karnes, TX	29	Fresno, CA	22	Hood, TX	56	Fort Bend, TX	79	Mitchell, TX	43
Karnes, TX	32	Jim Hogg, TX	49	Montgomery, GA	28	Henrico, VA	22	La Salle, TX	56	Wharton, TX	79	W. Baton Rouge, LA	43
Willacy, TX	32	Kenedy, TX	48	Orange, FL	28	Trinity, TX	22	Burleson, TX	54	Fayette, TX	78	Hancock, MS	42

Source: GAO analysis based on National Weather Service (NWS) data. | GAO-25-107474

Other locations that have experienced heat events do not appear in the tables above because, among other reasons, the heat event did not last as long or was not unusual for a particular location, or temperatures fell in the evening. HeatRisk also does not account for some factors, such as power loss, that could increase someone's risk to an extreme heat event. To get a more complete picture of extreme heat across the nation, we interviewed officials in three different regions and climates that experienced extreme heat between 2018 and 2024.

Seattle, Washington. According to Seattle emergency management officials, Seattle's summers have been historically characterized by a mild climate with high temperatures in the high-70s and 80s. As a result, according to these officials, many residences in the Puget Sound Region do not have air conditioning and were built to hold heat due to the region's mild and wet climate. However, from late June to early July 2021, the Pacific Northwest Heat Dome brought record-breaking temperatures to the region, and Seattle experienced temperatures as high as 108 degrees Fahrenheit. According to Seattle and King County emergency management officials, these temperatures caused roads to buckle and metal drawbridges to expand, which prevented them from closing. Additionally, according to a Seattle emergency management official, the city's cooling center capacity was already overwhelmed by the increase in homelessness caused by the COVID-19 pandemic before the heat dome arrived, which made finding adequate cooling space challenging. The Washington State Department of Health estimates at least 100 people died between June 26 and July 2, 2021, from causes related to extreme heat.

Houston, Texas. Houston regularly experiences multiple days over 100 degrees Fahrenheit during the summer and a Houston emergency management official told us the city also experiences dangerous temperatures in the spring and fall. The official also told us that residents are able to cope with extreme heat as long as they have access to air conditioning. However, the official said residents start to experience the negative effects of extreme heat 48 to 72 hours after a power outage, and in July 2024, Hurricane Beryl left over 1 million Houston residents without power for over a week. The outage coincided with a heat wave that followed the hurricane's landfall. As a result, local cooling centers received 63,700 visitors during this period, which far exceeded usage during previous heat waves.

Phoenix and Tucson, Arizona. Arizona regularly experiences extreme heat events and multiple days over 90 degrees Fahrenheit annually. For example, according to Maricopa County public health officials, the county's summer temperatures are consistently over 100 degrees Fahrenheit. However, after 31 straight days of excessive heat warnings from June to July 2023, the governor issued an emergency declaration for a heat wave. According to city of Tucson emergency management officials, Tucson also declared a heat emergency during the second week of May 2024. According to a Maricopa County public health official, the county began tracking heat-related deaths after its first major extreme heat event in 2005. According to this official, the county identified 645 heat-related deaths in 2023—a 52 percent increase from the previous year and the most ever recorded in that county.

FEMA Has Provided Limited Assistance to Mitigate Against Extreme Heat and Challenges Exist with Obtaining this Assistance

FEMA Programs Had Relatively Few Projects to Mitigate Against the Effects of Extreme Heat from Fiscal Years 2020 through 2023

As of March 4, 2025, less than 1 percent of BRIC sub-applicants' 1,235 projects addressed extreme heat as the primary hazard from fiscal years 2020 through 2023,[53] while 4 (0.32 percent) projects with obligations addressed extreme heat as the primary hazard.[54] FEMA obligated approximately $1.01 billion across all 1,235 BRIC projects, with approximately $963,000 obligated to extreme heat projects.[55] In addition, all four of these primary projects' goals were focused on capacity building, such as planning activities and outreach with community residents, rather than hazard mitigation projects.[56] For example, one project included developing a strategic plan for a county to mitigate higher urban temperatures. Another project aimed to establish an Urban Heat Leadership Academy with the goal of building Phoenix, Arizona residents' capacity to participate in hazard planning and advocate for mitigation activities.

FEMA also awarded grants for BRIC projects that, while addressing other primary hazards, could provide secondary and tertiary benefits related to extreme heat. For example, Tulsa, Oklahoma was awarded a BRIC grant to mitigate flood risk through drainage improvements to a local creek. The project proposed incorporating nature-based solutions,[57] which are expected to reduce flooding and help mitigate the urban heat island

[53]Sub-applicants are entities that submit applications to a state, territory or tribal government, which acts as the applicant for grants under the BRIC program. Sub-applicants may include federally recognized tribal governments, state agencies, and local governments. Under BRIC, applicants select sub-applications to submit to FEMA for award under the BRIC programs. For the purposes of this report, we refer to sub-applications as projects.

[54]We manually reviewed project descriptions in BRIC data, and out of 13 projects with an obligation that selected "Extreme Temperature" for Primary Hazard Type, we determined that four projects focused on extreme heat.

[55]BRIC was an annual grant program designed to reduce risks from disasters and natural hazards. As previously discussed, in August 2025, FEMA officials told us that the agency continues to evaluate whether to end or revise the BRIC program. Obligations data are for fiscal years 2020 through 2023, as of March 2025.

[56]Under BRIC, FEMA could provide financial assistance to support mitigation projects and capability and capacity building activities, such as updating hazard mitigation plans and developing building codes and standards to improve community resilience. Capability and capacity building enables state and local jurisdictions to identify hazard mitigation actions and implement projects that reduce risks posed by natural disasters.

[57]According to FEMA, nature-based solutions are sustainable practices that integrate natural features and processes into the built environment to build more resilient communities.

effect.[58] In August 2025, FEMA released version 2.1 of the Hazard Mitigation Assistance Program and Policy Guide with an effective date of January 20, 2025, which revised FEMA's policy to provide that retrofit projects addressing extreme heat are no longer eligible as standalone projects.[59] According to FEMA officials, as a result, retrofit projects that identify extreme heat mitigation as their primary benefit can no longer be awarded grants under any of FEMA's hazard mitigation assistance programs. Under the current guide, retrofit projects with extreme heat mitigation as a secondary or tertiary benefit remain eligible under the programs.

Similarly, FEMA offers assistance programs that primarily focus on other hazards but could support projects with extreme heat mitigation benefits. However, these programs (1) do not provide assistance for extreme heat as the primary focus or (2) are not designed to allow tracking of projects that address extreme heat. For example, FEMA's Flood Mitigation Assistance does not directly address extreme heat but may provide secondary benefits, such as using nature-based solutions that primarily reduce flooding and erosion but also provide extreme heat mitigation benefits. FEMA's data system categorizes projects under "extreme temperature," which includes both heat and cold, making it difficult to isolate and track funding specifically for extreme heat projects. As a result, we could not determine the extent that these programs had awarded grants for projects that provided secondary benefits that address extreme heat.

In addition, according to FEMA officials, the explanatory statement language that determines Pre-Disaster Mitigation Community Project Funding/Congressionally Directed Spending projects from fiscal years 2022 to 2024 did not include any with extreme heat as their primary focus.[60] However, 2 of the 278 projects designated by Congress included extreme heat mitigation as a secondary or tertiary benefit. For example,

[58]According to the U.S. Environmental Protection Agency, heat islands are urbanized areas that experience higher temperatures than outlying areas. Structures such as buildings, roads, and other infrastructure absorb and re-emit the sun's heat more than natural landscapes such as forests and water bodies. Urban areas, where these structures are highly concentrated and greenery is limited, become "islands" of higher temperatures relative to outlying areas.

[59]FEMA, Hazard Mitigation Assistance Program and Policy Guide.

[60]Pre-Disaster Mitigation Congressionally Directed Spending awards grants to recipients enumerated in the joint explanatory statements accompanying the relevant appropriations acts.

Norwalk, California, received a grant for an emergency backup generator for a local sports complex and senior center. These sites serve as temporary shelters during emergencies, including extreme heat events. FEMA officials also reported that, as of May 2025, no states that were awarded grants through the Safeguarding Tomorrow Revolving Loan Fund program planned to issue loans for extreme heat projects.[61]

Finally, if requested and approved, FEMA's Hazard Mitigation Grant Program and Hazard Mitigation Grant Program Post Fire awards grants for long-term hazard mitigation efforts to states after a presidential major disaster declaration. While these programs are triggered by a specific disaster, they can be used to address any hazard, including extreme heat. However, it is unclear how much Hazard Mitigation Grant Program and Hazard Mitigation Grant Program Post Fire funding has been provided for extreme heat-related projects. This is because FEMA's legacy grants management system does not require applicants to specify the types of hazards their projects are intended to address.

However, FEMA officials report that the Hazard Mitigation Grant Program's data are likely to be transferred to the agency's new grants management module, FEMA Grants Outcomes. According to these officials, FEMA initially planned to implement the module by the end of fiscal year 2025. However, due to leadership changes, shifting agency priorities, and potential updates to the module, the officials were uncertain when the transfer will occur.[62] According to FEMA officials, because the new grants management module will require applicants to specify the hazard types that their projects will address, FEMA will be able to track how many projects address extreme temperatures.

[61]According to FEMA officials, the Safeguarding Tomorrow Revolving Loan Fund program awards grants to tribal, state, and territorial governments, which then issue loans to communities for mitigation projects. FEMA does not select mitigation projects; instead, tribal, state, and territorial governments submit a list of potential projects for which they plan to issue loans.

[62]FEMA Grants Outcomes is the grants management system that supports FEMA grants programs. The system allows users to apply, track and manage all disaster and non-disaster grants.

FEMA Has Not Fully Addressed the Challenges Tribal, State, and Local Officials Reported in Obtaining Hazard Mitigation Assistance for Extreme Heat

The FEMA hazard mitigation assistance programs discussed previously require that projects be cost-effective.[63] According to FEMA guidance, there are two common methods that sub-applicants may use to evaluate cost effectiveness of hazard mitigation projects when completing a benefit-cost analysis: (1) established precalculated benefits for certain project types and (2) FEMA's benefit-cost analysis toolkit.[64] However, officials from six state and local jurisdictions, along with FEMA headquarter and regional officials and two subject matter experts we interviewed said that the benefit-cost analysis for hazard mitigation assistance grants was a challenge. It was a challenge, in part, because of the difficulty of obtaining the necessary data to complete a benefit-cost analysis, calculating project benefits, and measuring extreme heat impacts, as discussed in more detail below.

Collecting Accurate Health Data. Several tribal, state, and local officials, and four subject matter experts, we met with cited challenges with collecting data on heat-related illnesses and deaths. For example, public health officials in all three states said heat-related deaths are undercounted. One of these officials explained it can be difficult to identify heat-related deaths because in many cases these deaths can look like a natural death, such as a heart attack. As a result, according to this official, heat-related deaths are likely undercounted because medical examiners typically only conduct autopsies on cases that do not appear to be from natural causes. In addition, a subject matter expert and a local public health official told us that extreme heat-related deaths are not coded consistently. A local public health official also explained that many urgent care facilities do not code heat-related deaths and illnesses in a way that allows public health departments to determine the number of extreme heat-related deaths and illnesses after a heat event. For example, when heat illness co-occurs with conditions like diabetes, medical professionals may code it as diabetes rather than a heat-related illness.

Measuring Extreme Heat Effects. Local officials and subject matter experts we interviewed reported that measuring the effects of extreme heat is challenging. For example, a subject matter expert we interviewed noted that the greatest risks from extreme heat are diffuse and difficult to quantify. They explained that measuring the effects of extreme heat

[63]See 42 U.S.C. §§ 4104c(c)(2)(A), 5133(f)(1), 5170c(a); 44 C.F.R. § 206.226(e).

[64]FEMA developed the Benefit-Cost Analysis Toolkit to perform an analysis of cost-effectiveness to include in an application submitted to its pre-disaster and post-disaster mitigation grant programs.

requires considering several factors such as lost economic opportunities, increased violence, mental health issues, preterm birth and other comorbidities. Local public health officials also stated the indirect effects of extreme heat, such as public health consequences and cascading effects on infrastructure, are difficult to quantify.

Calculating Project Benefits. Some state and local officials and two subject matter experts we interviewed cited challenges calculating project benefits related to extreme heat. One state official told us that if, for example, they wanted to submit an application to retrofit community centers with air conditioning, they would have difficulty doing so because they currently lack a reliable method to calculate the benefit-cost analysis for the project. They said this is because an adequate method for estimating the effects of extreme heat on health does not currently exist. In addition, a subject matter expert also explained tribal, state, and local governments may not apply for FEMA mitigation grants because of confusion regarding what criteria are necessary to demonstrate the success of hazard mitigation interventions. For example, it is unclear how a jurisdiction would assess whether the trees it planted had effectively reduced extreme heat and, consequently, saved lives.

In addition, local government officials in Washington state said that they were unsure what data sources best demonstrated the benefits of mitigated extreme heat risks, such as illnesses and deaths prevented, when applying for Hazard Mitigation Grant Program funding to create cooling centers. These officials said the application process would be far easier and less costly if FEMA created benefit-cost analysis guidance and tools to address these issues.

In 2023, an internal FEMA issue paper also noted that communities may lack the staffing or resources to evaluate extreme heat data, risks, and hazard mitigation actions to reduce their risks. A FEMA summary document from the 2024 FEMA Extreme Heat Summit also noted that traditional emergency response planning consumes a significant portion of emergency managers' time and resources, and it is challenging to also allocate sufficient resources to collect and analyze extreme heat data.[65] The document also stated that even when sufficient resources are located, effectively integrating data to create a comprehensive picture of community vulnerability and potential impacts remains a challenge. It

[65]FEMA, *Extreme Heat Summit 2024: Planning and Data Analysis for Extreme Heat* (Washington, D.C: Jan. 13, 2025).

explained this is partly because extreme heat is an emerging major threat and is often not prioritized as readily as other hazards. As a result, according to this document, some of the specific information most crucial for preparing for extreme heat emergencies may not yet be fully utilized.

FEMA has taken action to address some of the challenges interviewees reported above by (1) establishing pre-calculated benefits to simplify the benefit-cost analysis requirement and (2) updating the benefit-cost analysis toolkit. For example,

- In December 2021, FEMA created a pre-calculated benefit for hospital generator projects, which could be used during a power outage occurring during an extreme heat event.[66] However, FEMA has not developed pre-calculated benefits for project types that primarily address extreme heat. FEMA updated its toolkit in 2019 to reduce some data entry requirements. For example, the toolkit has optional default values, such as the value to replace a square foot of a building, that applicants can use for the analysis for some project types. However, FEMA still requires applicants to provide data and other supporting analysis and documentation, such as information on historic damage costs. According to a senior FEMA official, FEMA needs to develop a methodology to better capture the impacts of extreme heat within its benefit-cost analysis processes. This is because, according to this official, FEMA's process is primarily concerned with infrastructure damage and does not account for the effects of extreme heat on human health.
- In May 2024, FEMA officials developed a memorandum that provides guidance for estimating benefits for certain extreme temperature mitigation project types, such as creating or supporting cooling or warming facilities.[67] According to this memorandum, the sub-applicant must use health data that can be attributed to historical extreme temperature events to calculate pre-mitigation damages.[68] However,

[66]In February 2021, we recommended FEMA establish a plan to develop pre-calculated benefits for additional project types, which FEMA addressed. See GAO, *Disaster Resilience: FEMA Should Take Additional Steps to Streamline Hazard Mitigation Grants and Assess Program Effects*, GAO-21-140 (Washington, D.C.: Feb. 2, 2021).

[67]FEMA, *Extreme Temperatures Benefit-Cost Analysis Module Historical Damages Methodology Technical Memorandum*, (Washington D.C.: May 2024).

[68]Pre-mitigation costs are used to calculate the benefits of a hazard mitigation project. The benefits of a hazard mitigation project are the future costs or losses that are avoided by implementing the project. These benefits are calculated by comparing the expected costs before mitigation to those after mitigation.

as previously described, interviewees said that collecting such data is challenging.

While FEMA has taken some action to address challenges to collecting needed data and project benefits, challenges remain. Specifically, obtaining accurate data to complete a benefit-cost analysis, including data that captures extreme heat effects and project benefits, continues to be difficult, as previously discussed.

According to a senior FEMA official, the agency has not made much progress addressing extreme heat due to the agency's focus on other natural disaster responses. In addition, four of the five subject matter experts we spoke with mentioned that FEMA's hazard mitigation efforts have focused on other hazards, such as flooding.

The National Mitigation Framework calls for the continuous collection of timely and accurate data on threats and hazards to meet the needs of analysts and decision makers.[69] This consists of identifying data requirements across stakeholders, and developing and gathering the required data in a timely and accurate manner. In addition, Goal 2 in the National Heat Strategy 2024-2030 calls for agencies to build quantitative and qualitative evidence for effective actions to reduce heat impacts including benefit-cost analysis.[70] By identifying quantitative and qualitative evidence that can be used to complete a benefit-cost analysis for extreme heat projects, FEMA could better help communities be positioned to take action and demonstrate a sound business case for investing in risk-reduction measures related to extreme heat.

FEMA officials acknowledged that the agency could better identify quantitative and qualitative evidence for tribal, state, and local jurisdictions to use to complete a benefit-cost analysis. However, officials explained it is challenging to identify data because FEMA does not produce health data. These officials also said they are actively seeking partners to provide critical data sets to accurately assess damages linked to extreme heat. According to a senior FEMA official, the agency needs to leverage the expertise of other federal agencies, such as the Centers for Disease Control and Prevention, to identify the data needed to complete a benefit-cost analysis. Identifying this information could help alleviate the

[69]DHS, *National Mitigation Framework*, (Washington D.C.: June 2016).

[70]National Integrated Heat Health Information System, *2024-2030 National Heat Strategy,* (Washington, D.C.: Aug. 2024).

burden on communities that lack the expertise and resources to complete a one.

Agency officials also said that FEMA's benefit-cost analysis toolkit includes only one extreme heat-related activity, which is focused on backup power generators. However, agency officials also stated that FEMA intends to add more hazard mitigation activities related to extreme heat to its toolkit, such as installing shade structures and upgrading heating, ventilation, and air conditioning systems. Officials noted that some of the mitigation activities FEMA plans to add will have a direct effect on human health, while for others, improved human health will be a secondary or co-benefit.

Standards for project management state that managing a project involves developing a timeline with milestone dates.[71] However, FEMA officials told us they do not have any milestones or timelines to incorporate these activities into the agency's benefit-cost analysis process. FEMA officials also said that incorporating extreme heat into the agency's benefit-cost analysis process is challenging because it requires integrating complex data on heat impacts and risk reduction. Officials said they will continue to assess and address gaps in extreme-temperature efforts as information and needs evolve. Establishing a plan with a timeline and milestones to incorporate additional extreme heat activities into its benefit-cost analysis processes would help FEMA address the challenges interviewees reported above in a timely manner, which is especially important as extreme heat is projected to occur more frequently.

Additional FEMA Examples Could Better Support Applicants in Identifying Extreme Heat Mitigation Projects

FEMA offers application support materials to help communities apply to the Hazard Mitigation Grant Program, aiming to reduce barriers that may prevent some communities from applying. For example, FEMA developed a resource that provides step-by-step instructions on how to complete a hurricane wind retrofit project application. It also clarifies required application elements, such as completing a benefit-cost analysis. FEMA also provides a Job Aid, which outlines the technical review requirements for these projects and offers guidance on addressing major components of the application. The Job Aid also includes recommended documentation and examples and identifies potential sources of data.

[71]Project Management Institute, *A Guide to the Project Management Body of Knowledge*, Sixth Edition (Newtown Square, PA: 2017).

FEMA developed application support materials for a variety of project types (13 total), including wildfire mitigation, flood risk reduction, hurricane wind retrofits, and generators. According to FEMA officials, several of these project types, such as flood risk reduction and generators, can mitigate multiple natural hazards, including the impacts of extreme heat. However, these materials do not support projects that primarily address extreme heat. According to FEMA, more application support materials will be developed for additional project types. In addition, FEMA officials said the agency is evaluating its support materials for all major project types, but the agency does not have an established timeline for developing them.

According to a subject matter expert, tribal, state, and local governments need examples of how to mitigate extreme heat. They explained that without guidance and best practices, applicants that might typically apply for hazard mitigation assistance do not apply. Moreover, one local official said there are few examples of extreme heat mitigation projects and they were unaware of any FEMA assistance to support these projects. In addition, another subject matter expert explained that it is challenging for state and local jurisdictions to identify which heat-related solutions will be most effective, given their limited resources. They explained there is a lack of research on the effectiveness of mitigation measures, such as tree planting, building energy efficiency, and cooling centers, which makes it difficult to determine which measures best meets their goals.

According to officials from one FEMA region, applicants struggle to identify projects that mitigate extreme heat. They explained that FEMA relies on applicants to submit proposals, which FEMA uses as examples to inspire future projects. They said that without examples that illustrate what a successful extreme heat mitigation project might look like, many potential applicants for hazard mitigation funding do not apply. This creates a cyclical issue, as applicants need guidance to develop proposals, while FEMA depends on proposals to establish that guidance. As a result, according to these officials, the lack of examples of extreme heat mitigation projects limits applicants' ability to develop solutions to mitigate extreme heat. They suggested that FEMA should work with other federal and external partners to identify existing successful extreme heat mitigation projects.

The National Mitigation Framework calls for the federal government to identify resources to develop mitigation strategies that reduce risks from

threats and hazards to personnel, assets, and operations.[72] It also calls for the federal government to educate and effectively communicate successful practices in a way that is clear and consistent. In addition, an internal FEMA issue paper called for the agency to provide more detailed guidance to potential applicants for extreme heat mitigation projects. It explained that given limited available funding for hazard mitigation, understanding and communicating which project types could have the greatest multi-hazard reduction will help communities make informed planning decisions. It also said FEMA needs to evaluate whether any project types that primarily address extreme heat may be eligible and provide more detailed guidance to potential applicants.

By identifying examples of successful extreme heat mitigation projects for inclusion in FEMA's Hazard Mitigation Grant Program application support material, FEMA could assist communities to be better equipped to identify hazard mitigation projects with extreme heat as the primary focus. Developing and distributing examples that model such projects to tribal, state, and local governments could also enhance preparedness and promote actionable solutions.

No Assistance Has Been Provided for an Extreme Heat Major Disaster Declaration, and FEMA Could Assess its Role in Addressing Extreme Heat Efforts

No President Has Declared an Extreme Heat Major Disaster

According to FEMA officials, no President has approved a major disaster declaration for extreme heat. In addition, no Tribe or state has ever requested a president declare an extreme heat-related emergency. Since 1980, two state governors have requested the president declare three extreme heat-related major disaster declarations. Missouri requested two

[72]DHS, *National Mitigation Framework*, (Washington D.C.: June 2016).

in the summer of 1980, and Illinois requested one in 1985.[73] Because no president has declared an extreme heat-related emergency or major disaster, no Tribe, state, or local government has been eligible for FEMA disaster response and recovery assistance for an extreme heat event. As a result, FEMA has never provided any such assistance.

According to FEMA officials, the president did not approve the three major disaster declaration requests for extreme heat because the governors' requests had not demonstrated that the events met the severity and magnitude warranting a major disaster or emergency declaration. FEMA officials told us that an extreme heat event could meet the Stafford Act's definition of a "natural catastrophe," subject to other criteria, even though it is not explicitly listed in the Act because the list is not exclusive.[74] For example, according to FEMA, if a state governor or tribal executive demonstrated that the damages and expenditures on emergency measures for an extreme heat event were to exceed state or tribal capacity to respond, FEMA would recommend the president approve the declaration request.

However, a senior FEMA official told us that, absent extraordinary circumstances, it is unlikely the agency would recommend that the president approve a future emergency or major disaster declaration request for an extreme heat event. They told us this is because extreme heat events have caused little infrastructure damage to date. In addition, they noted that, neither the health and safety consequences nor the personal property losses of past events have been severe enough to surpass tribal or state capabilities to respond. As a result, FEMA concluded that an extreme heat event has not yet overwhelmed state or tribal capacity to respond. For example, Illinois's 1995 request stated that the event had caused or contributed to over 450 deaths. However, FEMA

[73]California also requested the president declare a major disaster declaration for six wildfires that had been caused by a historic heat wave in October 2022. However, according to FEMA, all impacts to the state and all the damage information collected during the Preliminary Damage Assessments pertained to wildfires. No impacts were presented or evaluated for extreme heat. FEMA, in its response to California's request and to the state's appeal, stated that it had denied the request for a major disaster declaration because the severity of the situation did not warrant a major disaster declaration.

[74]The Stafford Act defines a major disaster as an any natural catastrophe (including any hurricane, tornado, storm, high water, wind-driven water, tidal wave, tsunami, earthquake, volcanic eruption, landslide, mudslide, snowstorm, or drought), or, regardless of cause, any fire, flood, or explosion, in any part of the United States, which in the determination of the President causes damage of sufficient severity and magnitude to warrant major disaster assistance. See 42 U.S.C. § 5122(2).

reported that the state identified $2.3 million in potentially eligible Public Assistance costs, which did not meet FEMA's threshold for estimated costs.[75]

According to FEMA officials, there are several extreme heat-related response activities that could qualify as eligible Public Assistance expenses for a declared incident. Specifically, FEMA officials told us that applying such activities during an extreme heat event could be considered eligible emergency protective measures. These activities could include establishing cooling centers or shelters, distributing water and other commodities, and providing generators to medical care facilities and other facilities with populations vulnerable to extreme heat. They could also include establishing temporary medical facilities, and conducting door-to-door safety checks to locate individuals requiring assistance.

According to these officials, FEMA monitors extreme heat events to identify how FEMA could assist tribal, state, and local governments with protecting public health and safety during these events. However, they also said FEMA has not identified a significant number of actions that tribal, state, and local governments are taking in response to extreme heat events other than those described above.

FEMA officials reported that the agency provided some assistance for extreme heat as part of its response to other approved disasters. For example, as part of FEMA's response to Hurricane Beryl, Texas Department of Emergency Management, and local emergency management officials from the affected jurisdictions reported the agency provided commodities to jurisdictions that requested assistance. For example, FEMA headquarters and Region 6 officials said that Region 6 helped distribute several million liters of water following Hurricane Beryl's landfall. In addition, Texas Department of Emergency Management officials reported that they expected that FEMA would reimburse localities for cooling centers operating costs as part of the response to Hurricane

[75]FEMA did not formally establish the per capita indicator until 1999; it informally used a $1 per capita indicator from 1986 to 1999. Based on Illinois' population in 1995 and FEMA's threshold, $2.3 million in damages would have resulted in a per capita indicator of $0.20. FEMA now adjusts state and county thresholds annually, based on the Consumer Price Index. As of Oct. 1, 2024, FEMA has set a threshold of $1.89 per capita for states and a threshold for counties of $4.72 per capita in estimated eligible disaster costs.89 Fed. Reg. 84,912, 84,914 (Oct. 24, 2024). See FEMA (website), "Per Capita Impact Indicator and Project Thresholds", last accessed Apr. 4, 2025, https://www.fema.gov/assistance/public/tools-resources/per-capita-impact-indicator.

Beryl. FEMA officials confirmed that cooling centers are an eligible Public Assistance emergency protective measure to lessen the immediate threat to public health and safety. According to them, other eligible extreme heat-related protective measures could also include limited augmentation of the local emergency medical capacity, and standing up and operating emergency operations centers.

Further, according to FEMA, other federal agencies may request FEMA support during incident response consistent with the National Response Framework and Presidential Policy Directive 44, if an incident is not declared under the Stafford Act. FEMA reported that the types of support the agency could provide includes technical assistance to the lead federal agency, which may consist of operational planning and unified coordination.[76]

Tribal, State, and Local Officials Report Challenges Getting FEMA Assistance for Responding to Extreme Heat

State emergency management officials from all three states we interviewed reported that they had not applied for a major disaster declaration for extreme heat even though their states had experienced extreme heat events recently. Officials from two of the three states reported that they had not done so because recent events had not caused the requisite level of infrastructure damage in their states to meet FEMA's per capita threshold. Washington State emergency management officials told us that extreme heat-related infrastructure damage and the cost to respond must exceed $14 million to meet FEMA's per capita threshold. Texas emergency management officials reported that FEMA's per capita threshold for their state is $54 million. According to Arizona's Department of Emergency and Military Affairs, FEMA's threshold for Arizona is about $13.5 million.

Further, Stafford Act programs may not be well-suited to providing assistance for responding to or recovering from extreme heat events. For example, officials from two of the three states, all of the counties, as well as two cities and one subject matter expert said that the Stafford Act is not an effective framework for helping tribal, state, and local governments to respond to extreme heat events.[77] Furthermore, officials from all of the counties, most of the states and cities, as well as most of the subject matter experts we interviewed said that the Stafford Act programs are

[76]For example, according to FEMA officials, if an extreme heat event was linked with a drought incident, the lead federal agency would be U.S. Department of Agriculture.

[77]We interviewed officials from two Tribes, three states, seven counties, and three cities. We also interviewed known subject matter experts from five academic institutions.

designed to respond reactively to acute events that cause extensive infrastructure damage.[78] However, extreme heat events have historically caused little infrastructure damage but result in many deaths and illnesses.

Moreover, several officials said that the Stafford Act is designed to respond to acute events; however, extreme heat events may last weeks or months. For example, Arizona state and county officials stated that the enduring chronic nature of extreme heat experienced in their state challenged them in obtaining a disaster declaration. These officials explained that extreme heat in Arizona is seasonal lasting for months versus a few days. However, per FEMA regulations, major disaster declarations must define a specific period for the incident.[79] Further, according to FEMA officials, the agency's precedent is to evaluate discrete events and their effects, not seasonal or general atmospheric conditions, such as chronic heat.

In contrast, some extreme heat events are of a shorter duration, which can lead to different challenges. For example, emergency management officials from King County and Seattle, Washington told us that because a heat wave usually only lasts a few days in the region, it could be difficult for FEMA to preposition assets or commodities. In addition, according to Seattle emergency management officials, neighboring states could also have difficulties providing assistance, such as generators or air conditioning units, before the event passes.

In addition, most subject matter experts; and several tribal, state, and local emergency management and public health officials told us that determining extreme heat-related infrastructure damage or identifying deaths and illnesses caused by an extreme heat event is challenging. These are necessary steps for Tribes or states to demonstrate that their capacity has been overwhelmed. For example, emergency management officials from two states reported that infrastructure damage may often not be apparent until weeks or months later. In addition, a subject matter expert we interviewed noted that determining extreme heat-related

[78]Throughout the report, we use the following categories to quantify statements made by interviewees: "some" is defined as statements made by 2 to 5 interviewees, "several" is defined as statements made by 6 to 10 interviewees, and "most" is defined as more than half of the interviewees whose views we summarize.

[79]44 C.F.R. § 206.110(d) (providing that eligibility for assistance is generally limited to losses or expenses resulting from damage that occurred during the dates of the incident period, as established in a presidential major disaster or emergency declaration).

infrastructure damage is difficult because it is more likely to become apparent over the long-term—versus immediately after an event.

Further, as discussed earlier, several state, local and tribal officials, and three subject matter experts, we interviewed generally reported that identifying how many deaths have occurred is also difficult. This is another factor FEMA considers when assessing a declaration request. For example, officials from one Tribe told us that the number of extreme heat-related deaths had increased on their land, but they lack the capacity to collect accurate and complete data on the number of heat-related deaths. Moreover, public health officials in two of the three states and two subject matter experts we interviewed reported that identifying the total number of deaths after an extreme heat event may take up to a year or sometimes longer.

In addition, officials from most of the states, counties, and cities as well as officials from one Tribe stated they lacked the resources, staff, and expertise to identify and estimate the costs of responding to extreme heat. Further, subject matter experts we interviewed all said that local agencies—especially those from poor, rural, or tribal communities—lacked the resources or expertise to identify their needs or to estimate the costs of extreme heat events. One expert noted that such communities could then be disadvantaged because they could not demonstrate their need. For example, officials from one of the Tribes we interviewed said they had not sought a major disaster declaration because doing so would be too onerous and resource-intensive and they planned to join their state's request for an extreme heat declaration.[80]

Further, officials from two states, two counties and one city emphasized that tribal and local communities' budgets are small. Therefore, these communities need assistance prior to an extreme heat event because they do not have the financial reserves to wait for reimbursement or assistance to be distributed after an event. In addition, officials from one Tribe told us that their limited resources are often depleted quickly during extreme heat events, but they must still take action to protect lives. For example, during Arizona's 30-day heat wave in 2023, the Tribe placed

[80]In 2018, we also found that Tribe's emergency management capacity was a major factor in Tribes' decision to request a major disaster request directly. For example, our survey results showed that tribal officials' confidence in their emergency management expertise and capacity to manage the declaration was a key factor in determining whether to make a request directly. We made no recommendations in this report. See GAO, *Emergency Management: Implementation of the Major Disaster Declaration Process for Federally Recognized Tribes,* GAO-18-443, (Washington, D.C.: May 23, 2018).

some of their most vulnerable citizens in hotels in Tucson for a week but could not afford to shelter all vulnerable tribal members. As a result, according to these officials, resources are stretched thin or overwhelmed every time an extreme heat event occurs. In addition, local officials from Arizona noted that their emergency management funds are minimal, and that extreme heat events can "take away our entire budget quickly."

FEMA Has Not Assessed Its Role in Supporting Tribal, State, and Local Governments' Extreme Heat Response, Recovery, and Mitigation Efforts

As discussed previously, extreme heat events have occurred across the country and are expected to increase in intensity, frequency, and duration. However, FEMA has not evaluated its role in supporting tribal, state, and local governments to plan for and implement activities that reduce or mitigate future disaster losses from these events. Standards for Internal Control in the Federal Government states that management should identify, on a timely basis, significant changes to internal conditions that have already occurred, including changes to the entity's programs or activities.[81] Further, management should identify, analyze, and respond to risks related to achieving the entity's defined objectives, including changes in the entity and its environment.

It is unclear whether tribes, states, and territories will be able to use BRIC to mitigate the risks of extreme heat in the future. Prior to FEMA's announcement of the end of the program, BRIC was the only FEMA program we identified that awarded grants to state and local governments with the primary goal to address extreme heat.[82] Tribes, states, and territories may use Hazard Mitigation Grant Program awards to mitigate all hazards, including those other than the disaster type that precipitated the presidential declaration.[83] For example, they may elect to use Hazard Mitigation Grant Program awards to mitigate extreme heat risks even though the major disaster declaration triggering the availability of their awards came in response to a hurricane, flood, or an earthquake. However, pursuant to version 2.1 of the Hazard Mitigation Assistance

[81]GAO, *Standards for Internal Control in the Federal Government,* GAO-14-704G (Washington, D.C.: Sept. 2014).

[82]As previously discussed, in August 2025, FEMA officials told us that the agency continues to evaluate whether to end or revise the BRIC program. As of August 2025, we have an ongoing review of the BRIC program, as well as a review of the application of the Impoundment Control Act of 1974, 2 U.S.C. §§ 681–688, to the BRIC program.

[83]As previously discussed, we could not determine the extent that Hazard Mitigation Grant Program funding has been provided for extreme heat-related projects. This is because FEMA's data systems categorize projects under "extreme temperature," which includes both heat and cold, making it difficult to isolate and track funding specifically for extreme heat projects.

Program and Policy Guide, released at the end of our review in August 2025, retrofit projects with extreme heat mitigation as the primary benefit are no longer eligible for hazard mitigation assistance programs.

Further, the Hazard Mitigation Grant Program may not be the most effective means for FEMA to provide assistance to Tribes, states, and localities to address the effects of extreme heat events. This is because some Tribes, states, or territories have received many more disaster declarations than others; and therefore, have more frequently had access to this program. For example, a 2025 study found that California (25), Mississippi and Oklahoma (22), Iowa (21), and Tennessee (20) received the most disaster declarations from 2011 through 2024.[84] Further, in February 2021, we found that three states—New Jersey, New York, and Texas—received the majority (66 percent) of all FEMA hazard mitigation obligations over Fiscal Years 2010 through 2018.[85] However, our analysis of HeatRisk data found that counties across the nation were forecast to experience extreme heat including those in states, such as Nevada, that have received few or relatively few major disaster declarations.

FEMA has not assessed its ability to assist tribal, state, and local governments to address the effects of extreme heat. An internal issue paper found that there were key questions leadership needed to answer to determine how the agency's programs could better address extreme heat. These included determining FEMA's response and recovery role for extreme heat events and the extent that the agency should be the lead for related mitigation efforts. The issue paper also identified several information and capability gaps in its response, mitigation, and preparedness capabilities. For instance, the paper found that quantifying long-term and cascading impacts of extreme heat, such as expected increases in high-heat days; effects on local, natural and built

[84]For each of the states where we interviewed emergency management and public health officials, the study found that Texas had received the most declarations (17), Washington State received 16, and Arizona received 6 declarations from 2011 through 2024. The study also found that Nevada (3), Indiana (4), Wyoming (4), and Delaware (5) had received the fewest disaster declarations. See Rebuild by Design, *Atlas of Disaster,* (New York City, N.Y.: Feb. 19, 2025).

[85]New York was the largest grant recipient between Fiscal Years 2010 through 2018, receiving $5.6 billion over the period followed by New Jersey ($1.1 billion), and Texas ($649.9 million). Florida, Louisiana, and the U.S. Virgin Islands each received more than $200 million in hazard mitigation obligations during this period. The median amount received by all the Tribes, states, and territories was $46.9 million over the 9-year period. See GAO, *Disaster Resilience: FEMA Should Take Additional Steps to Streamline Hazard Mitigation Grants and Assess Program Effects*, GAO-21-140 (Washington, D.C.: Feb. 2, 2021).

environments; and demographic factors was essential for planning and decision-making across all FEMA program areas. The issue paper also found that FEMA's decision-making tools were not adapted to the slow-onset nature of extreme heat, thereby limiting FEMA's evaluation and analysis of the effects of extreme heat in declarations requests.

Further, another FEMA internal document found that current policy narrowly defines emergency protective measures and that policy would need to expand to clearly make federal assistance available for state and local governments to take protective actions for extreme heat.[86] However, neither of these documents made recommendations on how to address the gaps identified in them. Moreover, a senior FEMA official also told us that because extreme heat is an emerging hazard, opportunities exist for FEMA to improve how it addresses the hazard.

According to FEMA officials, FEMA and DHS are assessing whether to end the BRIC program or revise it in a manner to achieve its original purpose. In light of the potential end or modification of the BRIC program, FEMA has an opportunity to reevaluate how it might better utilize its hazard mitigation programs and to identify and address any gaps in its capabilities to assist tribal, state, and local governments to address their extreme heat risks. In addition, given the current efforts by the FEMA Review Council, this may be especially true because the council was established, in part, to advise the president on all recommended changes related to FEMA to best serve the national interest.[87] Further, members of Congress have proposed legislation related to extreme heat, including to enhance FEMA's role in addressing extreme heat.[88] However, FEMA officials reported that they had not yet determined whether to assess how

[86]FEMA, *The Stafford Act and Extreme Heat"* (Washington, D.C.).

[87]On January 24, 2025, the President established the FEMA Review Council in response to Executive Order 14180, *Council to Assess the Federal Emergency Management Agency.* Exec. Order No. 14,180, 90 Fed. Reg. 8743 (Jan. 31, 2025). The Council held its first meeting May 20, 2025, and is co-chaired by the Secretary of Homeland Security and the Secretary of Defense.

[88]For example, H.R. 9092, the Heat Management Assistance Grant Act of 2024 was introduced in the 118th Congress. It would have amended the Stafford Act to provide emergency protective measures for extreme heat events. It also would have created a new federal grant program. To be eligible under the new program, state and local governments would submit information such as an assessment of the potential loss of life due to the extreme heat event based on information on previous events, an assessment of the potential loss of revenue due to the extreme heat event based on any such previous event, and any potential long-term impacts of the extreme heat events, including impacts to infrastructure. H.R. 9092, 118th Cong. (2024).

to utilize its remaining programs or to identify any capability gaps in assisting tribal, state, and local governments to address extreme heat risks. They also reported they have received no direction to do so. Conducting an evaluation reassessing its role and capabilities to assist these governments to address the effects of extreme heat events would better ensure FEMA identifies any gaps in its assistance programs and determine whether and how best to address them.

Conclusions

In recent years, several regions of the U.S. have experienced record extreme heat events. Our analysis of HeatRisk forecasts indicates that extreme heat has occurred across the nation and in 97 percent of counties from 2018 to 2024. According to NWS, extreme heat is the leading weather-related cause of death in the U.S., killing more people than floods, hurricanes, and tornadoes combined.

FEMA has provided limited assistance to mitigate against extreme heat. In addition, because no President has declared an emergency or major disaster for an extreme heat event, no assistance has been provided for an extreme heat-related emergency or major disaster. Further, Tribal, state, and local officials, as well as subject matter experts we interviewed identified challenges in obtaining assistance for mitigating and responding to extreme heat events.

FEMA could better address these challenges in two ways. First, FEMA could evaluate its role assisting tribal, state, and local governments to address extreme heat. The potential end of BRIC—the only FEMA program we identified that awarded grants with the primary goal of addressing extreme heat—provides an opportunity for the agency to reevaluate how it might better utilize its remaining programs. This is especially the case regarding assisting tribal, state, and local governments to plan for and implement activities that reduce or mitigate future disaster losses. However, FEMA has not assessed how ending BRIC may affect its ability to assist tribal, state, and local governments to address the effects of extreme heat events. Conducting an evaluation reassessing FEMA's role and capabilities for assisting tribal, state, and local governments to address the effects of extreme heat events would help the agency to fully identify any gaps in its programs for assisting tribal, state, and local governments and determine how best to address them. This is important because FEMA is the lead federal agency responsible for assisting tribal, state, and local, governments with preparing for, mitigating against, responding to, and recovering from natural disasters and emergencies.

Second, FEMA has an opportunity to address the challenges that interviewees reported in conducting a benefit-cost analysis for extreme heat projects. By identifying quantitative and qualitative evidence, FEMA could better help communities be positioned to take action and demonstrate the benefits of investing in risk-reduction measures related to extreme heat. FEMA also plans to add more hazard mitigation activities related to extreme heat to its benefit-cost analysis toolkit. However, the agency has not established milestones or timelines to incorporate these activities into the BCA process. By developing a plan with milestones and timelines, FEMA would better assure that it addresses the challenges interviewees reported in a timely manner. FEMA could also identify more examples of successful extreme heat mitigation projects to include in FEMA's Hazard Mitigation Grant Program application support material. By taking all of these actions, FEMA could better help communities take action and demonstrate a sound business case for investing in risk-reduction measures related to extreme heat. In doing so, it could help alleviate the burden on communities that lack the expertise and resources to demonstrate cost-effectiveness.

Recommendations for Executive Action

We are making the following four recommendations to FEMA:

The Administrator of FEMA should identify quantitative and qualitative evidence for tribal, state, and local governments to use to complete a benefit-cost analysis for projects addressing extreme heat. (Recommendation 1)

The Administrator of FEMA should establish a plan with a timeline and milestones to incorporate additional extreme heat activities into its benefit-cost analysis processes. (Recommendation 2)

The Administrator of FEMA should identify mitigation projects with extreme heat as the primary focus and develop and distribute examples that model such projects. (Recommendation 3)

The Administrator of FEMA should evaluate the agency's role and capabilities to identify any gaps in its programs for assisting tribal, state, and local governments to address extreme heat events, and identify and determine whether and how best to address any gaps. (Recommendation 4)

Agency Comments and Our Evaluation

We provided a draft of this report to the Departments of Homeland Security (DHS) and Commerce for review and comment. Commerce did not provide technical or written comments. DHS concurred with three of our recommendations but did not concur with our second recommendation. DHS provided technical comments, which we incorporated as appropriate. DHS also provided written comments that are reprinted in appendix II, and are summarized below.

FEMA concurred with our first recommendation that the agency identify quantitative and qualitative evidence for tribal, state, and local governments to use to complete a benefit-cost analysis for projects addressing extreme heat. FEMA stated it would develop a plan to identify quantitative and qualitative evidence that tribal, state, and local jurisdictions may use to complete the benefit-cost analysis toolkit by December 31, 2025. If implemented, this action should address our recommendation.

Regarding our second recommendation that FEMA establish a plan with a timeline and milestones to incorporate additional extreme heat activities into its benefit-cost analysis processes, FEMA did not concur. While we conducted our audit work, FEMA officials reported that they planned to add more hazard mitigation activities related to extreme heat to FEMA's benefit-cost analysis toolkit. However, FEMA stated in its letter that it no longer plans to add more extreme heat activities into the benefit-cost analysis toolkit to mitigate extreme temperature. This is because extreme temperature retrofits, which include extreme heat, are not eligible as a stand-alone project type, per version 2.1 of FEMA's Hazard Mitigation Assistance Program and Policy Guide, which was released while our draft was at DHS for official agency comment.

However, FEMA's guide also states that extreme temperature retrofits are eligible when combined with another eligible activity and that a benefit cost analysis should capture all potential benefits and costs of the project. Further, stakeholders we interviewed reported that calculating extreme heat-related project benefits was a challenge to completing a benefit-cost analysis. Moreover, a state official told us that submitting an application for an extreme heat retrofit project would be difficult because there was not a reliable method to calculate the benefit-cost analysis. This is true even for retrofit projects that address extreme heat as a secondary or tertiary benefit under FEMA's current implementation of its hazard mitigation assistance programs. Just as FEMA plans to identify mitigation projects with extreme heat mitigation as a secondary or tertiary benefit in response to our third recommendation, FEMA could incorporate extreme

heat activities into the benefit-cost analysis toolkit for projects with extreme heat mitigation as a secondary or tertiary benefit. Therefore, we believe that including more extreme heat-related activities in FEMA's benefit-cost analysis toolkit for applications could help alleviate the burden on communities that lack the expertise and resources to demonstrate cost-effectiveness. A plan with milestones and timelines for incorporating such activities into the toolkit would better assure that FEMA addresses the challenges interviewees reported in a timely manner.

FEMA concurred with our third recommendation, that FEMA identify mitigation projects with extreme heat as the primary focus and develop and distribute examples that model such projects. FEMA said that it would take alternative action to explore project types that may have secondary and tertiary benefits that mitigate extreme heat and will consider methods to share examples of these project types with tribal, state, and local governments as examples for applicants for hazard mitigation assistance. FEMA estimated that it would complete these actions by August 31, 2026, and, if the proposed actions are implemented, they should address our recommendation.

FEMA concurred with our fourth recommendation that the agency evaluate its role and capabilities to identify any gaps in its programs for assisting tribal, state, and local governments to address extreme heat events, and identify and determine whether and how best to address any gaps. FEMA stated that its subject matter experts will continue to collect information on potential information and capability gaps in FEMA's response, mitigation, and preparedness capabilities. In addition, FEMA stated that its leadership will evaluate and address such information collected by FEMA subject matter experts, as appropriate, and continue to assist tribal, state, and local governments build resilience through eligible activities and projects. FEMA estimated that it will complete these actions by August 31, 2026. However, these actions may not fully address our recommendation. Conducting an evaluation that assesses its role and capabilities to assist these governments to address the effects of extreme heat events, including the potential effects of ending the BRIC program, would better ensure FEMA identifies any gaps in its assistance programs and determines whether and how best to address them.

We are sending copies of this report to the appropriate congressional committees, the Secretary of Homeland Security, FEMA, the Secretary of Commerce, the National Oceanic and Atmospheric Administration, and

other interested parties. In addition, the report is available at no charge on the GAO website at https://www.gao.gov.

If you or your staff have any questions about this report, please contact me at (404) 679-1875 or curriec@gao.gov. Contact points for our Offices of Congressional Relations and Public Affairs may be found on the last page of this report. GAO staff who made key contributions to this report are listed in appendix III.

//SIGNED//

Chris Currie,
Director
Homeland Security and Justice

List of Requesters

The Honorable Rick Larsen
Ranking Member
Committee on Transportation and Infrastructure
House of Representatives

The Honorable Greg Stanton
Ranking Member
Subcommittee on Economic Development, Public Buildings, and Emergency Management
Committee on Transportation and Infrastructure
House of Representatives

The Honorable Tim M. Kennedy
Ranking Member
Subcommittee on Emergency Management and Technology
Committee on Homeland Security
House of Representatives

The Honorable Salud Carbajal
House of Representatives

The Honorable Troy Carter
House of Representatives

The Honorable Sharice L. Davids
House of Representatives

The Honorable Mark DeSaulnier
House of Representatives

The Honorable John Garamendi
House of Representatives

The Honorable Dan Goldman
House of Representatives

The Honorable Eleanor Holmes Norton
House of Representatives

The Honorable Seth Moulton
House of Representatives

The Honorable Dina Titus
House of Representatives

The Honorable Bonnie Watson Coleman
House of Representatives

Appendix I: Objectives, Scope, and Methodology

This report examines the Federal Emergency Management Agency's (FEMA) efforts to support states and localities experiencing extreme heat events. This report examines (1) how federal agencies define extreme heat and what the National Weather Service (NWS) forecast data show about where extreme heat occurs; (2) the extent that FEMA has provided assistance to help tribal, state, and local governments mitigate against extreme heat and any challenges that exist in obtaining this assistance; and (3) the extent that FEMA has provided assistance to help tribal, state, and local governments respond to, and recover from extreme heat events, and assessed its future role in assisting their efforts to address extreme heat events.

To address all three objectives, we conducted site visits or virtual semi-structured interviews in three states: Arizona, Washington, and Texas. We selected these states because historic extreme heat events in terms of temperature or duration had occurred in each of them from 2021 through 2024. We also sought to assess a mixture of states that experience chronic dry heat, chronic heat and humidity, and those that do not regularly experience extreme heat events during the summer months. In each state, we interviewed emergency management and public health officials at the tribal, state, county, and city levels.[1] In total, we met with officials from two Tribes, three states, seven counties, and three cities.

In addition, we also interviewed known subject matter experts from five academic institutions who had conducted research on extreme heat.[2] We selected these experts by reviewing pertinent academic literature and recommendations from other subject matter experts. Throughout the report, we use the following categories to quantify statements made by interviewees: "Some" is defined as statements made by 2 to 5 interviewees whose views we summarize, "several" is defined as 6 to 10, and "most" is defined as more than half. The findings from our interviews and site visits are not generalizable, but they provide useful perspectives and illustrative examples about interviewees' experiences related to addressing extreme heat.

To address the first objective, we reviewed publicly available agency documentation, such as fact sheets available on FEMA's and the National

[1]We did not interview a Tribe in Texas because representatives from the selected Tribe did not respond to our requests for an interview.

[2]We met with subject matter experts from Duke University, Texas A&M University, University of Arizona; University of California, Los Angeles; and University of Washington.

Integrated Heat Information Systems websites, to determine how federal agencies define extreme heat.[3] In addition, we interviewed relevant NWS and National Oceanic and Atmospheric Administration officials monitoring extreme heat to understand their methods for measuring extreme heat, as well as the benefits and challenges of using these metrics for informing decision-making. We interviewed tribal, state, and local officials identified above, and subject matter experts, on how, if at all, they define extreme heat and the various factors that contribute to how communities experience extreme heat.

To determine what NWS forecast data show regarding where extreme heat occurred from 2018 to 2024, we analyzed NWS's dataset of daily HeatRisk GeoTIFF files for the contiguous U.S. from January 1, 2018, through October 31, 2024.[4] HeatRisk is an experimental index used to forecast the potential for heat-related effects to occur for a particular area. Because HeatRisk uses multiple factors to assess extreme heat risk, we used HeatRisk data as a proxy for where extreme heat has occurred across the nation.[5] To assess the reliability of these data, we reviewed relevant HeatRisk webpages; and conducted interviews with knowledgeable NWS officials about these data and how they are collected. We also conducted tests to determine whether the data requested matched the data received and confirm that there are no null or duplicate values. We found that these data were reliable for our purposes.

To analyze the dataset, we converted the GeoTIFF files into gridded data and assigned each grid point its corresponding HeatRisk value of 0 to 4 from the GeoTIFF files.[6] We aggregated the gridded data at the Census tract level to determine the average value for each Census tract in the U.S. We then developed a county-level HeatRisk value that was the weighted average of tract scores within the county. When doing so, we

[3]See Ready.gov and Heat.gov. Ready.gov is FEMA's national public service campaign to educate and empower the American people to prepare for, respond to, and mitigate emergencies and disasters. Heat.gov is the web portal for the National Integrated Heat Health Information System. It provides heat and health information to help reduce the health, economic, and infrastructural impacts of extreme heat.

[4]A GeoTIFF file is a tagged image file format (TIFF) used for storing geographical-related information.

[5]These factors include how unusual temperatures are for a particular location and time of year, how long temperatures stay elevated and whether they fall overnight, and whether temperatures are likely to cause negative health effects.

[6]Gridded data is two-dimensional data representing a particular variable along an evenly spaced matrix. In the case of HeatRisk, data are gridded in a 2.5 x 2.5 km matrix.

used the 5-Year American Community Survey population estimate for 2019 through 2023 as the weight. We counted a day as high HeatRisk if the value was at or above 3.0.[7] We then ranked the results to determine (1) the 10 counties in the U.S with the highest average number of high HeatRisk days from May to September 2018 through 2024 and (2) the 10 counties with the highest total number of high HeatRisk days each year from 2018 through 2024.

To address the second objective, we reviewed relevant FEMA policy and guidance documents, such as its Hazard Mitigation Assistance Program and Policy Guide and Extreme Temperatures Benefit-Cost Analysis Module Historical Damages Methodology Technical Memorandum.[8] We also examined FEMA's application support materials for the Hazard Mitigation Grant Program, Hospital Generator Pre-calculated Benefit-Cost Analysis Methodology Report, and other relevant information sources to identify assistance potentially available to address extreme heat.[9]

To identify the total number and dollar amount of Building Resilient Infrastructure and Communities (BRIC) projects with obligations that primarily addressed extreme heat, we analyzed grant program data from the fiscal years 2020 through 2023 funding cycles.[10] We chose this time frame because BRIC began its first round of grants in 2020 as part of the fiscal year, and in April 2025, FEMA announced that it was ending BRIC and canceled the fiscal year 2024 application process.[11] To identify projects that primarily addressed extreme heat, we reviewed project

[7]We rounded HeatRisk values of at least 2.5 and above to 3.

[8]FEMA, *Hazard Mitigation Assistance Program and Policy Guide,* FP-206-21-0001, (Washington, D.C. Jan. 20, 2025) and FEMA*, Extreme Temperatures Benefit-Cost Analysis Module Historical Damages Methodology Technical Memorandum*, (Washington D.C.: May 2024).

[9]FEMA, *Hospital Generator Pre-Calculated Benefit-Cost Analysis Methodology Report,* (Washington, D.C. Dec. 2021).

[10]An obligation is a definite commitment that creates a legal liability of the government for the payment of goods and services ordered or received. Under BRIC, applicants (i.e. Tribes, states, or territories) select sub-applications to submit to FEMA for award under the BRIC programs. Sub-applicants are entities that submit applications to a state, territory or tribal government, which acts as the applicant for grants under the BRIC program. For the purposes of this report, we refer to subapplications as projects.

[11]In August 2025, FEMA officials told us that the agency continues to evaluate whether to end or revise the BRIC program. As of August 2025, we have an ongoing review of the BRIC program, as well as a review of the application of the Impoundment Control Act of 1974, 2 U.S.C. §§ 681–688, to the BRIC program.

descriptions and activity types. While we identified the projects that primarily addressed extreme heat, we were unable to identify the number of projects that may have addressed extreme heat as a secondary or tertiary benefit. This is because the BRIC data set did not contain enough descriptive data to determine which projects that listed extreme temperature as a secondary or tertiary benefit addressed extreme heat.[12]

We assessed the reliability of FEMA's data by testing for potential issues, such as outliers or missing values. We also interviewed FEMA officials with knowledge of the data sets and methods used to produce these data. We determined the data were sufficiently reliable for the purposes of identifying trends in grant amounts and project types.

Further, we interviewed tribal, state, and local officials, as described above, to determine any challenges they experienced accessing or obtaining FEMA hazard mitigation assistance for extreme heat. We also met with the subject matter experts identified above to obtain additional perspectives on FEMA hazard mitigation grants and any challenges they identified in their research relevant to extreme heat.

We interviewed FEMA officials at headquarters and from Regions 5, 6, 9, and 10 about mitigation assistance the agency provides for extreme heat. We chose these regions because they included the states we selected and, in the case of Region 5, because it had organized and hosted FEMA's annual heat summits. We also interviewed headquarters officials from various offices, such as Hazard Mitigation Assistance and Risk Analysis, and the Planning & Information Directorate to obtain the agency's perspective on challenges applicants face accessing FEMA mitigation assistance for extreme heat and what steps FEMA has taken to address those challenges. Finally, we collected and analyzed documentation and interviewed FEMA officials to identify steps FEMA has taken to address these challenges. We assessed FEMA's actions using the federal government's National Heat 2024–2030, the National Mitigation Framework, and standards for project management.[13]

[12]According to FEMA officials, the BRIC database does not track extreme heat specifically, but rather extreme temperatures, which includes both extreme heat and extreme cold.

[13]National Integrated Heat Health Information System, *2024-2030 National Heat Strategy,* (Washington, D.C.: Aug. 2024), *National Mitigation Investment Strategy*, (Aug. 2019), and Project Management Institute, *A Guide to the Project Management Body of Knowledge*, Sixth Edition (Newtown Square, PA: 2017).

To address the third objective, we reviewed relevant FEMA policy documents and guidance, such as its Public Assistance Program and Policy Guide and its Preliminary Damage Assessment Guide.[14] We did this to identify the types of assistance available for entities to respond to and recover from extreme heat events, as well as the process for applying for such assistance and evaluating these requests. We also reviewed available internal assessments of FEMA regulations, policies, and procedures related to extreme heat to identify any challenges the agency had identified in providing assistance to tribal, state, and local governments, and any actions taken to address these challenges.

Further, we interviewed tribal, state, and local officials, as well as subject matter experts identified above to obtain their views on available FEMA assistance for responding to and recovering from extreme heat events, as well as any challenges interviewees experienced in obtaining such assistance. In addition, we interviewed relevant officials at FEMA headquarters and in Regions 5, 6, 9, and 10 to discuss (1) how FEMA evaluates tribal and state requests for an emergency or major disaster declaration for extreme heat, (2) the challenges identified by FEMA internal assessments related to providing assistance to tribal, state, and local governments for responding to and recovering from extreme heat events and any actions taken to address them, and (3) the challenges that interviewees had reported and any actions taken to address them. We compared FEMA actions to Standards for Internal Control in the Federal Government, which, among other things, provides standards for how management responds to changes in operating environments.[15]

We conducted this performance audit from March 2024 to September 2025 in accordance with generally accepted government auditing standards. Those standards require that we plan and perform the audit to obtain sufficient, appropriate evidence to provide a reasonable basis for our findings and conclusions based on our audit objectives. We believe that the evidence obtained provides a reasonable basis for our findings and conclusions based on our audit objectives.

[14]FEMA, *Public Assistance Program and Policy Guide*, FP 104-009-2 (Washington, D.C.: Jan. 6, 2025) and *Preliminary Assessment Guide*, (Washington, D.C.: Aug. 2021).

[15]GAO, *Standards for Internal Control in the Federal Government*, GAO-14-704G (Washington, D.C.: Sept. 2014).

Appendix II: Comments from the Department of Homeland Security

U.S. Department of Homeland Security
Washington, DC 20528

Homeland Security

BY ELECTRONIC SUBMISSION

August 25, 2025

Christopher P. Currie
Director, Homeland Security and Justice
U.S. Government Accountability Office
441 G Street, NW
Washington, DC 20548-0001

Re: Management Response to GAO-25-107474, "EXTREME HEAT: Limited FEMA Assistance Highlights Need for Reevaluation of Agency's Role"

Dear Mr. Currie:

Thank you for the opportunity to comment on this draft report. The U.S. Department of Homeland Security (DHS, or the Department) appreciates the U.S. Government Accountability Office's (GAO) work in planning and conducting its review and issuing this report.

DHS leadership is pleased to note GAO's recognition that the Federal Emergency Management Agency (FEMA) is the lead federal agency responsible for assisting state, tribal, and local governments with preparing for, mitigating against, responding to, and recovering from natural disasters and emergencies. FEMA remains committed to its mission of helping people before, during, and after disasters, and will evaluate its role and capabilities for assisting tribal, state, and local governments to address extreme heat events.

The draft report contained four recommendations, including three with which the Department concurs (Recommendations 1, 3, and 4) and one with which the Department non-concurs (Recommendation 2). Enclosed find our detailed response to each recommendation. The Department previously submitted technical comments addressing several accuracy, contextual, and other issues under a separate cover for GAO's consideration, as appropriate.

Again, thank you for the opportunity to review and comment on this draft report. Please feel free to contact me if you have any questions. We look forward to working with you again in the future.

Sincerely,

JEFFREY M BOBICH

Digitally signed by JEFFREY M BOBICH
Date: 2025.08.25 08:48:58 -04'00'

JEFFREY M. BOBICH
Director of Financial Management

Enclosure

Enclosure: Management Response to Recommendations Contained in GAO-25-107474

GAO recommended that the Administrator of FEMA:

Recommendation 1: Identify quantitative and qualitative evidence for tribal, state, and local governments to use to complete a benefit-cost analysis for projects addressing extreme heat.

Response: Concur. FEMA's Hazard Mitigation Division (HMD) will develop a plan to identify quantitative and qualitative evidence that tribal, state, and local jurisdictions may use to complete the Benefit-Cost Analysis (BCA) Toolkit[1] to determine the cost-effectiveness of projects which mitigate extreme temperature. Estimated completion date (ECD): December 31, 2025.

Recommendation 2: Establish a plan with a timeline and milestones to incorporate additional extreme heat activities into its benefit-cost analysis processes.

Response: Non-Concur. As documented in the current Hazard Mitigation Assistance Guide,[2] extreme temperature retrofits are not eligible as a stand-alone project type. Accordingly, FEMA does not currently plan to add more extreme heat activities into the BCA Toolkit to mitigate extreme temperature.

We request that GAO consider this recommendation resolved and closed.

Recommendation 3: Identify mitigation projects with extreme heat as the primary focus and develop and distribute examples that model such projects.

Response: Concur. As previously noted, the Hazard Mitigation Assistance Guide notes that extreme temperature retrofits are not eligible as a stand-alone project type. This lack of eligibility also extends to projects that have extreme temperature as primary benefits. However, FEMA's HMD will take alternative action to explore project types that may have secondary and tertiary benefits that mitigate extreme heat and will consider methods to share examples of these project types with tribal, state, and local governments as examples for applicants for hazard mitigation assistance. ECD: August 31, 2026.

[1] FEMA developed the BCA Toolkit to perform an analysis of cost-effectiveness to include in an application submitted to its pre-disaster and post-disaster mitigation grant programs.
[2] "Hazard Mitigation Assistance Program and Policy Guide, "Version 2.1, dated January 20, 2025; See: https://www.fema.gov/sites/default/files/documents/fema_hma-guide-v2.1_2025.pdf.

3

Recommendation 4: Evaluate the agency's role and capabilities to identify any gaps in its programs for assisting tribal, state, and local governments to address extreme heat events, and identify and determine whether and how best to address any gaps.

Response: Concur. As part of current efforts to identify capability and capacity gaps and vulnerability to all hazards, including impacts from extreme weather, FEMA's HMD regularly provides subject matter expertise to state, local, tribal, and territorial governments. These subject matter experts will continue to collect information on potential information and capability gaps in FEMA's response, mitigation, and preparedness capabilities which FEMA leadership will evaluate and address, as appropriate, as well as continue to assist state, local, tribal, and territorial governments build resilience through eligible activities and projects. ECD: August 31, 2026.

4

Appendix III: GAO Contact and Staff Acknowledgments

GAO Contact

Christopher Currie, (404) 679-1875 or curriec@gao.gov.

Staff Acknowledgment

In addition to the named above, Joel Aldape (Assistant Director), Thorolf Lenington Galinski (Analyst-in-Charge), Ryan Nary, Ryan Basen, Eric Hauswirth, Amanda Panko, John Mingus, Tracey King, Jim Rice, and Marycella Mierez made key contributions to this report.

GAO's Mission

The Government Accountability Office, the audit, evaluation, and investigative arm of Congress, exists to support Congress in meeting its constitutional responsibilities and to help improve the performance and accountability of the federal government for the American people. GAO examines the use of public funds; evaluates federal programs and policies; and provides analyses, recommendations, and other assistance to help Congress make informed oversight, policy, and funding decisions. GAO's commitment to good government is reflected in its core values of accountability, integrity, and reliability.

Obtaining Copies of GAO Reports and Testimony

The fastest and easiest way to obtain copies of GAO documents at no cost is through our website. Each weekday afternoon, GAO posts on its website newly released reports, testimony, and correspondence. You can also subscribe to GAO's email updates to receive notification of newly posted products.

Order by Phone

The price of each GAO publication reflects GAO's actual cost of production and distribution and depends on the number of pages in the publication and whether the publication is printed in color or black and white. Pricing and ordering information is posted on GAO's website, https://www.gao.gov/ordering.htm.

Place orders by calling (202) 512-6000, toll free (866) 801-7077, or TDD (202) 512-2537.

Orders may be paid for using American Express, Discover Card, MasterCard, Visa, check, or money order. Call for additional information.

Connect with GAO

Connect with GAO on X, LinkedIn, Instagram, and YouTube.
Subscribe to our Email Updates. Listen to our Podcasts.
Visit GAO on the web at https://www.gao.gov.

To Report Fraud, Waste, and Abuse in Federal Programs

Contact FraudNet:

Website: https://www.gao.gov/about/what-gao-does/fraudnet

Automated answering system: (800) 424-5454

Media Relations

Sarah Kaczmarek, Managing Director, Media@gao.gov

Congressional Relations

A. Nicole Clowers, Managing Director, CongRel@gao.gov

General Inquiries

https://www.gao.gov/about/contact-us