



# FEMA Resources for Climate Resilience

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FEMA

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Cover Image: NASA Earth Observatory images by [Joshua Stevens](#), using GEOS-5 data from the [Global Modeling and Assimilation Office](#) at NASA GSFC and VIIRS data from [NASA EOSDIS/LANCE and GIBS/Worldview](#) and the [Suomi National Polar-orbiting Partnership](#).

## Executive Summary

As climate change increases disaster risks across the country, emergency managers and government officials are beginning to implement strategies to build community resilience. FEMA Resources for Climate Resilience provides a roadmap of Federal Emergency Management Agency (FEMA) programs and initiatives that advance community climate resilience. FEMA Resources for Climate Resilience assists FEMA's state, local, tribal, and territorial (SLTT) partners in navigating the FEMA resources that are available to support communities in mitigating impacts of climate change.

Building resilience is a long-term, ongoing cycle that requires multiple steps to accomplish. Each section of the FEMA Resources for Climate Resilience corresponds with a step in that cycle and provides information about FEMA services, programs, and grants available to SLTT partners. Each SLTT partner has a unique experience with FEMA and has participated in different elements of the resilience cycle. SLTT partners with limited FEMA experience may choose to start from the beginning of FEMA Resources for Climate Resilience, while other SLTT partners may navigate directly to their program of choice.

Each section of FEMA Resources for Climate Resilience provides a brief description of the program, service, or grant, an overview of who can apply, examples of the FEMA programs in action, and helpful tools and resources for learning more about the program, service, or grant. In addition, where applicable, FEMA Resources for Climate Resilience also points out areas where equity can be prioritized. FEMA Resources for Climate Resilience explains how existing tools, such as the [National Risk Index](#) (Risk Index), can assist SLTT governments and their communities, right now, in making informed planning decisions including considerations of impacts from future weather conditions. FEMA Resources for Climate Resilience also provides a quick glance at FEMA funding sources, such as the [Building Resilient Infrastructure and Communities \(BRIC\)](#) program, designed to support communities in building capability and capacity to mitigate the increasing impacts of climate change.

### ***Key Terms in this Guide***

**Equity:** The consistent and systematic fair, just, and impartial treatment of all individuals. (Source: *FEMA Equity Enterprise Steering Group*)

**Resilience:** The ability to prepare for and adapt to changing conditions and withstand and recover rapidly from disruptions. Resilience includes the ability to withstand and recover from deliberate attacks, accidents, or naturally occurring threats or incidents. (Source: *National Institute of Standards and Technology (NIST) SP 800-37 Rev 2/PDD-21*)

**Mitigation:** The capabilities necessary to reduce loss of life and property by lessening the impact of disasters. Mitigation is used interchangeably with hazard mitigation. (Source: *FEMA National Mitigation Investment Strategy, August 2019*)

**Adaptation:** Measures that reduce risk from climate change today and from projected changes in the future. (Source: *U.S. Global Change Research Program, "Fourth National Climate Assessment Vol I + II," (2018)*)



# 1 Introduction

All over the United States, communities are working to increase their resilience against hazards, including extreme heat, drought, flooding, and wildfires. These risks and hazards are often exacerbated by climate change, and adaptation to climate change creates resilience. FEMA Resources for Climate Resilience is meant to provide a clear understanding of how existing FEMA programs, initiatives, resources, and coordinating authorities can support communities' efforts to plan for, mitigate against, respond to, and recover from the adverse impacts of climate change.

*FEMA's mission is to help people before, during, and after disasters.*

Emergency managers must adapt to both immediate challenges and the long-term impacts of emerging climate risks. Historically, underserved and marginalized communities are particularly vulnerable to the effects of climate change and can be disproportionately harmed by disasters. To advance FEMA's mission of helping people before, during, and after disasters, FEMA is dedicated to supporting all individuals and communities by supporting equitable climate resilience and working towards environmental justice. A particular goal is prevention; pre-incident preparedness can be more valuable, and more cost-effective, than post-hazard response.

FEMA is supporting community climate action through information, preparedness, mitigation, response and recovery, grants, and field operations. FEMA programs will help communities understand the climate-related risks they face, assess their greatest vulnerabilities, and plan for critical preparedness and climate adaptation measures. The goal is to reduce vulnerability and support safer, more climate-resilient communities. FEMA will continue leveraging the expertise and resources of other federal agencies by incorporating their climate data into programs and decision-making.

FEMA works with all levels of government and sectors of communities, including the private sector, academia, and underserved communities. The agency's programs provide guidance, support, technical assistance, and funding based in emergency management best practices for risk and capability assessment, planning, training, and exercises.

## 1.1 FEMA's Role in Supporting Community Resilience

FEMA supports a more resilient nation through whole community integration of plans and programs. This ensures continuity of the critical services and essential functions upon which neighbors and communities depend. The Nation must address the threats and hazards to its communities, in order to maintain its own core essential function. Increasingly, these threats and hazards are linked to our changing climate. Integrating science-based methodologies into all aspects of FEMA's programs supports more resilient communities and strengthens our nation by preparing SLTT governments to adjust to the current and expected impacts of climate change. FEMA's climate adaptation efforts incorporate current and future risks, helping reduce the effects of climate driven disasters on our nation's communities.

FEMA supports building climate resilience by:

- Providing information about climate-related risks;
- Supporting the use of climate forecasting information for planning and project design;
- Supporting risk reduction actions and nature-based or green infrastructure solutions;
- Providing access to and encouraging the use of disaster insurance; and,
- Supporting coordinated partner approaches to building community adaptation strategies.

As a continuously evolving organization, FEMA regards each incident as an opportunity to enhance national resilience, improve agency practices and programs, and enable SLTT governments to better understand and adapt to increasing risks from climate change. Most importantly, the agency's climate adaptation mitigation efforts look to shift the federal focus away from reactive, post-incident disaster spending and toward research-supported, proactive investment in community resilience and climate adaptation measures.

## 1.2 How FEMA Supports Climate Change Adaptation and Hazard Mitigation

Before a disaster, FEMA works with SLTT governments to develop all hazard mitigation plans that address current and future risks, including possible impacts of climate change. In addition to planning support, FEMA provides tools and resources to inform communities' specific planning priorities. Examples include data and risk analysis based on climate forecasting information, partnerships, training and exercise support, and annual programming funding used for addressing climate change adaptation. After a disaster, FEMA supports SLTT governments in recovering and rebuilding with resilience and reducing the impact of future disasters.

To promote resilience, FEMA developed the [National Risk Index](#), offering information on an assortment of risks. Intended to promote efforts to increase resilience, the Risk Index contains authoritative data from multiple federal partners and received input from more than 55 partners across the public and private sectors including state, regional and local government agencies, academia, private organizations, and nonprofits. The Risk Index helps determine the U.S. communities most at risk for [18 natural hazards](#). The Risk Index defines community resilience as the ability of a community to prepare for anticipated natural hazards, adapt



### Nature-Based Solutions

Nature-based solutions include sustainable planning, design, environmental management, and engineering practices that weave natural features and processes into the built environment to promote adaptation and resilience. Such solutions enlist natural features and processes in efforts to combat climate change, reduce flood risks, improve water quality, protect coastal property, restore, and protect wetlands, stabilize shorelines, reduce urban heat, add recreational space, and more. Look for the green leaf icon in each section to see how FEMA programs support nature-based solutions.

to changing conditions, and withstand and recover rapidly from disruptions. FEMA encourages SLTT governments to consult the Risk Index to gain insight around current and future risks.

FEMA’s support to SLTT governments includes efforts such as nature-based solutions, which can significantly increase resilience. The agency emphasizes that nature-based solutions are an important part of a community’s risk reduction strategy. Communities across the country are finding nature-based solutions to be successful and cost-effective ways to provide public services that were traditionally met with structural or “gray” infrastructure. The FEMA publication [Building Community Resilience with Nature-Based Solutions](#) encourages SLTT governments to give careful attention to nature-based solutions.

Risk reduction efforts include the new Federal Flood Risk Management Standard (the Flood Standard), instituted through [Executive Order \(EO\) 14030 Climate-Related Financial Risks](#) and [EO 13690 Establishing a Federal Flood Risk Management Standard](#). The Flood Standard will advance resilience across the entire federal government’s portfolio of grants and federally funded infrastructure projects by requiring higher standards that address future risk. Specific for FEMA implementation, the Flood Standard will require consideration of both current and future flood risk for all FEMA-funded activities. This will result in FEMA, as part of a broader federal government effort, building more resilience when federal investments are part of building or rebuilding in a floodplain.

### 1.3 How FEMA Resources for Climate Resilience is Organized

FEMA Resources for Climate Resilience is organized to help readers easily understand the steps involved in the community resilience process as well as the areas that overlap. Tables and figures are included to explain which FEMA programs and initiatives align with each step of the process and identify resources to help make informed decisions where the resilience cycle overlaps.

SLTT governments and eligible non-profits can participate in FEMA programs and initiatives that address specific hazard mitigation and climate adaptation requirements. FEMA’s programmatic tools, grants, and other initiatives support stakeholders in assessing risk, planning to mitigate risk, funding mitigation projects and/or building community capacity. **Figure 1** depicts the Community Resilience Cycle and will appear as an icon throughout the document to assist in understanding which step in the cycle is being highlighted.

SLTT governments that are newer to the community resilience building process are



Figure 1: Community Resilience Cycle



## FEMA Resources for Climate Resilience

encouraged to start at the beginning of the Guide. SLTT governments having more experience in the resilience process may decide to begin at the step in the cycle that is applicable to their needs.

**Figure 2** is a summary table of the programs and services that FEMA provides. In the far left column, readers will find the program or service, which is cross referenced with the hazard focus (e.g., flood, fire, or all hazard) of the program, when the program is available (before or after a disaster), the type of grant (if applicable), and whether the program is direct assistance from FEMA (i.e., FEMA is not providing funding for the work; FEMA is doing the work).

**Figure 2** is meant to provide SLTT governments with a quick reference for which FEMA programs and services can be leveraged to address specific disaster types and at what point, annual programming- or post- disaster, the programs and services may be used. **Figure 2** also shows the types of grants and services available under the listed programs.

Program	Hazard Focus			Disaster Life Cycle		Grant Types				Direct Assistance
	Flood 	Fire 	All Hazard 	Annual Programming	Post-Disaster	Mitigation Project Grants	Mitigation Planning Grants	Capability/Capacity Building, Building Code Administration, & Technical Assistance Grants	Nature-Based Solutions Projects	Training, Preparedness, Technical Assistance from FEMA
Sea Level Rise & Flood Maps	<input checked="" type="checkbox"/>			<input checked="" type="checkbox"/>						<input checked="" type="checkbox"/>
Mitigation Planning			<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>			<input checked="" type="checkbox"/>
Building Resilient Infrastructure and Communities			<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
National Flood Insurance Program	<input checked="" type="checkbox"/>			<input checked="" type="checkbox"/>			<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>		
Flood Mitigation Assistance	<input checked="" type="checkbox"/>			<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	
National Exercise Program			<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>						<input checked="" type="checkbox"/>
Fire Adapted Communities		<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>						<input checked="" type="checkbox"/>
Public Assistance			<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	
Hazard Mitigation Grant Program			<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	
Hazard Mitigation Grant Program Post Fire		<input checked="" type="checkbox"/>			<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>			<input checked="" type="checkbox"/>	

**Figure 2: FEMA Program Reference Matrix**

## 2 Identifying and Assessing Climate Change Risks

The hazard threats associated with climate change present new challenges for communities. Larger and more frequent disasters are forcing emergency managers to reassess their risk models and integrate concepts of future conditions. As new threats emerge, communities must establish well-rounded approaches to assess risks in support of building long-term community resilience and climate adaptation strategies. It is important for communities to understand their baseline risks, the new risks emerging from climate change, and their capabilities and capacity to respond to those risks. A proper risk assessment informs the mitigation planning process and sets a community on the right path towards building long-term resilience.

### 2.1 Threat and Hazard Identification and Risk Assessment and Stakeholder Preparedness Review

#### Overview

**Threat and Hazard Identification and Risk Assessment (THIRA):** The THIRA is a three-step process completed by communities every three years, helping them to understand their risks and actions needed to address those risks by answering the following questions:

- Which threats and hazards can affect our community?
- If they occurred, what impacts would those threats and hazards have on our community?
- Based on those impacts, what capabilities should our community have in place?



One tool that can inform the THIRA is FEMA's [National Risk Index](#). Communities can enter street addresses into the Risk Index, an online resource, to help in determining their vulnerability to the 18 natural hazards listed on the Risk Index site. The outputs from this process lay the foundation for establishing a community's capability gaps as part of the Stakeholder Preparedness Review (SPR) and can be used to identify emerging climate change threats.

**Stakeholder Preparedness Review:** The SPR is an annual self-assessment of a community's current capability levels against the targets identified in the THIRA. Using the targets from the THIRA, SLTTs identify their current capability and determine how that capability changed over the last year. This includes capabilities lost, sustained, and built. Communities also identify capability gaps related to planning, organization, equipment, training, and exercises, and they indicate their intended approaches to address those gaps while also maintaining their current capabilities. In addition, communities identify how FEMA preparedness grants helped to build or sustain capabilities.

**The THIRA/Stakeholder Preparedness Review Cycle:** After communities complete the THIRA, they use the data from the process to assess their capabilities in the SPR. It is important that communities complete the THIRA on a multi-year cycle, as it enables them to assess year-over-year trends and changes to their capabilities, while still periodically reviewing the capability targets to keep them relevant.

## How the THIRA/SPR Is Used to Identify Impacts of Climate Change

When assessing risk through the THIRA, the [Comprehensive Preparedness Guide \(CPG\) 201](#) recommends that communities use several data sources, including future conditions and forecasting models, to identify emerging risks due to changing weather patterns. The SPR helps communities understand what capability gaps they might have in the face of emerging risks such as the impacts of climate change and what capability targets they may need to develop.

Additionally, FEMA encourages SLTT governments to use the risks identified in the THIRA to inform mitigation planning, and vice versa when appropriate. For example, information from the THIRA may be used to meet [Local Mitigation Plan Hazard Identification and Risk Assessment](#) regulatory requirements.

### Additional Resources & Information

The Stakeholder Preparedness Review (SPR) is a self-assessment of a SLTT's current capability levels against the targets identified in the [Threat and Hazard Identification and Risk Assessment \(THIRA\)](#).

The [National Risk Index \(Risk Index\)](#) is a new, online mapping application from FEMA that identifies communities most at risk to 18 natural hazards.

## 2.2 Sea Level Rise and Flood Maps

### Overview

Flooding is one of the most common and costly disasters. The Risk Mapping, Assessment, and Planning (Risk MAP) program provides quality flood hazard information that builds flood risk awareness leading to mitigation actions. Risk MAP provides flood hazard and flood risk information to FEMA stakeholders. Today, most communities manage their flood risks through FEMA flood maps, otherwise known as Flood Insurance Rate Maps. The maps typically represent a single flood scenario (the 1 % per annual-chance-flood), which defines mandatory insurance purchase requirements and sets federal minimum standards for floodplain management. The maps represent coastal and riverine flood hazards.



FEMA recognizes key opportunities to deliver more consistent and comprehensive flood information through the Risk MAP program. Such information would more adequately convey a community or individual's flood risk and serve as a basis for a more risk informed National Flood Insurance Program (NFIP).

Through an initiative known as the Future of Flood Risk Data (FFRD), FEMA is increasing Risk MAP's capability to provide a more comprehensive and dynamic picture of the country's flood hazards. FEMA is exploring how it can provide more consistent flood risk data across a full range of flood

frequencies, not just the 1 % annual-chance flood. FEMA is also exploring the capability to assess the impact of various future conditions scenarios on these flood frequencies.

### Audience/Program Beneficiary

All SLTT governments throughout the 50 states, the District of Columbia and five territories (American Samoa, Guam, Northern Mariana Islands, Puerto Rico, and U.S. Virgin Islands) are program beneficiaries. FEMA is working to identify other nontraditional stakeholders that could benefit from a better understanding of current and future flood risk.

### How Flood Maps Address Climate Change

FEMA strongly encourages communities to incorporate future conditions information into products, projects, and plans. Wherever possible, FEMA provides data and works in support of SLTT governments' needs and priorities.

The Technical Mapping Advisory Council (TMAC) has recommended that FEMA develop flood information conveying the potential impacts of future conditions. Since the TMAC issued its recommendations in 2015, FEMA has conducted several regional pilot studies (e.g., in San Francisco and New England) that consider drivers of change, such as sea level rise and coastal erosion.

Many federal agencies have data and expertise that can help communities increase their understanding of future flood risk. To avoid duplication of effort, FEMA routinely points communities to other federal agencies' tools (e.g., National Oceanic and Atmospheric Administration's Sea Level Rise Viewer), when appropriate.

### Additional Resources & Information

For Risk Mapping, Assessment, and Planning (Risk MAP) program information, including progress maps and success stories, visit: <https://www.fema.gov/flood-maps/tools-resources/risk-map>.

For more information on the Future Flood Risk Data (FFRD), visit: <https://www.fema.gov/fact-sheet/future-flood-risk-data-ffrd>.

Coastal communities can understand how to reduce risk due to sea-level rise by visiting <https://www.fema.gov/flood-maps/coastal> .

### 3 Mitigation Planning

Hazard mitigation planning reduces loss of life and property by minimizing the impact of disasters. It begins with SLTT governments identifying natural disaster risks and vulnerabilities that are common in their area. After identifying these risks, governments develop long-term strategies for protecting people and property from similar events. Mitigation plans are key to breaking the cycle of disaster damage and reconstruction. To qualify for many of FEMA’s programs, communities are required to have current mitigation plans.



All 50 states, the District of Columbia and five territories, have FEMA-approved state mitigation plans. A total of over 24,100 local governments adopted FEMA-approved or approvable pending adoption local mitigation plans. An additional 228 tribal governments have current approved tribal mitigation plans.

FEMA encourages communities to incorporate measures to make mitigation planning more equitable. This includes encouraging at-risk populations to lend their expertise in the mitigation process, assessing social vulnerability and environmental burden alongside hazards in mitigation plans, and targeting outreach or risk reduction projects. Communities can increase equity in mitigation planning by ensuring an assessment is completed before a mitigation project, which ensures that the mitigation helps and does not negatively impact at risk populations.

FEMA is currently in the process of updating the 2015 policy for state and territorial governments, [State Mitigation Plan Review Guide](#), as well as the 2011 policy for local governments, [Local Mitigation Plan Review Guide](#). As these policies are completed, FEMA plans to update existing fact sheets, bulletins, trainings, and related materials with information on various ways that SLTT governments can meet the planning requirements. This includes the development of mitigation actions that can be leveraged to adapt to climate change. All FEMA-approved hazard mitigation plans are required to include an overview of the probabilities of future hazard events.

**Building Community Resilience by Integrating Hazard Mitigation**

Integrating hazard mitigation into the local comprehensive plan establishes resilience as an overarching value of a community. Hazard Mitigation provides the opportunity to continuously manage development in a way that does not lead to increased hazard vulnerability.

#### 3.1 Audience/Program Beneficiary

SLTT governments undertaking hazard mitigation projects can benefit from hazard mitigation planning and other planning related activities. Mitigation plans are often a requirement as a part of the grant application process. FEMA can assist in funding the development of mitigation plans through several grant programs, such as BRIC, Flood Mitigation Assistance (FMA), and Hazard Mitigation Grant Programs (HMGP).



## 3.2 How Hazard Mitigation Planning Addresses Climate Change

The risk assessment portion of a hazard mitigation plan provides the factual basis for activities that reduce future losses from the identified hazards impacting a community. SLTT plans include forward-looking information on development trends in hazard-prone areas and on the probability of future hazard events. All FEMA-approved hazard mitigation plans are required to include an overview of the probabilities of future hazard events. This includes considerations of changing future conditions, like the effects of long-term changes in weather patterns and climate, on the identified hazards impacting the state. The same climate data can be used in the THIRA and mitigation planning to coordinate addressing natural hazard risks exacerbated by climate change, through both preparedness for specific scenarios (through THIRA-SPR) and long-term actions that have mitigation and adaptation co-benefits (through mitigation planning).

In 2016, FEMA and the Environmental Protection Agency (EPA) renewed their Memorandum of Agreement for the two agencies to work together to build safer, healthier, and more resilient communities. The two agencies will collaborate to help communities recover from disasters and reduce risk in ways that protect the environment, support the economy, and protect neighborhoods. FEMA and the EPA will also help communities use smart growth and climate adaptation mitigation ideas to improve quality of life and steer development away from areas identified as high risk.

### Mitigation Planning In Action

*Massachusetts State Hazard Mitigation and Climate Adaptation Plan* was Massachusetts' first all-hazard mitigation plan to fully integrate climate adaptation. The plan followed federal standards for hazard mitigation plans and addressed climate change impacts and adaptation risk mitigation strategies. The plan used several resources, including downscaled climate data in Geographic Information System spatial analysis and State Agency Vulnerability Assessment Survey Tool, to capture and address the state's vulnerability to natural hazards. When evaluating risk, future risks such as projected changes in precipitation, temperature, sea level rise, and extreme weather were considered. Building Resilient Infrastructure and Communities (BRIC), discussed in Chapter 4, provides funding for SLTT governments to protect community lifelines, including vital infrastructure, from the impacts of climate change.



### Additional Resources & Information

Mitigation is most effective when it is a part of other community planning processes, regulations, and policies. FEMA has a variety of resources available to [help communities integrate hazard mitigation into their planning activities](#).

FEMA's Hazard Mitigation Planning program offers both in-person and virtual training resources to support SLTTs in creating and implementing Hazard Mitigation Plans and in Planning for a Resilient Community: [Materials for the Planning for a Resilient Community Training](#):

[FEMA - Emergency Management Institute \(EMI\) Course | IS-329: State Hazard Mitigation Planning](#)

## 4 Mitigation Funding & Community Capacity Building

### 4.1 Annual Programming Funding

Once a community has identified its climate risks and has created a mitigation plan to adapt to the emerging hazards, FEMA offers a number of annual program grants that build community resilience by funding specific mitigation activities. Programs like Building Resilient Communities and Flood Management Assistance provide communities an opportunity to build capacity (e.g., funds technical assistance, training, and building code enforcement activities) and builds resilience (e.g., by funding specific mitigation projects). These programs are available to SLTT governments regularly each year through Notice of Funding Opportunities. In addition, FEMA offers a series of preparedness and capacity building services, such as the NFIP and the National Exercise Program (NEP) that can be engaged continuously and regularly throughout the year. Utilized together, the programs and services listed in this section can help communities build resilience to emerging climate risks.



#### 4.1.1 BUILDING RESILIENT INFRASTRUCTURE AND COMMUNITIES

##### Overview

FEMA’s BRIC program provides annual grant funds to SLTT governments for hazard mitigation planning, mitigation projects, and building community capacity and capability. For Fiscal Year (FY) 2021, funding for BRIC prioritized assistance that benefited economically disadvantaged communities and included a \$25 million tribal set-aside. BRIC seeks to categorically shift the federal focus from reactive disaster spending toward research-supported, proactive investment in community resilience as identified in planning, so when the hurricane, flood, or wildfire comes, communities are better prepared.

FEMA received a tremendous number of applications from across the nation during the FY2020 application period, evidencing strong interest in the types of projects BRIC can support. As a result, the BRIC Program, under the Biden Administration, doubled to \$1 Billion in FY2021. Also new for FY2021, the BRIC program, along with the FMA program, were selected as pilot programs for the [Justice40 Initiative](#), which promotes equity by helping members of disadvantaged communities and prioritizes 40 % of the benefits to disadvantaged populations as referenced in [EO 14008, Tackling the Climate Crisis at Home and Abroad](#).

To help create equitable outcomes and achieve the goal of Justice40 several changes were made to the BRIC program for FY2021. The funding was increased for both the tribal set aside from \$20 to \$25 million and the state and territory allocation from \$600,000 to \$1 million per applicant. The state/territory allocations have a specific goal of increasing capacity and capability. Also, the BRIC program offers an increase of the 75 % federal cost share to up to 90 % for Economically Disadvantaged Rural Communities (EDRC) as defined by the [Robert T. Stafford Disaster Relief and Emergency Assistance Act \(Stafford Act\)](#). Next, the competition criteria listed below were modified to add priority on projects that benefit disadvantaged groups, outreach and partner with disadvantaged

groups, and come from EDRC. Finally, the BRIC program offers non-financial direct technical assistance to communities and prioritizes tribal, EDRCs, and communities with disadvantaged populations. The number of communities doubled from 10 to 20 between FY2020 and FY2021.

For FY2021 the priorities of BRIC were:

- Mitigating risk to public infrastructure;
- Incentivizing resilient investments in disadvantaged communities, as referenced in EO 14008 (Tackling the Climate Crisis at Home and Abroad);
- Mitigating risk to one or more community lifelines;
- Incorporating nature-based solutions;
- Enhancing climate resilience and adaptation; and,
- Increasing funding to applicants that facilitate the adoption and enforcement of the latest published editions of building codes.

BRIC encourages mitigation projects that meet multiple program priorities.

### Who Can Apply?

SLTT governments undertaking hazard mitigation projects (including planning) are eligible to apply for the BRIC program.

### How BRIC Addresses Climate Change

Projects submitted for funding consideration are allotted points for meeting technical and qualitative criteria that address FEMA priorities. Examples of these criteria include mitigation to lifelines, the use of future conditions information in planning project strategies and implementing nature-based or green infrastructure mitigation strategies. Applicants and sub-applicants to BRIC are incentivized to reduce risks from climate change. **Table 1**, below, provides FY 2021 BRIC completion criteria.

**Table 1: FY 2021 BRIC Completion Criteria**

<i>Technical Criteria</i>	<i>Qualitative Criteria</i>
<ul style="list-style-type: none"> <li>• Infrastructure projects</li> <li>• Mitigating risks to one or more lifelines</li> <li>• Incorporation of nature-based solutions</li> <li>• Building Code Adoption</li> <li>• Building Code Effectiveness Grading Schedule Rating</li> <li>• Prior Qualifying Award</li> <li>• Increased Non-federal Cost Share</li> <li>• Economically Disadvantaged Rural Communities</li> </ul>	<ul style="list-style-type: none"> <li>• Risk reduction/resilience effectiveness</li> <li>• Climate Change and Other Future conditions</li> <li>• Implementation Measures</li> <li>• Population impacted</li> <li>• Outreach Activities</li> <li>• Leveraging partners</li> </ul>

BRIC projects receive points for incorporating nature-based solutions, thereby increasing potential funding eligibility. To help SLTT governments identify and engage the staff and resources that may be used to implement nature-based solutions, FEMA has taken several steps, including:

- Publishing [Building Community Resilience with Nature-Based Solutions](#);
- Prioritizing nature-based solutions in BRIC project scoring criteria; and,
- Implementing the Ecosystem Service Benefits in Benefit-Cost Analysis for FEMA’s Mitigation Programs Policy, which provides communities more opportunities to include nature-based solutions in mitigation projects.

### BRIC In Action

For the first year of the BRIC grant, in July 2021, 22 competitive projects were selected for funding. One of those projects is in Baltimore, Maryland. Sea level rise increases Baltimore’s vulnerability to storm-related and nuisance tidal flooding. Through a coordinated network of vegetated berms, living shorelines, restored wetlands/aquatic habitats, and public space enhancements, the Middle Branch Resiliency Initiative (MBRI) Stage 1 will focus on increasing the resilience of the Baltimore Gas and Electric Company’s (BGE) Spring Gardens site and MedStar Harbor Hospital site, located along the shoreline of the Middle Branch of the Patapsco River. Stage 1 of the MBRI will also benefit 410,000 nearby residents, customers of the BGE Spring Gardens facility and MedStar Harbor Hospital, and employees who work at both sites—representing 21 % of the total population City of Baltimore and Anne Arundel and Baltimore counties.

### Additional Resources & Information

For more information on the Building Resilient Infrastructure and Communities (BRIC) Program, visit [Building Resilient Infrastructure and Communities \(BRIC\) | FEMA.gov](#).

Communities can learn more about the benefits of incorporating nature-based solutions into their planning strategies by clicking on the link below.

[Building Community Resilience with Nature-Based Solutions: A Guide for Local Communities](#)

## 4.1.2 NATIONAL FLOOD INSURANCE PROGRAM/RISK RATING 2.0: EQUITY IN ACTION

### Overview

The NFIP provides flood insurance to property owners, renters, and businesses. Having this coverage helps policy holders recover faster after floodwaters recede. The NFIP works with communities to adopt and enforce required floodplain management regulations that help mitigate flooding effects. Flood insurance is available to anyone living in one of the 23,000 participating NFIP communities. There are more than five million policyholders nationwide, and NFIP is the nation's largest single-line insurance program providing nearly \$1.3 trillion in coverage against potential flood losses. The NFIP also offers tools and resources to help communities navigate NFIP requirements and implement higher standards of floodplain management.



FEMA's NFIP is evolving to address the risks of climate adaptation. As flooding events become more intense, the NFIP must adapt and evolve to meet the changing and increasing demands placed on the program. Risk Rating 2.0: Equity in Action plays a key role in NFIP transformation by changing the way FEMA evaluates flood risk.

Floods are the number one natural disaster in the U.S. They happen in every state and are projected to get worse as a result of changes to our environment. Recent research found that sea level rise caused an estimated \$8 billion in excess flood damage during Hurricane Sandy.<sup>1</sup>

Key aspects of flood risk evaluation include the following:

- Modernization - using new technology, science, and data;
- Individualization - assessing each policyholder's premium to reflect their property's unique flood risk; and,
- Equity - ensuring-everyone pays their share when it comes to flood risk.

Communities and individuals should participate in NFIP to manage flood risk leverage available mitigation grants. Individuals can use flood insurance to ensure that their assets are protected should a flood incident occur. Flood maps help communities to understand their risk and take actions that protect their families, homes, and business. [FEMA's Flood Map Service Center](#) provides a central location to find all flood mapping products created under the NFIP.

Floodplain management efforts are community-based and prevent or reduce flooding risks, resulting in a more resilient community. Floodplain management functions, such as zoning, building codes, and enforcement, help communities protect against flooding.

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<sup>1</sup> Strauss, B.H., Orton, P.M., Bittermann, K. *et al.* Economic damages from Hurricane Sandy attributable to sea level rise caused by anthropogenic climate change. (2021). <https://doi.org/10.1038/s41467-021-22838-1>



Over 1500 communities nationwide voluntarily participate in the Community Ratings System (CRS). Flood insurance premium rates in CRS communities are discounted to reflect the reduced flood risk that exceed the minimum requirements for NFIP.

These communities are recognized for engaging in floodplain management practices that address the program's three goals:

- Reduce and avoid flood damage to insurable property;
- Strengthen and support the insurance aspects of the NFIP; and,
- Foster comprehensive floodplain management.

### Who Can Participate?

SLTT governments participating in the NFIP and individual homeowners in participating communities may participate.

### How NFIP and Risk Rating 2.0: Equity in Action Address Climate Change

NFIP reduces the social and economic impact of floods by providing insurance. The program is managed by FEMA and delivered to the public by a network of approximately 60 insurance companies and NFIP Direct. NFIP affords property owners, renters, and businesses the opportunity to have flood insurance coverage. Communities that work with the NFIP are required to adopt and enforce floodplain management regulations. These regulations help mitigate the effects of flooding, which are worsening due to climate change.

With a modern, science-based system, Risk Rating 2.0: Equity in Action updates the current methodology to determine premiums, which had not been updated since the 1970s. Risk Rating 2.0 provides technology that includes FEMA's present knowledge of flood risk and flood variables, such as flood frequency and flood type, that may have changed over time due to climate change. These changes enhance FEMA's ability to consider climate change in a more fluid way based on 1) updated category models and modern methodologies, and 2) new rates that no longer consider distance to water source. Risk Rating 2.0 is widening the parameters, allowing for more robust means of assessing individual property risk and rebuilding costs as considerations for flood risk and insurance costs.

#### Additional Resources & Information

For more information on the NFIP and tools, see the link below.

<https://www.fema.gov/flood-insurance>

To learn more about the NFIP Community Rating System and reduced flood insurance premiums, visit [National Flood Insurance Program Community Rating System | FEMA.gov](#)

### 4.1.3 FLOOD MITIGATION ASSISTANCE

#### Overview

SLTT governments who participate in NFIP can apply for FMA. Funds can be used for projects that reduce or eliminate the risk of repetitive flood damage to buildings insured by the NFIP.

FMA can be leveraged to reduce or eliminate the risk of repetitive flood damage to buildings and structures. FEMA has set aside \$70 million for the federal cost share of Community Flood Mitigation projects. Examples of eligible community flood mitigation projects include the following:

- Localized flood control;
- Floodplain and stream restoration;
- Stormwater management; and,
- Wetland restoration/creation.

#### Who Can Apply?

SLTT governments participating in NFIP may apply.

#### How FMA Addresses Climate Change

The FMA grant program funds eligible flood mitigation projects. Eligible projects include those that are centered around climate adaptation or helping communities adapt to increase flood risk, such as incorporating nature-based solutions into mitigation projects and acquiring developed flood prone properties and returning them to greenspace.



#### FMA In Action

The Lake Lery Marsh Creation and Rim Restoration Phase III Project in Saint Bernard Parish, Louisiana was selected for FMA grant program funding. The project proposes to counteract further degradation of the marshland by establishing 2.42 miles of permanent lake rim along the northern perimeter of the project area and restoring 401.2 acres of degraded marsh. The total project cost is \$19 million and will impact nearly 500 repetitively damaged buildings insured under NFIP. These buildings have incurred roughly 10,000 claims totaling \$1.2 billion in paid losses. This project will provide persistent protection to those properties from future flooding events.

#### Additional Resources & Information

For more information on the Flood Mitigation Assistance (FMA) grant program, visit

<https://www.fema.gov/grants/mitigation/floods>

## 4.1.5 NATIONAL EXERCISE PROGRAM

### Overview

The NEP provides technical assistance for preparedness exercises from experienced exercise specialists to SLTT governments and other whole community partners at no cost. Support can include assistance with exercise design, scenario development, planning, and execution. Other qualifying activities include evaluation by subject matter experts, material production, or facilitation for selected exercises. The NEP, managed by FEMA's National Exercise Division, is a two-year cycle of exercises across the nation that examines and validates capabilities in all preparedness mission areas.



Exercises are selected for NEP technical assistance through an application process. Proposals are evaluated based on their alignment to the National Security Council's Strategic Priorities, a set of priorities updated every two years to reflect the current environment. Exercises in the NEP contribute evaluation data to the National Preparedness System, providing a clearer picture of the nation's readiness which inform the National Preparedness Report.

### Who Can Apply?

SLTT governments and whole community partners that participate in planning exercises may apply.

### How the National Exercise Program Addresses Climate Change

The Long-term Community Resilience Exercise Resource Guide (Exercise Guide) is an NEP resource that supports public and private-sector delivery of exercises that bring together diverse sets of stakeholders to:

- Develop a common understanding of community climate risk;
- Assess current and planned programs related to community resilience;
- Identify critical issues, outcomes, and factors to examine in future community planning; and,
- Identify and prioritize investments in critical preparedness and climate adaptation risk mitigation measures *now* that will result in long-term vulnerability reduction.

The Exercise Guide includes basic principles for developing climate risk mitigation exercises including:

- How to use different discussion-based exercise types to support phases of climate adaptation planning;
- How to craft climate-focused exercise outcomes and objectives;
- Guiding principles and resources for designing a climate-based exercise scenario;
- Sample facilitation/discussion themes;
- Situation Manual examples; and,
- Tools and resources for building climate considerations into exercises.

### The Exercise Guide in Action

From 2014 to 2016, the National Exercise Division, in coordination with the National Security Council, conducted the Climate Adaptation, Preparedness, and Resilience Exercise Series in five jurisdictions. Participants were selected from across the nation, including Washington, DC; Houston, Texas; Fort Collins, Colorado; Anchorage, Alaska; and Hampton Roads, Virginia. The series 1) provided a forum for structured discussion on the present and future effects of climate change, and 2) identified collaborative and sustainable approaches to climate resilience. The Exercise Guide, developed from 2017 to 2018, captures best practices learned from the workshop series and provides users information and resources to build climate adaptation focused exercises. The [Long-Term Community Resilience Exercise Resource Guide Prep Toolkit page](#) provides helpful information on climate-focused exercises.

### Additional Resources & Information

Information about applying for National Exercise Program (NEP) and technical assistance can be found at [National Exercise Program Exercise Support](#)

## 4.1.6 FIRE-ADAPTED COMMUNITIES

### Overview

The United States Fire Administration (USFA) works within FEMA to identify American fire problems and provide support to strengthen fire and emergency medical services (EMS) and stakeholders to prepare for, prevent, mitigate, and respond to all hazards.

Research conducted by the Department of Homeland Security (DHS) and the NIST reports that 46 million residences in 70,000 communities are at risk for wildland urban interface (WUI) fires. The WUI is the line, area, or zone where structures and other human development meet or intermingle with undeveloped wildland or vegetative fuels. Research additionally concluded that the WUI area continues to grow by approximately 2 million acres per year. Through interagency partnerships with Other federal agencies, the USFA works to create a fire-safe America.



### Audience/Program Beneficiary

Fire Service organizations throughout the U.S. that serve and partner with SLTT governments throughout the 50 states, the District of Columbia and five US territories are the targeted audience/program beneficiary.

## How USFA Addresses Climate Change

USFA, in response to WUI and a number of growing climate concerns, has developed training opportunities through the USFA National Fire Academy, and through USFA's National Fire Programs (NFP), collaborates with partners and communities to create Fire-Adapted Communities, and provides outreach materials and resources on USFA's WUI website. Additionally, USFA's NFP continues to leverage the most recent data and conduct research empowering the fire service. Throughout the nation, USFA's NFP addresses climate change impacts for all hazards, including the implications of green energy technology in community risk reduction programs, and impacts to firefighter and EMS responder health and safety.

Courses provided by the USFA's National Fire Academy and WUI/wildfire preparedness and mitigation programs of USFA's National Fire Programs are designed to provide stakeholders the ability to create and sustain a fire-adapted community. Fire-Adapted Communities collaborate to identify wildfire risk and work collectively on actionable steps to reduce the risk of future loss. The Fire-Adapted Communities Learning Network (FACNET) series teaches emergency personnel how to engage their communities in building collaborative strategies to prevent, mitigate and co-exist with the reality of wildfire. The course series encompasses leadership, mitigation strategies, planning, evacuation, land usage, and codes. This collaborative approach helps communities protect people and property and increases the safety of firefighters and residents.

Building interagency partnerships leverages subject matter expertise and equities in fire prevention and community risk reduction allowing for use of science-based research and emerging technologies. USFA's NFP continuously collaborates with interagency federal partners to collect data with the DHS Science and Technology Directorate (DHS S&T) conducting research to help fire services and communities across the nation to make informed decisions.



### Communities Addressing Wildfire Risk

FEMA released a Story Map on Colorado Springs' Wildfire Mitigation in the wake of the 2012 Waldo Canyon Fire. This Story Map provides an interactive summary of the wildfire mitigation activities in Colorado Springs, Colorado. Prior to the 2012 fire, Colorado Springs used Pre-Disaster Mitigation grants to implement a wildfire mitigation plan, saving an estimated \$75 million and 250 homes. Even with these efforts, 346 homes were destroyed by the Waldo Canyon Fire. Since then, the community has taken more actionable steps to mitigate against future damage by adopting more fire-resistive building codes, mapping wildfire risk, and participating in strategic community engagement.

Colorado Springs Fire Department collaborated with the Colorado Springs Housing and Building Association to identify ways to mitigate the impacts of wildfires on residential buildings. This information led to Ordinance No. 18-50, which amended the International Fire Code to address wildland/urban interface mitigation requirements for high-risk areas.

USFA is working with DHS S&T on research providing real-time monitoring and early detection of wildfires using heat and smoke detection technologies. This will provide a network of intelligent sensors to monitor environmental conditions and provide warning to increase response time. Accomplishments to date include prototype development and initial testing in the lab and a small-scale field environment. Next steps include evaluating and incorporating lessons learned from the initial tests and taking the enhanced prototypes into larger field-testing situations.

### Additional Resources & Information

For more information on United States Fire Administration (USFA) resources that can help communities build resilience before and after wildfires, visit the links below.

For more information on building how communities become fire adapted, visit [Fire Adapted Communities](#).

Learn about integrating your Community Wildfire Protection plan into your local planning by visiting [Hazard Mitigation Plan Tools for Practitioners](#).

Learn about [Creating a Community Wildfire Protection Plan \(fema.gov\)](#) by clicking on the link.

Learn how climate change can impact your fire and EMS department by visiting [Is your fire and EMS department ready for climate change? \(fema.gov\)](#)

Information on [Wildland urban interface \(WUI\) \(fema.gov\)](#) can be found by clicking the link.

## 4.2 Post-Disaster

FEMA coordinates resources across the federal government, philanthropic organizations, and the private sector to help communities build resilience and adapt to climate change after disasters. For example, the [Disaster Recovery and Resilience Resource Library](#) provides a diverse group of financial, technical assistance and information resources to aid in disaster recovery efforts. There are over 600 climate adaptation and resilience funding and technical assistance opportunities available from federal, philanthropic, or private sources currently logged in the Disaster Recovery and Resilience Resource Library.

FEMA also leverages its own grant programs to provide post-disaster resilience funding, including the Public Assistance, Hazard Mitigation, and Hazard Mitigation Post-Fire programs.

### Community Planning and Capacity Building (CPCB) Recovery Support Function (RSF)

Local governments can request capacity assistance from the CPCB RSF through their state government. The CPCB RSF brings together a team of federal agencies and non-governmental partners using data-informed decision making to provide a wide variety of recovery planning, technical assistance, and resilience building services to communities.

### 4.2.1 FEMA'S PUBLIC ASSISTANCE PROGRAM

#### Overview

FEMA's Public Assistance (PA) Program provides SLTT governments, and certain types of private non-profit (PNP) organizations, supplemental grants so communities can quickly respond to and recover from major disasters or emergencies. Through the PA Program, FEMA provides supplemental federal grant assistance for disaster-related expenses such as debris removal, emergency protective measures, and restoration of disaster-damaged, publicly owned facilities; and specific facilities of certain PNP organizations. The PA Program also encourages protection of these damaged facilities from future incidents by providing assistance for hazard mitigation measures.



In addition to providing funding for the restoration of certain disaster-damaged facilities, FEMA has the authority under Section 406 of the Stafford Act to provide PA funding for cost-effective hazard mitigation measures for facilities damaged by the incident. SLTT governments can use this funding to protect facilities from the future impacts of large climate shifts, and/or they can create mitigation projects that incorporate cost-effective sustainable design principles. Hurricane Sandy was a catalyst for many new agency policies, including FEMA's new approach to building sustainable communities back to a higher degree of resilience for future planning. The implementation of the [Consensus-Based Codes, Specifications and Standards for Public Assistance, FEMA Recovery Interim Policy 104-009-11, Consensus-Based Codes, Specifications and Standards for Public Assistance \(Version 2.1\)](#) and Section 428 of the Stafford Act provide applicants with the tools they need to build back more comprehensively resilient communities after a disaster. This allows communities to further

increase their resiliency by enabling them to mitigate to higher more stringent codes and standards. Rather than prepare for a 25-year flood, they can mitigate for a 100-year flood.

### Who Can Apply?

SLTT government agencies and/or certain PNPs may apply.

### How Public Assistance Addresses Climate Change

Disasters can have devastating impacts on a community's economic, social, and environmental well-being. Since disasters can be repeat events, it is especially important that communities consider ways of rebuilding that avoid future disaster damage and account for the ways climate change is increasing or changing the risks these communities face.

FEMA's PA program can assist communities in becoming more resilient by funding:

- Measures to protect a damaged facility against future damage;
- Repair and replacement of facilities to local codes and standards;
- Hazard-resistant, consensus-based codes and standards design provisions of the International Code Council's building codes for buildings that have sustained significant damage;
- Building code and/or floodplain management ordinance administration and enforcement; and,
- Relocation of some facilities outside hazard prone areas.

This, in turn, reduces costs by:

- Breaking the disaster-rebuild-disaster cycle;
- Strengthening existing infrastructure; and,
- Reducing down-time for businesses and critical public facilities and services.



#### PA Mitigation & Green Infrastructure

All Public Assistance (PA) Mitigation projects must be cost-effective. The [Public Assistance Policy and Program Guide](#) includes a list of pre-determined cost-effective mitigation measures in Appendix J, including green infrastructure. Examples of specific green mitigation measures include vegetated geogrids, bioswales, and rain gardens. Applicants may also utilize other green infrastructure techniques, as long as they are demonstrated to be cost-effective using FEMA-approved criteria. Additional information available in [FEMA's Building Community Resilience with Nature-Based Solutions](#).

### Public Assistance in Action

Following Hurricane Sandy, the New York Housing Authority (NYHA) saw 33 low to moderate income housing developments (which included hundreds of buildings) flooded. FEMA provided the NYHA \$1.4 billion in PA Mitigation funding to invest in projects floodproofing multi-story buildings primarily located in high hazard coastal flood zones as well as the relocation of critical building systems in elevated structures protected from future flooding.

Hurricane Sandy also severely impacted hospital operations at the New York University Langone Medical Center (NYULMC), forcing the relocation of patients in critical condition and the loss of priceless cancer research. PA Mitigation funding was an opportunity for NYULMC to make essential investments to prevent any future impacts from severe storms. FEMA funded a jointly developed \$589 million mitigation proposal installing an exterior flood protection system, internal compartmentalization of critical services, and backup power systems.

### Additional Resources & Information

For information on FEMA’s Public Assistance (PA) Program, access the [Public Assistance Program and Policy Guide, Version 4, Effective June 1, 2020](#)

For information on and examples of PA mitigation projects; visit the link below.

[Mitigate Disaster Damage with FEMA Public Assistance](#)

## 4.2.2 HAZARD MITIGATION GRANT PROGRAM

### Overview

HMGP provides funding to state, local, tribal, and territorial governments impacted by a Presidentially declared disaster. HMGP allows eligible SLTTs to rebuild in a way that reduces or mitigates future disaster losses. Grant funding is available to increase a community’s preparedness in advance of climate-related extreme weather events, improving their ability to recover.



FEMA provides mitigation grants to SLTT governments to:

- Reduce vulnerability of communities to disasters and their effects;
- Promote individual and community safety and community vitality after a disaster;
- Lessen response and recovery resource requirements after a disaster; and,
- Build safer communities that are less reliant on external financial assistance.

Since 2015, through its Hazard Mitigation Assistance (HMA) programs, FEMA provides an average of \$700 million annually through the HMGP, Flood Mitigation Assistance, and Pre-Disaster Mitigation

grants (now BRIC) helping communities undertake hazard mitigation measures. In August 2021, the federal government announced \$3.46 billion in HMGP funding would be made available for SLTTs to invest in mitigation projects helping better prepare and protect communities from natural disasters and the impacts of climate change. The influx of funding will help communities prioritize mitigation needs for a more resilient future, including underserved communities that are often most vulnerable to the impacts of climate change.

### Who Can Apply?

Entities eligible to apply for HMGP include the emergency management agency or a similar office of the 50 states, the District of Columbia, territories, and federally-recognized tribes.

### How HMGP Addresses Climate Change

The goal of HMGP is to ensure critical mitigation measures intended to reduce the future risk of loss of life and property are implemented after a disaster. With the increasing severity and frequency of disasters due to climate change, the program is actively working with its stakeholders to identify and leverage mitigation opportunities in an effort to build national resilience to natural hazard risks. The program continues to evolve and introduce new eligible activities in anticipation of worsening conditions and continually increasing disaster costs.

FEMA's HMGP can assist communities in becoming more resilient by funding:

- Sustainable actions that reduce or eliminate long-term risk to people and property from future disasters;
- Innovative activities, designed to address both single and multiple hazards, allowing citizens to reside in their communities more safely;
- Retrofit activities preventing the loss of function of critical facilities;
- Nature-based solutions, which are uniquely positioned to bolster natural hazard risk mitigation as well as economic, environmental, and social resilience efforts;
- Climate Resilient Mitigation Activities that specifically address drought and flood mitigation;
- Activities that incorporate ecosystem services into project development – benefits to humans that are provided by the natural environment; and,

#### Benefit-Cost Analysis (BCA)

FEMA grant programs emphasize data-driven decision-making that embraces social equity and climate change impacts. Applicants and sub-applicants must use FEMA-approved methodologies and tools, such as the BCA Toolkit, to demonstrate the cost-effectiveness of their projects. Technical assistance is available through FEMA's BCA Helpline for troubleshooting technical issues.

- Single or multi-jurisdictional [Hazard Mitigation Plans](#) that identify risks and outline long-term strategies to protect invested communities and break the cycle of disaster damage and reconstruction.

### HMGP in Action

HMGP prepares communities for more frequent and more severe natural disasters in the future. The City of Cuyahoga Falls, Ohio, experienced two 500-year storm events in 2003 and 2004 that caused millions of dollars in damages to properties. The city worked with FEMA and the Ohio Emergency Management Agency to purchase and demolish four homes that suffered repetitive flooding losses. The new open space was used to build a 24,000-square-foot municipal rain garden that receives drainage from 3.17 acres. It can hold and filter up to 30,000 gallons of water. The garden now serves the community with walking paths, solar lighting bollards, and extensive educational opportunities.

The project included significant public involvement and support. In May of 2014, a storm event deposited four inches of rain on the city within 45 minutes. While this caused widespread damage across the city, there was no reported damage in the neighborhood surrounding the rain garden.

### Additional Resources & Information

For more information on Hazard Mitigation Grant Program (HMGP)/Hazard Mitigation Assistance (HMA) visit <https://www.fema.gov/grants/mitigation/hazard-mitigation-assistance-guidance>

Information on the HMA Annual Grant Cycle Submissions Summary can be found at <https://www.fema.gov/fact-sheet/hazard-mitigation-assistance-hma-annual-grant-cycle-submissions-summary>

The BCA Helpline's hours are 9 a.m. – 5 p.m. (ET), Monday through Friday. Email questions to [bchelpine@fema.dhs.gov](mailto:bchelpine@fema.dhs.gov) or call toll free at 1-855-540-6744.

Additional information on the FEMA Benefit-Cost Analysis method and toolkits can be found at

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### 4.2.3 HAZARD MITIGATION GRANT PROGRAM POST FIRE

#### Overview

The Stafford Act<sup>2</sup> allows FEMA to provide HMGP funding for wildfire mitigation activities in any area that received a [Fire Management Assistance Grant](#) (FMAG) declaration. The Fire Management Assistance declaration process is initiated when a state submits a request for assistance to their FEMA Regional Director at the time a "threat of major disaster" exists. The entire process is accomplished on an expedited basis and a FEMA decision is rendered in a matter of hours. The funding is tied to the FMAG declaration and does not require that a major disaster is declared as with standard HMGP. This program is referred to as HMGP Post Fire.



Funding available under HMGP Post Fire is based on the 10-year national average of assistance provided under FMAG declarations. FEMA provides two separate calculations based on whether the recipient has a standard or an enhanced mitigation plan. Recipients with a standard mitigation plan are eligible for 15 % of the 10-year national average for FMAG. Recipients with an enhanced mitigation plan are eligible for 20 % of the 10-year national average for FMAG. The amount of eligible funding is also based on each FMAG declaration in the fiscal year where the recipient is eligible for the 15 or 20 % of the 10-year national average for each FMAG declared. FEMA aggregates these amounts throughout the fiscal year for each recipient.



#### HMGP Post Fire and Nature Based Solutions

Under the HMGP Post Fire program, FEMA is prioritizing projects that mitigate wildfire hazards and incorporate nature-based solutions. Examples of these prioritized projects include removing standing burned trees, planting grass to prevent the spread of noxious weeds, and reseeding ground cover.

FEMA prioritizes HMGP Post Fire funding for activities that benefit the declared county, counties, or burned tribal lands, with wildfire hazard mitigation projects such as defensible space measures, ignition resistant construction, hazardous fuels reduction, erosion control measures, slope failure prevention measures, or flash flood reduction measures. While HMGP Post Fire funding may also be used for activities unrelated to wildfire mitigation and/or outside of the declared area(s), the recipient or subrecipient must explain in the project application why the funding is not being used for wildfire mitigation in the declared area, and FEMA determines eligibility based on the merits of the explanation.

<sup>2</sup> Section 404 of the Stafford Act provides authority for the Hazard Mitigation Grant Program; Section 420 of the Stafford Act provides authority for the Fire Management Assistance Grant. Section 1204 of the Disaster Recovery Reform Act of 2018 (DRRA) amended Sections 404 and 420.

## Who Can Apply?

States, federally-recognized tribes, and territories affected by fires resulting in an FMAG declaration are eligible to apply for assistance under HMGP Post Fire as Recipients.

Local governments, tribal governments not applying as Recipients, and certain private nonprofit organizations are eligible to apply through the Recipient as Subrecipients.

## How HMGP Post Fire Addresses Climate Change

Wildfires have increased in frequency and magnitude in recent years, due in large part to the effects of climate change. Wildfire mitigation activities authorized under HMGP Post Fire help areas most impacted become more resilient to future wildfires through creating defensible spaces and removing hazardous fuels that reduce the spread of wildfire, using ignition resistant materials and methods in new construction and retrofits of existing structures, and implementing erosion control, slope stabilization, and flash flood reduction measures to mitigate the impacts of post-fire flooding.

### HMGP Post Fire in Action

During the Almeda fire of 2020, several communities in Jackson County, Oregon were largely affected by this severe and catastrophic event. Due to the presence of excess hazardous fuels around homes and ingress/egress areas, about 2,977 acres and 2,400 homes and businesses were destroyed by the fire. Following this event, FEMA provided the state HMGP Post Fire funding to reduce hazardous fuels and create defensible space around the community in the WUI. This project will reduce hazardous fuel along roads and ridgelines, as well as create critical access points for fire suppression and emergency personnel.

HMGP Post Fire assistance has also helped places like Clark County, Kansas reduce the risks of future fires through the implementation of a hazardous fuels reduction project. Following the Kansas Highland Hills Fire of 2017, FEMA HMGP Post Fire funds were provided to remove dead trees and other hazardous fuels in over 784 acres of land. The project also contributed to the reduction of future fire risks by allowing firefighters to easily contain and manage the fires, and ultimately reduce the risks to lives and property.

### Additional Resources & Information

For information on the Federal Emergency Management Agency's (FEMA) Hazard Mitigation Grant Program (HMGP) Post Fire, review the following resources:

[FEMA Policy 207-088-2. Hazard Mitigation Grant Program - Post Fire](#) (April 29, 2019)

[FEMA Job Aid for Disaster Recovery Reform Act, Section 1205 Additional Activities for Wildfire and Wind Implementation under Hazard Mitigation Assistance Programs](#) (December 3, 2019)

Wildfire guidance is found in the [Hazard Mitigation Assistance Guidance](#) and examples of wildfire mitigation projects are detailed in the [Hazard Mitigation Assistance Guidance Addendum](#) (both February 2015)

## APPENDIX A: ACRONYMS

<b>BCA</b>	Benefit-Cost Analysis
<b>BGE</b>	Baltimore Gas and Electric Company
<b>BRIC</b>	Building Resilient Infrastructure and Communities
<b>CPG</b>	Comprehensive Preparedness Guide
<b>CRS</b>	Community Rating System
<b>CPCB</b>	Community Planning and Capacity Building
<b>DHS</b>	Department of Homeland Security
<b>DHS S&amp;T</b>	Department of Homeland Security Science & Technology Directorate
<b>EDRC</b>	Economically Disadvantaged Rural Communities
<b>EMS</b>	Emergency Medical Services
<b>EO</b>	Executive Order
<b>EPA</b>	Environmental Protection Agency
<b>FACNET</b>	Fire- Adapted Communities Learning Network
<b>FEMA</b>	Federal Emergency Management Agency
<b>FMA</b>	Flood Mitigation Assistance
<b>FFRD</b>	Future of Flood Risk Data
<b>FMAG</b>	Fire Management Assistance Grant
<b>FY</b>	Fiscal Year
<b>HMA</b>	Hazard Mitigation Assistance
<b>HMGP</b>	Hazard Mitigation Grant Program
<b>MBRI</b>	Middle Branch Resiliency Initiative
<b>NYHA</b>	New York Housing Authority
<b>NYULMC</b>	New York University Langone Medical Center
<b>NEP</b>	National Exercise Program
<b>NFIP</b>	National Flood Insurance Program
<b>NFP</b>	National Fire Program
<b>NIST</b>	National Institute of Standards and Technology
<b>PA</b>	Public Assistance

## **FEMA Resources for Climate Resilience**

<b>PNP</b>	Private Non-Profit
<b>RSF</b>	Recovery Support Function
<b>Risk MAP</b>	Risk Mapping, Assessment, and Planning
<b>SPR</b>	Stakeholder Preparedness Review
<b>SLTT</b>	State, Local, Tribal, Territorial
<b>THIRA</b>	Threat and Hazard Identification and Risk Assessment
<b>TMAC</b>	Technical Mapping Advisory Council
<b>USFA</b>	United States Fire Administration
<b>WUI</b>	Wildland Urban Interface