

# Adapting California to a More Challenging and Unpredictable Climate

April 7, 2023

**Danielle Ngo**, *City and County of San Francisco*

**Nuin-Tara Key**, *WTW*

**Krystal Laymon**, *Federal Emergency Management Agency*

**Jeannie Lee**, *California Air Resources Board*

An aerial view of San Francisco, California, showing the city skyline, the Golden Gate Bridge, and the waterfront. The text is overlaid on the image.

# Confronting Climate Change: In California and Beyond

DAVIS, CA | APRIL 2023



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# What **Policies** Can Address Environmental Justice & Racial Equity?



**Healthy & Resilient  
Environments**



**Physical Activity  
& Healthy Public  
Facilities**



**Healthy Food  
Access**



**Safe, Healthy,  
& Affordable  
Homes**

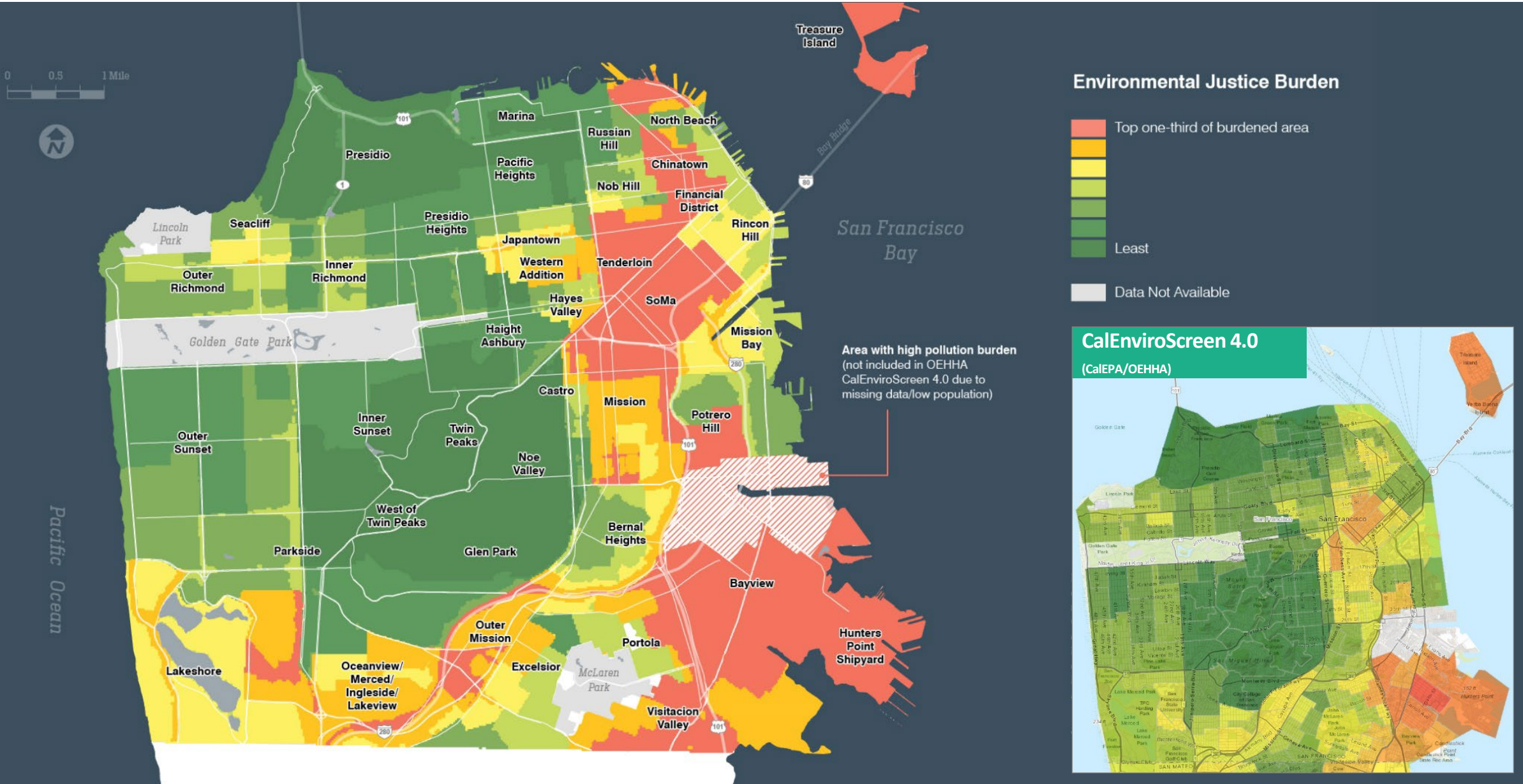


**Equitable &  
Green Jobs**



**Empowered  
Neighborhoods**

# San Francisco Environmental Justice Communities Map





Leah Mills / SF Chronicle



Jessica Christian / SF Chronicle

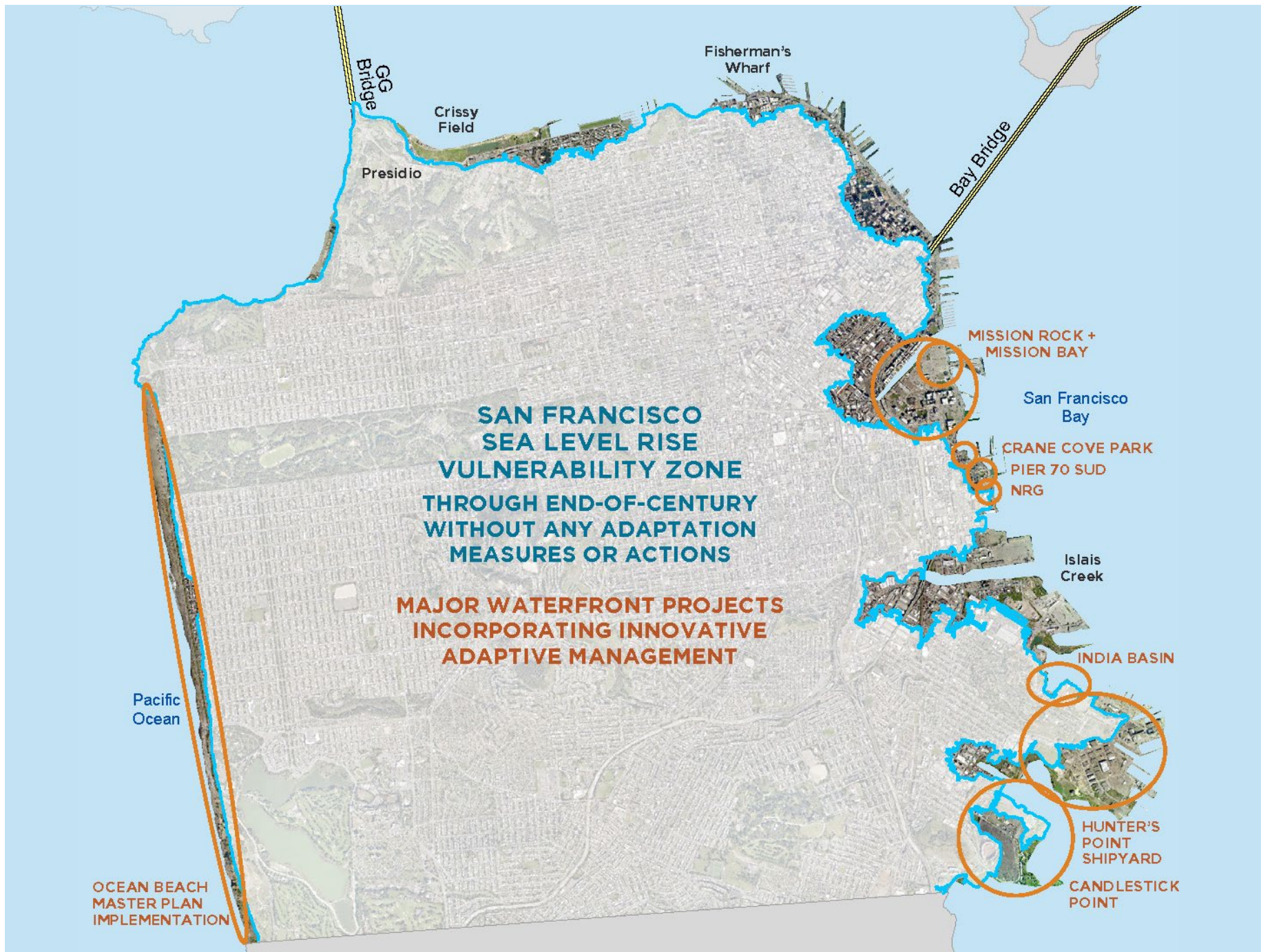


C.M. Howard, cmhoward.com/fire



Michael Filippoff / Flickr

# Sea Level Rise Exposure Zone [with no action]



## Legend

— Sea Level Rise Vulnerability Zone





# Confronting Climate Change: In California and Beyond

UC Davis Law Climate Change Conference

Nuin-Tara Key, Director, North America Public Sector Lead

April 7, 2023

# California Climate Adaptation Strategy

## Outcome-based priorities



Strengthen Protections for Climate Vulnerable Communities



Bolster Public Health and Safety to Protect Against Increasing Climate Risks



Build a Climate Resilient Economy



Accelerate Nature-Based Climate Solutions and Strengthen Climate Resilience of Natural Systems



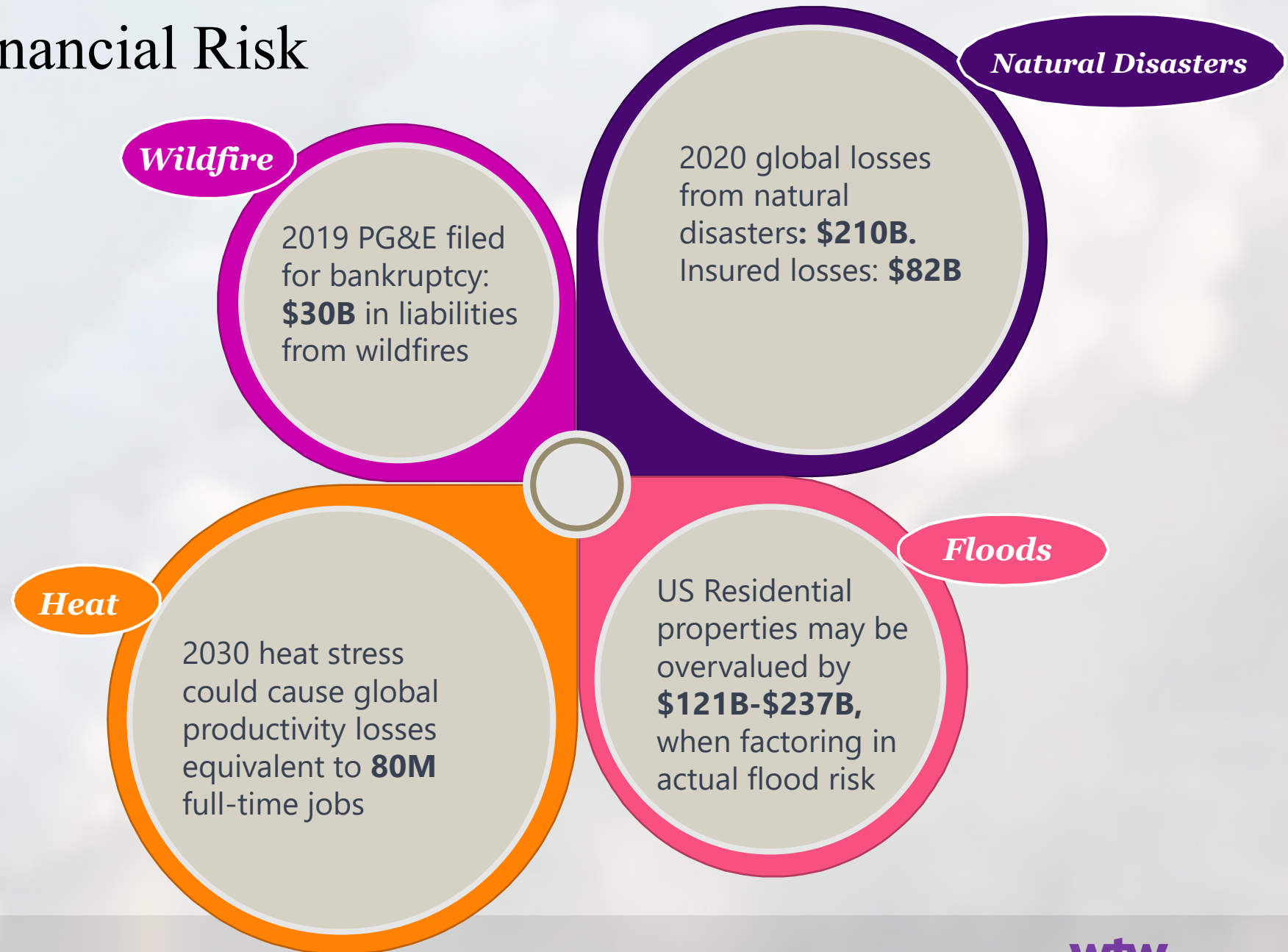
Make Decisions Based on Best Available Climate Science



Partner and Collaborate to Leverage Resources



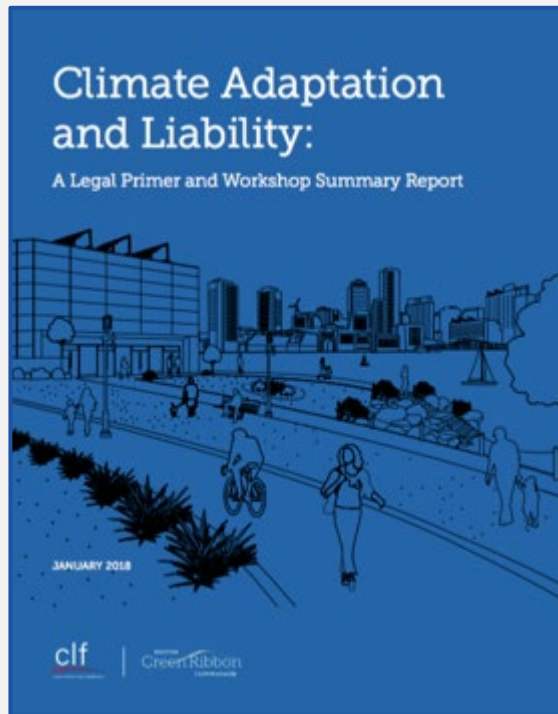
# Climate-Related Financial Risk



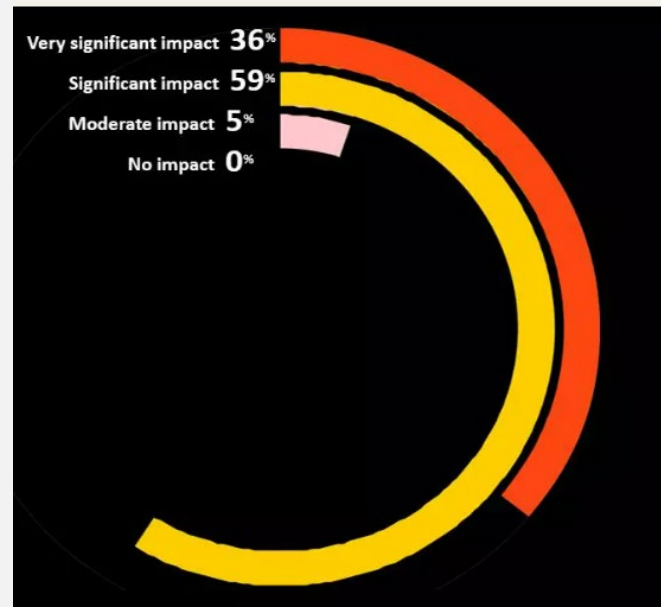
# Climate Resilience

## Market Forces Driving Resilience

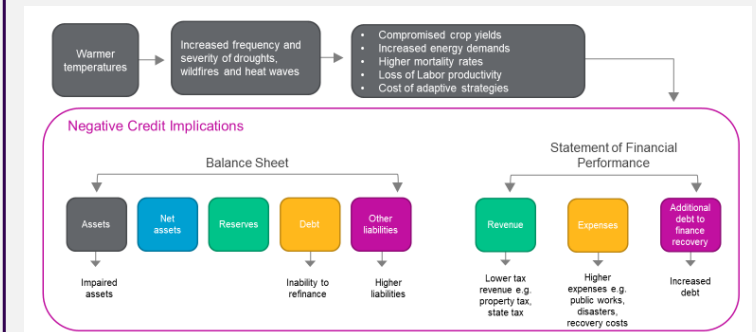
### Liability



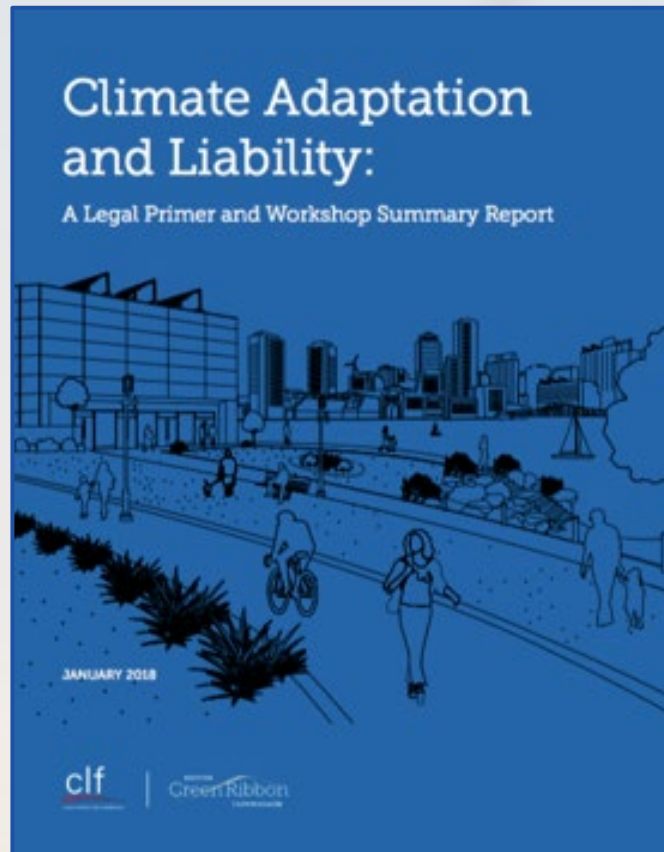
### Insurance



### Credit Rating



# Market Forces Driving Resilience Liability



CLIMATEWIRE



## New E.U. law will spur spike in climate litigation — study

A new survey predicts that the European Union's ambitious climate plans will spur lawsuits against governments, corporations and the laws themselves.



BY: LESLEY CLARK | 03/23/2023 06:43 AM EDT

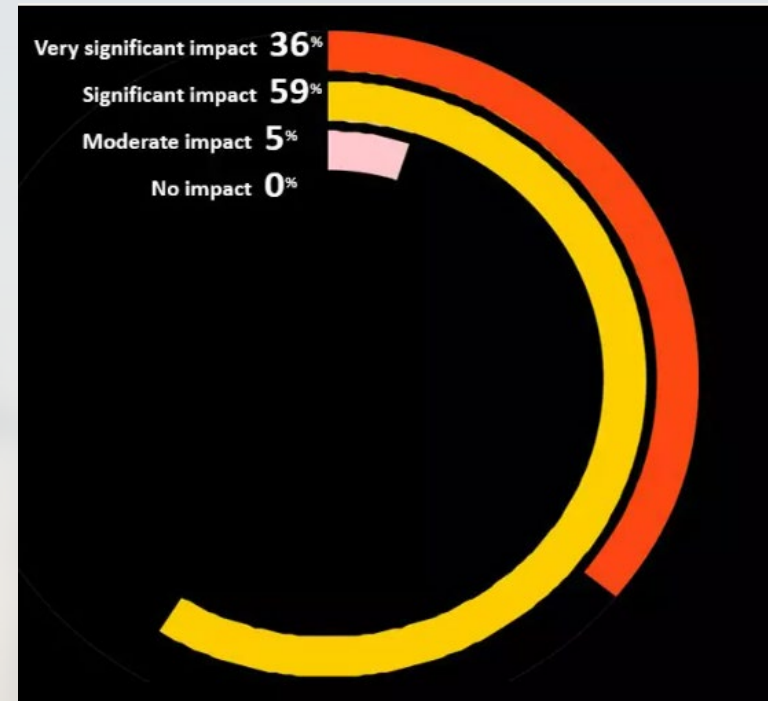


# Climate Market Forces Driving Resilience Insurance

## “Insurers see climate risk as investment risk

95% of respondents believe climate risk will have a significant or very significant impact on portfolio construction and strategic asset allocation over the next two years.”

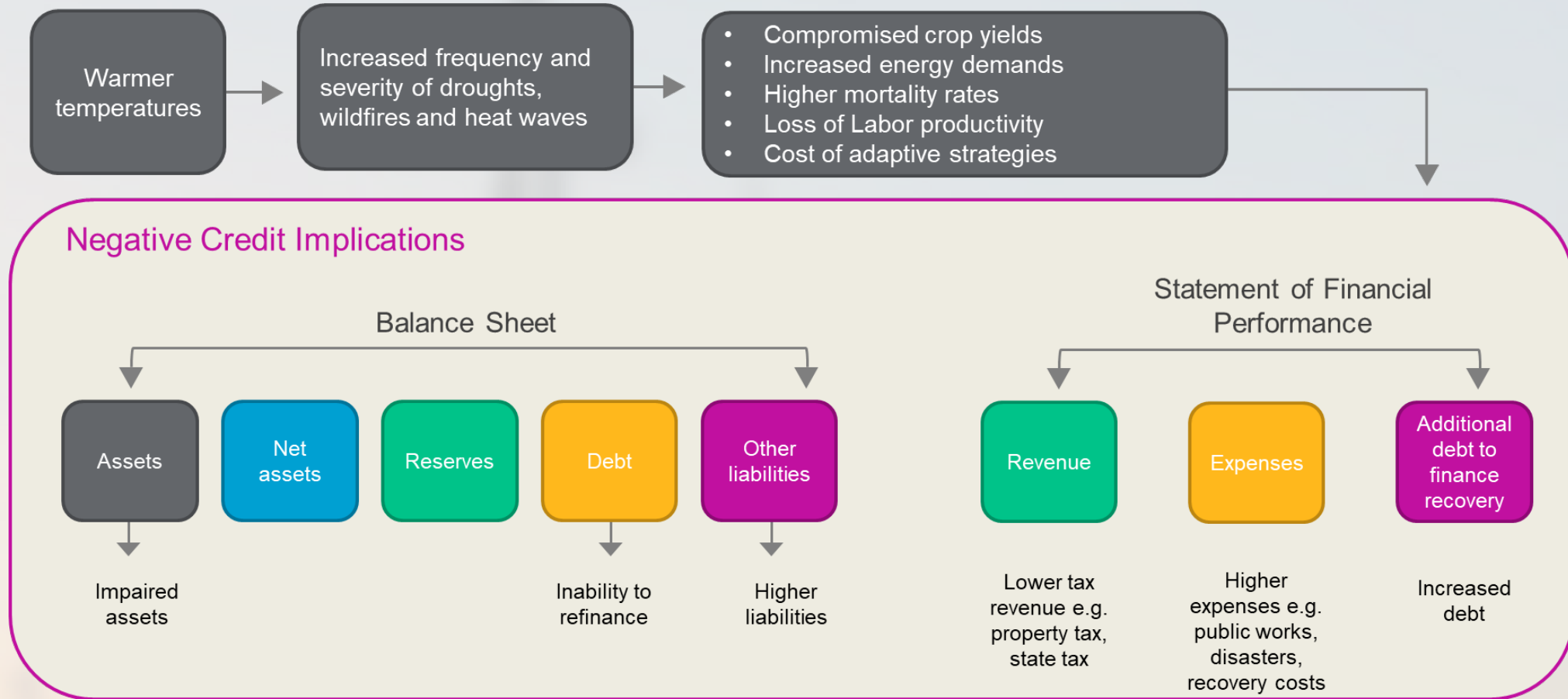
- *Blackrock 2021 Global Insurance Report*



# Market Forces Driving Resilience

## Credit Ratings

### How climate risk transmits to credit risk (Moody's)



# Task Force for Climate-Related Risk Disclosure Framework (TCFD)

## TCFD

- Disclosure recommendations for clear, comparable, and consistent information about climate-related financial risks and opportunities
- Supports the growing demand by investors, lenders, insurance underwriters and other stakeholders
- Provides decision-useful, climate-related financial information

### Governance

Disclose the organizations governance around climate related risks and opportunities

### Strategy

Disclose the actual and potential impacts of climate related risks and opportunities on the organisation's businesses, strategy and financial planning where such information is material

### Risk Management

Disclose how the organisation identified, assesses and manages climate related risks

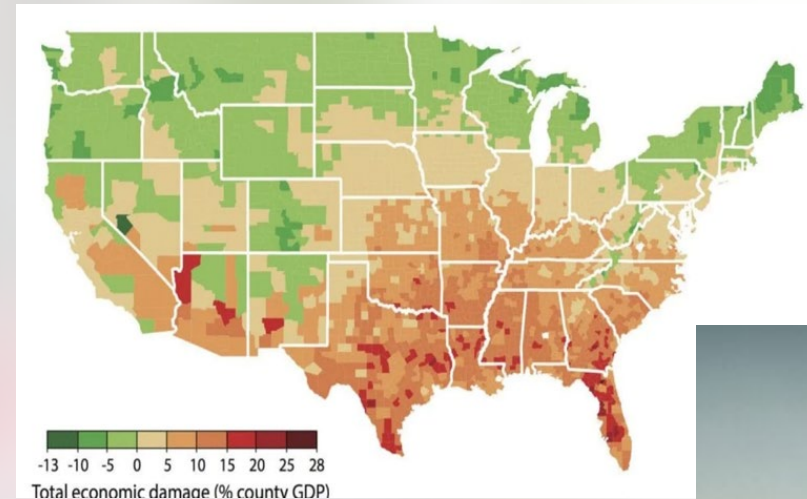
### Metrics and Targets

Disclose the metrics and targets used to assess and manage relevant climate related risks and opportunities where such information is material

## A community view – the importance of public sector action

### Tales of many different/ difficult futures

- Projected GDP impact in 2060-2080 on U.S. metropolitan areas if “no climate action” (1980 baseline)
- Includes changes in crime and mortality rates, labor productivity, heating and cooling demand, agricultural productivity, and expected annual losses from coastal storms.



Source: Estimating Economic from Climate Change in the US, Hsaing et. al.



Source: <https://www.metroplanning.org/work/project/33>

Thank you!



# Climate Change Activities

Mitigation Directorate | 2023



FEMA

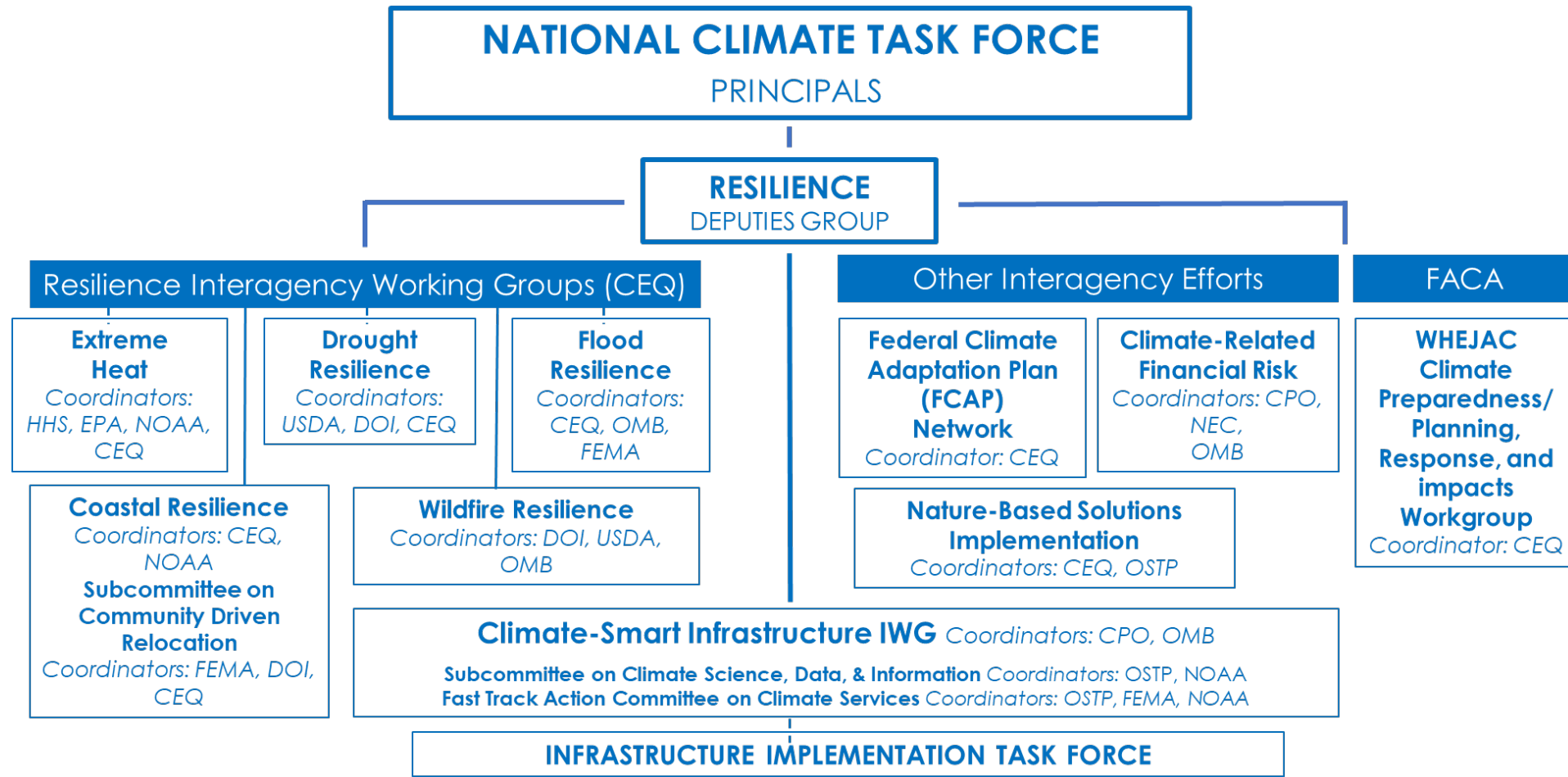




## Climate-Related Executive Orders

- [Executive Order on Advancing Racial Equity and Support for Underserved Communities Through the Federal Government \(E.O. 13985\)](#)
- [Executive Order on Protecting Public Health and the Environment and Restoring Science to Tackle the Climate Crisis \(E.O. 13990\)](#)
- [Executive Order on Tackling the Climate Crisis at Home and Abroad \(E.O. 14008\)](#)
- [Executive Order on Climate-Related Financial Risk \(E.O. 14030\)](#)
- [Executive Order on Implementation of the Infrastructure Investment and Jobs Act \(E.O. 14052\)](#)
- [Executive Order on Catalyzing Clean Energy Industries and Jobs Through Federal Sustainability \(E.O. 14057\)](#)
- [A Roadmap to Build a Climate-Resilient Economy \(E.O. 14030\)](#)

# White House National Climate Task Force & Resilience Interagency Working Groups



**FEMA**

2022-2026

# FEMA Strategic Plan

Building the FEMA the Nation Needs and Deserves



## Goal 2:

### Lead whole of community in climate resilience

- Objective 2.1 Increase climate literacy among the emergency management community
- Objective 2.2 Build a climate resilient nation
- Objective 2.3 Empower risk-informed decision making



FEMA

[<< See more FEMA climate content](#)

## Climate Resilience in Action

English Español



Every day communities across the country are working to address the effects of climate change. Whether they are recovering from wildfires, floods or preparing to withstand the next storm, these communities are finding ways to protect their legacies, build back stronger and become climate resilient.

This page showcases efforts happening across the country, every day, to strengthen our communities. Together, we can build a climate resilient nation.

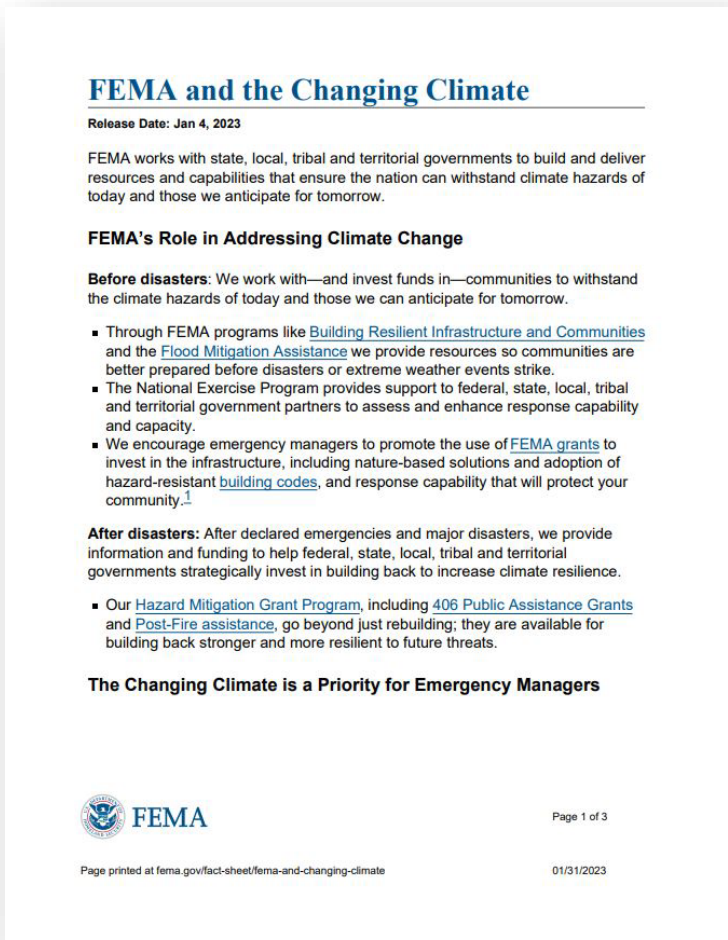
- Building Back Stronger
- Planning Ahead
- Success Stories
- Take Action
- FEMA Programs

## Messaging: Climate Resilience in Action

- FEMA developed the “[Climate Resilience in Action](#)” FEMA.gov page to showcase efforts happening across the country, every day, to strengthen our communities.
- FEMA is working to develop a landing page that will serve to bring climate resources all in one place for emergency managers, communities, and individuals.

# Messaging: FEMA and the Changing Climate

- Released January 4th, 2023, *FEMA and the Changing Climate* serves to address FEMA’s role in addressing climate change.
- This messaging promotes FEMA grants and programs available before and after disasters, as well as tools and resources such as the FEMA mobile app and Climate.gov.



# Hazard Mitigation Assistance (HMA) Program Overview

## Disaster Cycle Grant Programs



**Public Assistance (PA) 406 Mitigation**  
Supports communities' recovery from major disasters by providing mitigation funding opportunities to restore and strengthen public infrastructure. HMA works to enhance coordination with PA.



**Hazard Mitigation Grant Program (HMGP)**  
Implements long-term hazard mitigation measures after a major disaster declaration.



**HMGP Post-Fire**  
Helps communities implement hazard mitigation measures after wildfire disasters.

## Annual Cycle Grant Programs



**Flood Mitigation Assistance (FMA)**  
Reduces or eliminates the risk of repetitive flood damage to buildings and structures insured under the National Flood Insurance Program (NFIP).



**Building Resilient Infrastructure and Communities (BRIC)**  
Supports the undertaking of new and innovative projects that reduce the risks faced from disasters and natural hazards.



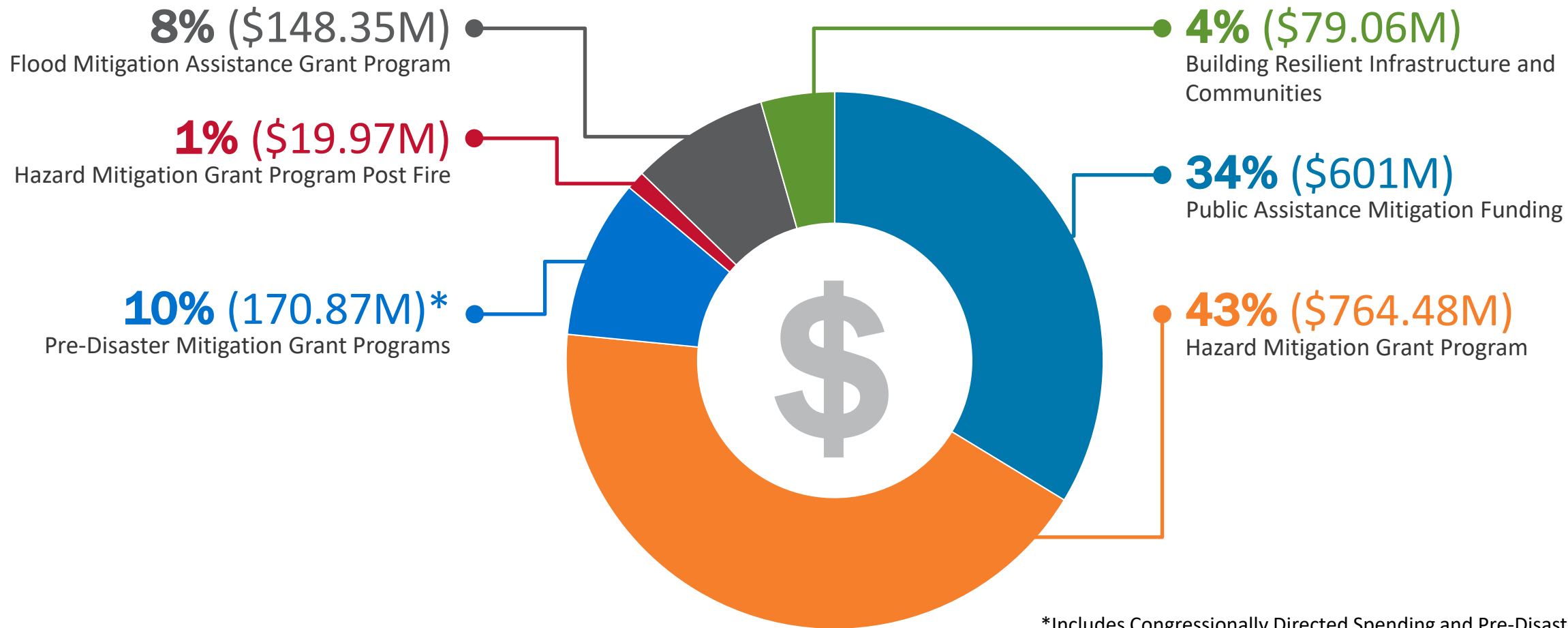
**Pre-Disaster Mitigation (PDM)**  
Supports mitigation projects before a disaster strikes to build stronger, more resilient communities.

*\*New: Safeguarding Tomorrow Revolving Loan Fund Program\**

In Fiscal Year  
2022  
more than

**\$1.78B**

in **Hazard Mitigation Assistance** grants were delivered to states, tribes, and territories, resulting in mitigation actions that will reduce risk.

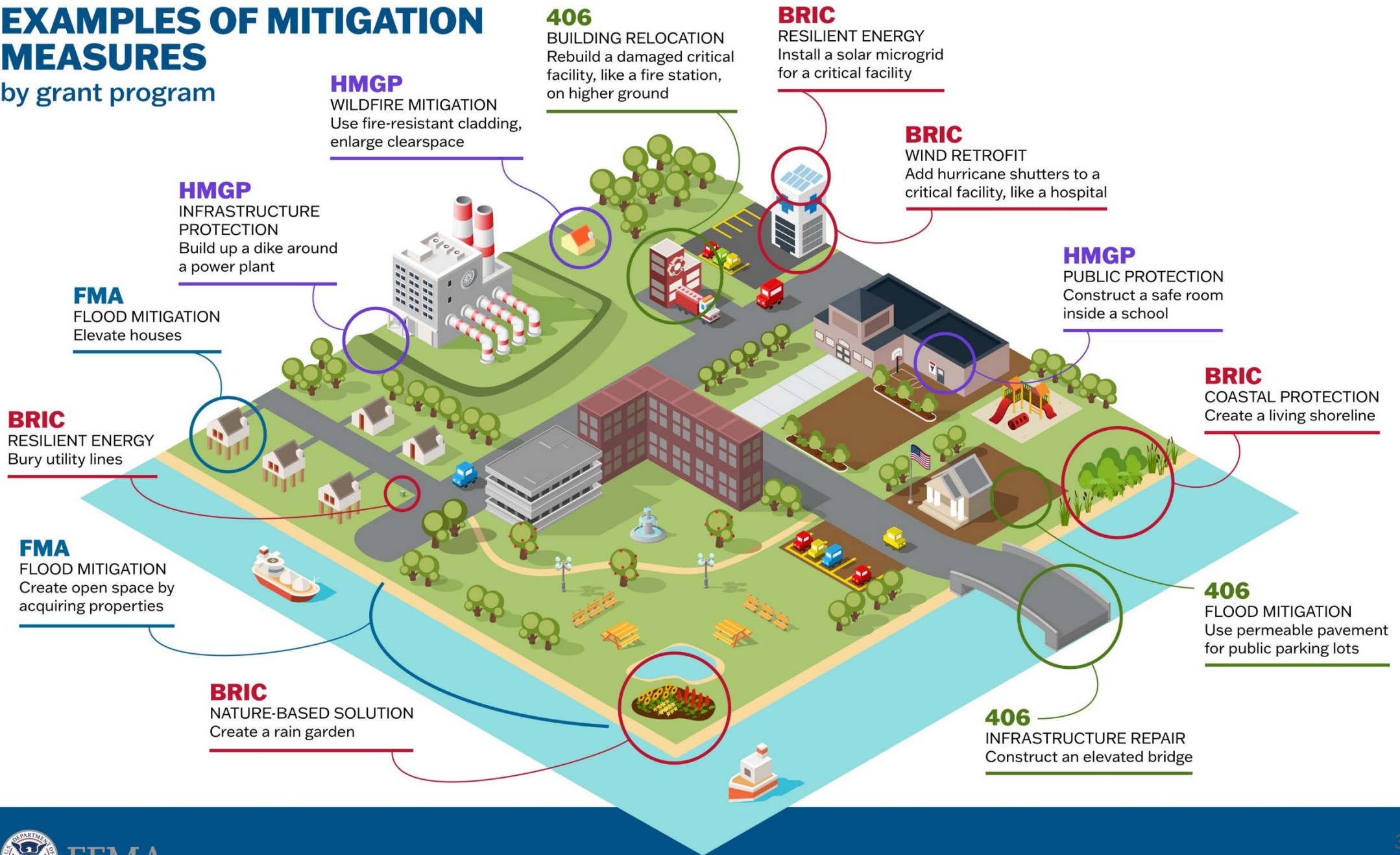


\*Includes Congressionally Directed Spending and Pre-Disaster Mitigation Grant Program.



# EXAMPLES OF MITIGATION MEASURES

by grant program



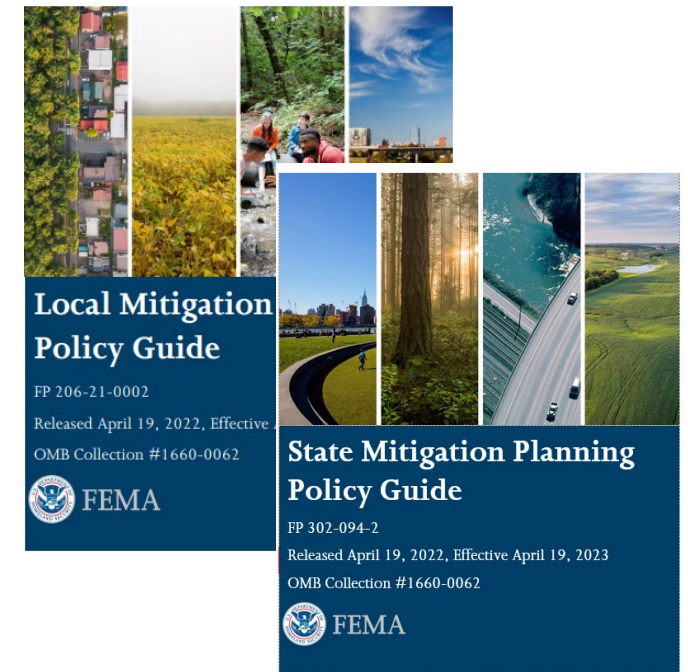


## Safeguarding Tomorrow Revolving Loan Fund Program Overview

- Safeguarding Tomorrow through Ongoing Risk Mitigation Act legislation enacted in Jan. 2021
- Appropriation through Infrastructure Investment and Jobs Act of \$500 million (\$100 million per year over five years)
- Modeled after the U.S. Environmental Protection Agency's Clean Water Act and Safe Drinking Water Act state revolving loan fund programs
- Authorizes FEMA to provide capitalization grants to states, D.C., Puerto Rico, and certain federally recognized tribes to administer hazard mitigation revolving loan funds through their respective emergency management agency

# Hazard Mitigation Planning

- Hazard mitigation planning reduces loss of life and property by minimizing the impact of disasters. It begins with state, tribal, and local governments identifying natural disaster risks and vulnerabilities that are common in their area. After identifying these risks, they develop long-term strategies for protecting people and property from similar events.
  - Emphasizes the forward-looking purpose of mitigation planning, planning for future conditions, including **climate change**.
  - Centers **equity** in the mitigation plan to help ensure an inclusive planning process that benefits the whole community.
  - Aligns with priorities such as resilience, capability and capacity building, and promotion of land use and building codes through **long-term strategies**.
  - Demonstrates SLTT commitment to mitigation through stakeholder engagement in a planning process and **plan adoption**.



FEMA

# The Federal Flood Risk Management Standard (FFRMS)



- The Federal Flood Risk Management Standard (FFRMS) is a flexible framework established in E.O. 13690 to address future and current flood risk and ensure projects funded with taxpayer dollars last as long as intended
- FEMA is implementing the FFRMS to improve the resilience of communities. The FFRMS increases the flood risk minimization requirements for projects that the Federal government funds.
- FEMA's current flood risk minimization requirements are based on regulations that have been in effect since the early 1980s. Fully implementing the FFRMS requires revisions to those regulations. The rulemaking effort is underway: [View Rule \(reginfo.gov\)](https://www.reginfo.gov)
- FEMA has issued interim policy approaches that implement the FFRMS to the full extent of its current authorities. The interim approaches rely on existing regulatory floodplain maps.



**FEMA**


# FEMA Building Codes Strategy: Goals and Objectives

**Mission:** To coordinate and prioritize FEMA's activities to advance the adoption and enforcement of disaster-resistant building codes and standards for FEMA programs and communities nationwide

**Vision:** A resilient nation with superior building performance in disasters

## Goal 1


Integrate Building Codes and Standards Across FEMA



*A united FEMA moves together and speaks with a common understanding*

## Goal 2


Strengthen Nationwide Capability for Superior Building Performance



*Coordination, training, and research improve building performance, reduce future damage, and save lives*

## Goal 3

Drive Public Action on Building Codes



*A Nation that values and utilizes building codes is more resilient*



**FEMA**

# The National Initiative to Advance Building Codes (NIABC)

Following the White House National Initiative to Advance Building Codes, FEMA is working with interagency partners through the Mitigation Framework Leadership Group (MitFLG) to:

1. Comprehensively review federal funding and financing of building construction
2. Provide incentives and support for communities to adopt current building codes and standards
3. Lead by example across the federal building portfolio

*The Directive requires MitFLG to lead the NIABC and to submit progress reports and agency implementation plans*



The image shows two documents. The top document is a letter from the White House dated March 30, 2022, regarding the implementation of the National Initiative to Advance Building Codes. The letter is addressed to the principals of the Mitigation Framework Leadership Group (MitFLG) and discusses the group's role in coordinating federal policies and resources to help communities mitigate and adapt to the impacts of disasters. It mentions that the group has been successful in preparing communities for the impacts of disasters and incorporating resilience in planning, building, and recovery. The letter also states that the federal government will be leading by example across the federal building portfolio by adopting consensus-based building codes.

The bottom document is the cover of the "Mitigation Framework Leadership Group (MitFLG) Progress Report: National Initiative to Advance Building Codes" dated December 2022. The cover features a photograph of the group members standing in front of a large display of yellow fans. To the right of the cover is a graphic with the text "NIABC Implementation FEMA Interim Draft" and "December 2022" along with the FEMA logo.

# White House Community-Driven Relocation (CDR) Subcommittee

- **White House Community-Driven Relocation Subcommittee** established by the White House National Climate Task Force (August 2022).
  - Comprised of seven offices within the Executive Office of the President and 14 federal agencies.
  - **CDR Subcommittee Mission:** To elevate, coordinate, and accelerate the federal government’s efforts to support jurisdictions with interest in community-driven relocation through a whole-of-government approach.
- Co-chaired by FEMA and DOI with support from White House CEQ.

## Biden-Harris Administration Makes \$135 Million Commitment to Support Relocation of Tribal Communities Affected by Climate Change

Release Date: November 30, 2022

*Funding from Bipartisan Infrastructure Law and Inflation Reduction Act Supports Community-Driven Relocation for Threatened Communities*

WASHINGTON -- The Biden-Harris administration today announced the launch of a new Voluntary Community-Driven Relocation program, led by the Department of the Interior, to assist Tribal communities severely impacted by climate-related environmental threats. Through investments from President Biden’s Bipartisan Infrastructure Law and Inflation Reduction Act, the Department is committing \$115 million for 11 severely impacted Tribes to advance relocation efforts and adaptation planning. Additional support for relocation will be provided by the Federal Emergency Management Agency (FEMA) and the Denali Commission.

By recognizing the real and immediate threat of climate change, this program is one of the first designed to coordinate closely with community leaders to help begin the process of relocating crucial community infrastructure away from imminent threats and build long-term resilience to climate impacts. These projects will yield critical information to inform replication in other communities and initiate a long-term strategy for future relocation and climate resilience efforts.

“From wildfires out west to typhoons in Alaska, I have seen firsthand the devastating affect climate change and extreme weather has on communities across the nation, especially in Indian Country. That is why FEMA and the entire Biden-Harris Administration take seriously our responsibility to provide tailored assistance to Tribal Nations before, during and after disasters,” said **FEMA Administrator Deanne Criswell**. “While FEMA continues to help Tribal Nations plan for future conditions and strengthen tribal community resilience through our suite of hazard mitigation tools and resources, we are excited to partner with our



FEMA



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# Utilizing Climate Data and Tools

- [Climate Mapping for Resilience and Adaptation \(CMRA\)](#)

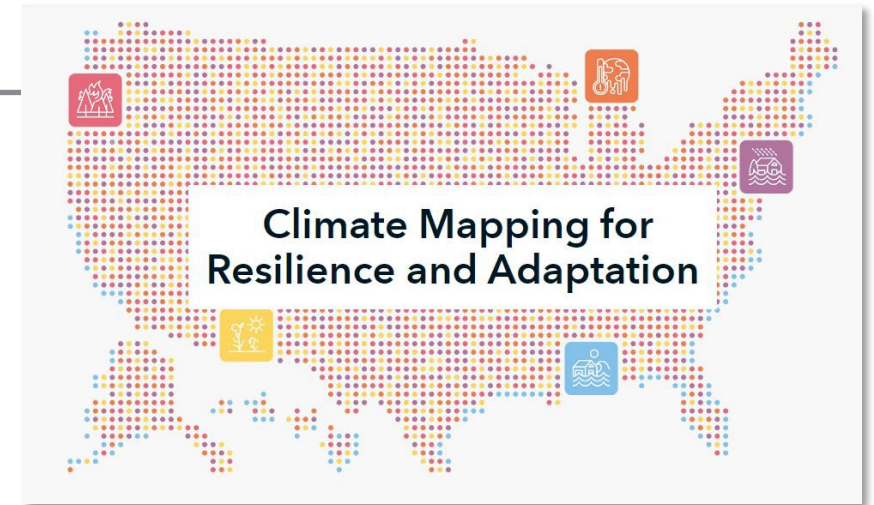
- Aggregates currently available federal datasets to create a climate risk information tool and includes grant finance opportunities.
- Community-focused, user-friendly model that provides high level trend information for SLTT communities. View real-time maps showing where climate-related hazards are occurring today.

- [Climate Risk and Resilience Portal \(ClimRR\)](#)

- A public/private partnership that represents the newest developing climate science modeling. ClimRR empowers individuals, SLTT governments, and organizations to examine simulated future conditions at mid- and end-of-century for a range of climate perils. Additional hazards will be added over the next year.
- The ClimRR Data Explorer allows users to view over 100 different climate visualizations in an interactive map and the ClimRR Report Generator provides users with a snapshot of climate projections at a chosen point on a map.

- [Resilience Analysis and Planning Tool \(RAPT\)](#)

- The RAPT is a powerful GIS planning tool to inform strategies for emergency management. RAPT includes over 100 preloaded layers including the FEMA Community Resilience Index and the National Risk Index, U.S. Census demographic data, infrastructure, live weather, hazards, NOAA sea level rise projections. ClimRR future conditions data incorporated later this year.



**FEMA**



# Inflation Reduction Act: Low-Carbon Goals

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## “SEC. 70006. FEMA BUILDING MATERIALS PROGRAM.

Through **September 30, 2026**, the Administrator of the Federal Emergency Management Agency may provide **financial assistance** under sections **203(h), 404(a), and 406(b)** of the Robert T. Stafford Disaster Relief and Emergency Assistance Act (42 U.S.C. 5133(h), 42 U.S.C. 5170c(a), 42 U.S.C. 5172(b)) for—

- (1) **costs associated with low-carbon materials; and**
- (2) **incentives that encourage low-carbon and net-zero energy projects.”**

**203(h):** Pre-Disaster Mitigation (PDM) Grant Program and Building Resilient Infrastructure and Communities (BRIC)

**404(a):** Hazard Mitigation Grant Program (HMGP)

**406(b):** Public Assistance (PA) Program



**FEMA**

DRAFT – PRE-DECISIONAL – NOT FOR DISTRIBUTION

Federal Emergency Management Agency

40

The background is a solid teal color. It features several decorative elements: a cluster of white dots in the top-left corner, a larger, irregularly shaped area of white dots in the top-center, a smaller cluster of white dots in the bottom-left corner, and several soft, light-teal abstract shapes scattered across the page, including one on the left edge and one on the right edge.

Questions?