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Natural Disaster Mitigation Spending Not Comprehensively Tracked

Most federal funding to help states manage cost growth is available only after an incident

Overview

In the aftermath of 2017's historic hurricanes and wildfires, Congress provided one-time funding of nearly $140 billion.[1] With the increasing severity and frequency of natural disasters, policymakers are looking for ways to control costs by investing in mitigation activities—actions that reduce risk to lives and property—before a disaster happens.[2]

Research shows that mitigation investments reduce costs for disaster response and recovery: Taxpayers save an average of $6 for every $1 the federal government spends on activities such as elevating homes, strengthening or retrofitting infrastructure, and purchasing flood-prone properties for removal.[3] In response to the 2017 hurricane season, Federal Emergency Management Agency (FEMA) Administrator Brock Long told the U.S. House Transportation and Infrastructure Committee, "I cannot overstate the importance of focusing on investing in mitigation before a disaster strikes," and noted that "building more resilient communities is the best way to reduce risks to people, property, and taxpayer dollars."[4]

However, most federal mitigation investments are made after a disaster occurs, and very little data on state funding for such programs are publicly available.[5] All levels of government need a more comprehensive understanding of federal and state investments if they are going to better target funding and decide whether new incentives are necessary to encourage mitigation activities.

Federal spending

The federal government funds mitigation programs primarily via FEMA, although support also comes from programs at other agencies. These include the Department of Housing and Urban Development's Community Development Block Grant Disaster Recovery Program, the Small Business Administration's Disaster Loan Program, the Department of Commerce's Coastal Zone Management Administration Awards, and the Department of Agriculture's State Fire Assistance Program, among others. Federal agencies also implement their own mitigation measures directly, such as construction and maintenance of flood-control systems by the U.S. Army Corps of Engineers.[6]

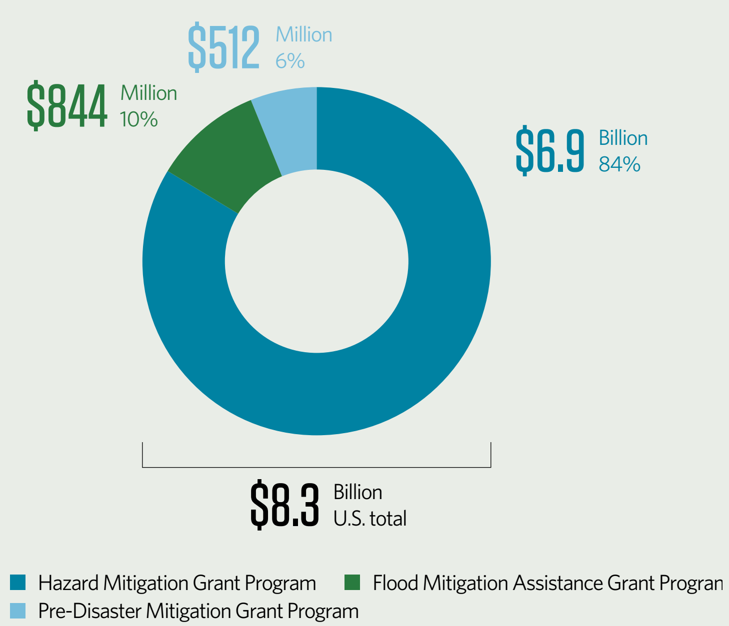
The most complete publicly available mitigation spending data are for FEMA's three grant programs—the Hazard Mitigation Grant Program (HMGP), Pre-Disaster Mitigation (PDM) Grant Program, and Flood Mitigation Assistance (FMA) Grant Program—but total figures across the federal government remain unknown.[7]

Through its mitigation grant programs, FEMA provides financial assistance to state and local governments to engage in mitigation activities, such as seismic retrofits and construction of safe rooms and flood-resistant bridges.[8] Total funding for the programs from 2007 to 2016 was $8.3 billion, after adjusting for inflation.[9] (See Figure 1.) HMGP was the largest of the three at $6.9 billion (84 percent of the total), but funding from the program is available only after a major federal disaster declaration, meaning the president has determined that the magnitude of the disaster has exceeded the state's capacity to effectively respond.[10] Although the FMA and PDM programs are far smaller, spending $844 million and $512 million, respectively, over the period, grants from these programs are awarded without a federal disaster declaration.[11]

Figure 1

FEMA Provides Most Mitigation Assistance After a Disaster

Share of total funding by program, inflation-adjusted, federal FY 2007-16



Notes: Data reflect federal spending commitments, known as obligations, related to natural hazards in the 50 states and the District of Columbia and are presented according to the date that FEMA allocated funds to a project. The Repetitive Flood Claims and Severe Repetitive Loss grant programs are included within the Flood Mitigation Assistance Grant Program. Activities funded through FEMA's Public Assistance grant program are not shown because of data limitations.

Sources: Pew's analysis of data from the Federal Emergency Management Agency, "Hazard Mitigation Assistance Projects," accessed April 25, 2018, https://www.fema.gov/openfema-dataset-hazard-mitigation-assistance-projects-v1; U.S. Department of Commerce's Bureau of Economic Analysis

FEMA's grant programs also differ in the way they are designed and awarded:

- The **Hazard Mitigation Grant Program** aims to reduce loss of life and property damage from future natural disasters by providing funding to state and local governments for mitigation projects after a major disaster declaration. The amount of funding a state receives for a declaration is 7.5 to 15 percent of the total disaster aid that FEMA grants the state for that disaster. For states with enhanced hazard mitigation plans, the maximum rises to 20 percent. In either case, the amount of disaster aid used to calculate the percentage is capped at $35.3 billion. States are obligated to pay a 25 percent cost share to receive funding.[12]
- The **Pre-Disaster Mitigation Grant Program** provides grants to state and local governments to reduce overall risk to individuals and property from future disasters. All states receive some funding annually through a formula, and states wanting additional money must submit proposals to a competitive review process.[13] Both categories have a required 25 percent cost share.[14]
- The **Flood Mitigation Assistance Grant Program** aims to reduce or eliminate claims under the National Flood Insurance Program by providing competitive grants to state and local governments to develop plans and undertake projects to address flood risks.[15] Depending on the type of project, FEMA will cover 75 to 100 percent of state costs.[16]

Mitigation Funding Through FEMA's Public Assistance Program

A substantial amount of FEMA spending on natural hazard mitigation also occurs through the Public Assistance (PA) grant program, which provides funding to state and local governments to clear debris and rebuild public infrastructure. However, section 406(e) of the Robert T. Stafford Disaster Relief and Emergency Assistance Act allows some PA funding to be used at FEMA's discretion for certain mitigation projects involving the repair, replacement, or restoration of disaster-damaged public facilities.[17]

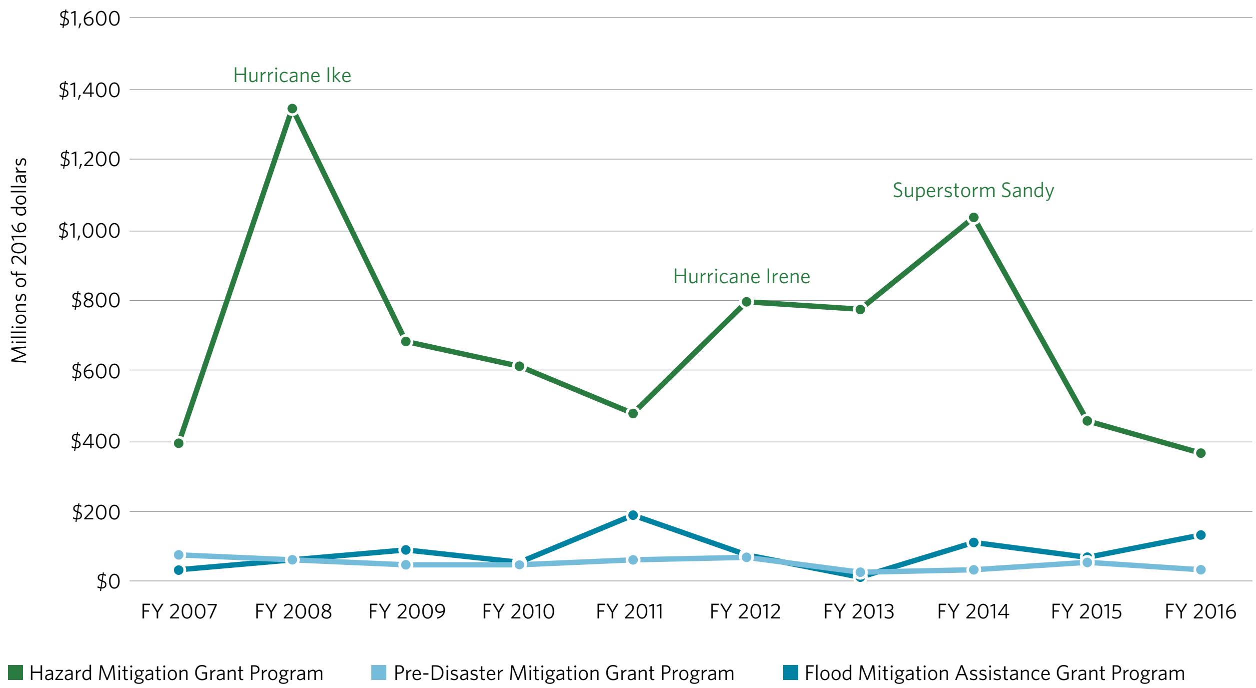
Spending data for PA mitigation assistance are not publicly available, but the Congressional Research Service has previously reported that obligations totaled $3.7 billion from federal fiscal years 2000 to 2013, with a high of roughly $2 billion related to Superstorm Sandy in 2013 and a low of $15 million in 2002.[18]

HMGP funding, which accounts for most of the money available through FEMA mitigation grants, is heavily influenced by the episodic nature of disaster events and so varies greatly over time. The program received substantial increases in the aftermath of hurricanes Ike and Irene and Superstorm Sandy. From 2007 to 2016, FMA spending also fluctuated for various reasons, such as delays in the congressional appropriations process.[19] (See Figure 2.)

Figure 2

Episodic Nature of Disasters Drives Most FEMA Hazard Mitigation Grant Funding

Total funding by program, inflation-adjusted, federal FY 2007-16



Notes: Data reflect federal spending commitments, known as obligations, related to natural hazards in the 50 states and the District of Columbia and are presented according to the date that FEMA allocated funds to a project. The Repetitive Flood Claims and Severe Repetitive Loss grant programs are included within the Flood Mitigation Assistance Grant Program. Activities funded through FEMA's Public Assistance grant program are not shown because of data limitations.

Sources: Pew's analysis of data from the Federal Emergency Management Agency, "Hazard Mitigation Assistance Projects," accessed April 25, 2018, https://www.fema.gov/openfema-dataset-hazard-mitigation-assistance-projects-v1; U.S. Department of Commerce's Bureau of Economic Analysis

Federal mitigation aid differs across states

All 50 states and the District of Columbia received at least some financial support from FEMA's mitigation programs from 2007 to 2016, but the amount and type varies. During that period, funding to the states ranged from $7 million in Wyoming to $1.4 billion in New York, and the District received $6 million.

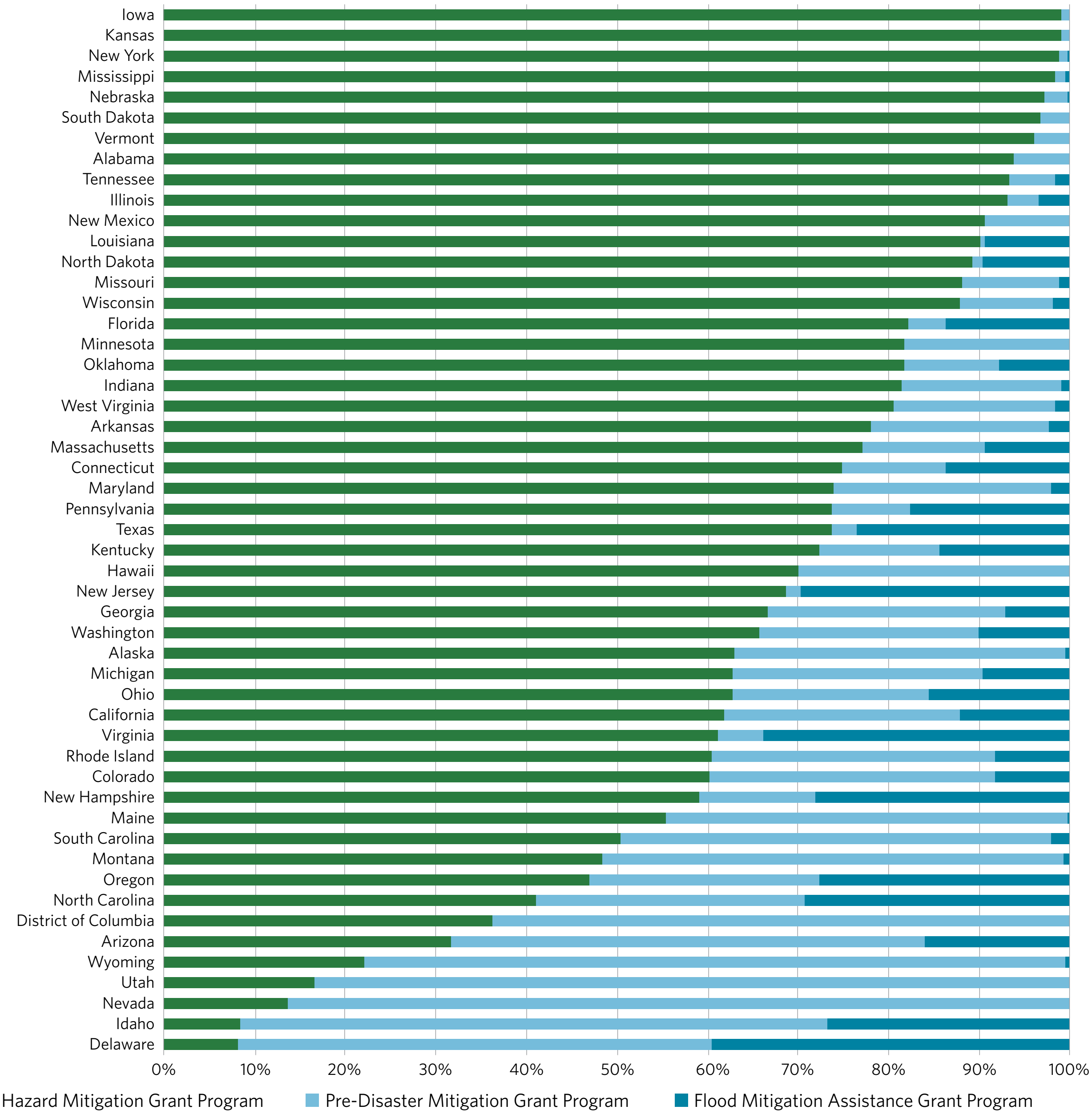
Forty-three states received the largest share of their FEMA mitigation grants through HMGP, ranging from 99 percent in Iowa to 41 percent in North Carolina.[20] The remaining states—Arizona, Delaware, Idaho, Montana, Nevada, Utah, and Wyoming—and the District received most of theirs through PDM. (See Figure 3.)

Many factors affect the mix of funding in each state, including the type, frequency, and severity of natural disasters, and whether the president declares a major disaster; the different federal program structures; and state and local government decisions about which and how much aid to pursue.

Figure 3

HMGP Accounts for Bulk of FEMA Disaster Mitigation Grants in Most States

Share of total funding by program and state, inflation-adjusted, federal FY 2007-16



Notes: Data reflect federal spending commitments, known as obligations, related to natural hazards in the 50 states and the District of Columbia and are presented according to the date that FEMA allocated funds to a project. The Repetitive Flood Claims and Severe Repetitive Loss grant programs are included within the Flood Mitigation Assistance Grant Program. Activities funded through FEMA's Public Assistance grant program are not shown because of data limitations.

Sources: Pew's analysis of data from the Federal Emergency Management Agency, "Hazard Mitigation Assistance Projects," accessed April 25, 2018, https://www.fema.gov/openfema-dataset-hazard-mitigation-assistance-projects-v1; U.S. Department of Commerce's Bureau of Economic Analysis

State spending

Data on how and to what extent the states and the District invest in mitigation are limited. To fill this information gap, The Pew Charitable Trusts collected data on states' natural disaster-related spending for state fiscal 2012 through 2016.[21] (For a detailed description of the methodology, see The Pew Charitable Trusts, "What We Don't Know About State Spending on Natural Disasters Could Cost Us," June 2018.) Twenty-three states responded to Pew's survey.[22] Of those, eight provided sufficient data to support an analysis of the share of total reported disaster spending used for states' own mitigation programs and federal cost shares (spending related to federal mitigation programs less reimbursements received from the federal government).[23] From 2012 to 2016, that share varied from 33 percent in Arkansas to zero in Maryland and Wyoming.[24] (See Table 1.)

Table 1

State Mitigation Expenditures Vary in Real Dollars and as Share of Total Disaster Spending

Self-reported expenditures, state FY 2012-16

State	Mitigation spending*	Share of total reported disaster spending†
Arizona	$58,279	0.2%
Arkansas‡	-$44,448,605	33.0%
Delaware	$2,389,231	4.8%
Maryland	$0	0.0%
Ohio	$13,017,320	15.6%
Pennsylvania	$11,582,046	12.0%
Wisconsin	$2,455,246	11.7%
Wyoming	$0	0.0%

* Includes state mitigation program spending and cost shares related to federal mitigation activities.

† State program spending and all cost shares related to natural disasters, not just for mitigation.

‡ Arkansas reported receiving more federal reimbursements than it spent either on its mitigation programs or for federal mitigation programs during fiscal 2012-16, which resulted in a negative dollar amount. The discrepancy is a function of the timing of the federal reimbursement process: The state was refunded during the study period for federally related spending that occurred before the start of the period.

Notes: State program spending refers to states' expenditures for their own programs and for state disaster declarations. Total disaster spending is the sum of state program spending and state cost shares for federal programs, which are calculated by subtracting federal reimbursements received from state spending related to federal programs. Because of the timing of the federal reimbursement process, some included reimbursements are for federally related spending that occurred before fiscal 2012, and some federally related spending was not yet reimbursed at the end of fiscal 2016.

Most of the states that responded to Pew's survey reported that the bulk of their mitigation spending was for cost shares for federal programs, such as HMGP, and some indicated no state-funded mitigation efforts. However, five states reported investments in hazard mitigation other than for federal programs during the five years examined. For example, Iowa spent $49 million on municipal mitigation projects through the state's Flood Mitigation Board. (See Table 2.)

Table 2

Selected State Investments in Own Mitigation Efforts

Reported spending, state FY 2012-16

State	Program or activity	Description	Total
Arkansas	Hazard Mitigation Grant Program	Established in 1993, this statewide mitigation grant program funds mitigation projects in counties experiencing repetitive damage from natural hazards, including floods, windstorms, and earthquakes.	$10 million
Iowa	Flood Mitigation Board	Created in 2012, the board reviews, supports, and awards funding, drawn from sales tax revenue, for municipal flood mitigation projects across the state.	$49 million
North Dakota	State Water Commission	The commission undertakes flood control and property acquisition projects as part of its authority to manage water-related issues throughout the state.	$226 million
Ohio	Blanchard River watershed—mitigation plans and projects	In 2014 and 2016, the state Legislature earmarked funding for several mitigation projects in the Blanchard River watershed, including property acquisitions, a bridge reconstruction, and creation of a diversion channel in the Blanchard River.	$11 million
Oregon	Seismic Rehabilitation Grant Program	The program was established in 2005 as a competitive grant to fund earthquake retrofitting of public buildings, particularly public schools and emergency services facilities.	$36 million

Sources: Arkansas Department of Emergency Management, "State of Arkansas All-Hazards Mitigation Plan" (2013), http://www.adem.arkansas.gov/Websites/ardem/images/pdf/Arkansas%20All-Hazards%20Mitigation%20Plan%20-%202013%20FINAL.pdf; Iowa Department of Homeland Security and Emergency Management, "Iowa Flood Mitigation Board Annual Report for 2016" (2016), http://www.homelandsecurity.iowa.gov/documents/misc/FLOOD_AnnualReport_2016.pdf; North Dakota State Water Commission, "Water Development Report" (2017), http://www.swc.nd.gov/pdfs/2017_2019_water_development_report.pdf; Steve Ferryman (mitigation branch chief, Ohio Emergency Management Agency, Ohio Department of Public Safety), interview with The Pew Charitable Trusts, Jan. 24, 2018; Business Oregon, "Seismic Rehabilitation Grant Program" (accessed February 2017), http://www.orinfrastructure.org/Infrastructure-Programs/Seismic-Rehab

Conclusion

In an era of increasingly expensive natural disasters, efforts to manage growing costs through mitigation activities are likely to increase. And although neither the federal government nor the states comprehensively track their mitigation spending, Pew's analysis of the limited data available shows that most of FEMA's investments are made after a disaster occurs and that the bulk of spending by the states studied was for cost shares for federal programs.

Because the federal government and states do not know how much they spend on mitigation in total, they lack the information to accurately compare proactive investments with post-disaster response and recovery expenditures. All levels of government need a more comprehensive understanding of federal and state investments in order to better target funding to help manage the growing costs of catastrophic events.

External reviewers

This project benefited from the insights and expertise of two external reviewers: Keith Porter, research professor at the University of Colorado, Boulder, and Jared Brown, analyst in emergency management and homeland security policy at the Congressional Research Service. Although they reviewed the analysis, neither they nor their organizations necessarily endorse its findings or conclusions.

Acknowledgments

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Endnotes

1 Congressional Research Service, "2017 Disaster Supplemental Appropriations: Overview" (2018), https://fas.org/sgp/crs/homesec/R45084.pdf.

2 The Federal Emergency Management Agency is considering several options to increase mitigation measures across levels of government. For example, the agency launched its "Mitigation Investment Moonshot" in 2017, with the goal of quadrupling mitigation spending by federal, state, local, and tribal governments; corporations; nonprofits; and private foundations by 2022. Additionally, Congress included a provision in its 2018 bipartisan budget agreement allowing the president to increase the federal government's share of recovery costs from 75 to 85 percent for states that have invested in mitigation.

3 National Institute of Building Sciences, "Natural Hazard Mitigation Saves: 2017 Interim Report" (2018), https://www.nibs.org/page/mitigationsaves. This report considered 23 years of federal grants awarded by FEMA, the Economic Development Administration, and the Department of Housing and Urban Development. Estimated savings (i.e., benefits) are derived from reductions in property losses; deaths, injuries, and post-traumatic stress disorder; direct and indirect business interruption; and other losses.

4 William B. Long (FEMA administrator), statement before the House Comm. on Transportation and Infrastructure, 115th Cong. (2017), https://transportation.house.gov/uploadedfiles/2017-11-02_-_long_testimony.pdf.

5 For more information on state spending on natural disasters, see The Pew Charitable Trusts, "What We Don't Know About State Spending on Natural Disasters Could Cost Us" (2018), http://www.pewtrusts.org/en/research-and-analysis/reports/2018/06/19/what-we-dont-know-about-state-spending-on-natural-disasters-could-cost-us.

6 Other examples include the National Oceanic and Atmospheric Administration, which provides preparedness, warning, and response information about storms, tsunamis, volcanoes, and wildfires, and the U.S. Geological Survey, which conducts hazard mitigation-focused research to inform policymakers' decisions, including studies of coastal and marine geology, earthquakes, and volcanology.

7 FEMA, the Government Accountability Office (GAO), and the National Institute of Building Sciences have undertaken efforts to identify total federal hazard mitigation investments that have each yielded different findings. See Federal Emergency Management Agency, "Managing Natural Disaster Risk: FEMA's Strategic Direction for the National Flood Insurance Program and National Mitigation Investment Strategy" (2018), https://www.treasury.gov/initiatives/fio/Documents/FACIFebruary2018_FEMA.pdf, Government Accountability Office, "Federal Disaster Assistance" (2016), https://www.gao.gov/products/GAO-16-797, and National Institute of Building Sciences, "Natural Hazard Mitigation Saves: 2017 Interim Report" (2018), http://www.wbdg.org/files/pdfs/MS2_2017Interim%20Report.pdf. GAO recommended that the Mitigation Framework Leadership Group—an intergovernmental coordinating body created in part to help align mitigation efforts across levels of government—identify all federal mitigation programs and activities as part of a federal investment strategy. See Government Accountability Office, "Hurricane Sandy: An Investment Strategy Could Help the Federal Government Enhance National Resilience for Future Disasters" (2015), https://www.gao.gov/products/GAO-15-515.

8 U.S. territories and federally recognized tribes may also take advantage of FEMA mitigation grant programs. Additionally, the HMGP provides funding to nonprofit organizations.

9 Pew's analysis of inflation-adjusted data from the Federal Emergency Management Agency, "Hazard Mitigation Assistance Projects," accessed April 25, 2018, https://www.fema.gov/openfema-dataset-hazard-mitigation-assistance-projects-v1; U.S. Department of Commerce's Bureau of Economic Analysis, "Current-Dollar and 'Real' GDP," accessed April 27, 2018, https://www.bea.gov/national/xls/gdplev.xlsx. All federal spending figures reflect obligations unless otherwise noted and are presented according to the date that FEMA allocated funds to a project; they do not reflect total funding provided by Congress. Although other types of spending data for FEMA's mitigation grant programs exist (e.g., appropriations and outlays), Pew used obligations information because they were the only data that allowed for a state-by-state breakdown.

10 For more information on the federal-state disaster funding relationship, see The Pew Charitable Trusts, "What We Don't Know About State Spending on Natural Disasters Could Cost Us."

11 The Flood Mitigation Assistance Grant Program includes the Repetitive Flood Claims and Severe Repetitive Loss grant programs.

12 Federal Emergency Management Agency, "Hazard Mitigation Assistance Guidance: Hazard Mitigation Grant Program, Pre-Disaster Mitigation Program, and Flood Mitigation Assistance Program" (2015), https://www.fema.gov/media-library-data/1424983165449-38f5dfc69c0bd4ea8a161e8bb7b79553/HMA_Guidance_022715_508.pdf.

13 Congressional Research Service, "FEMA's Pre-Disaster Mitigation Program: Overview and Issues" (2014), 20.

14 Kim Rogers (Pre-Disaster Mitigation Grant Program lead, Federal Insurance and Mitigation Administration, Federal Emergency Management Agency), email to The Pew Charitable Trusts, April 23, 2018.

15 Congressional Research Service, "Introduction to the National Flood Insurance Program (NFIP)" (2018), 7-8, https://fas.org/sgp/crs/homesec/R44593.pdf.

16 Federal Emergency Management Agency, "Hazard Mitigation Assistance Guidance."

17 Robert T. Stafford Disaster Relief and Emergency Assistance Act, Pub. L. No. 93-288, Sec. 406(e) (2016), https://www.fema.gov/robert-t-stafford-disaster-relief-and-emergency-assistance-act-public-law-93-288-amended.

18 Congressional Research Service, "FEMA's Public Assistance Grant Program: Background and Considerations for Congress" (2015).

19 Jason Kennedy (Flood Mitigation Assistance Grant Program lead, Federal Insurance and Mitigation Administration, Federal Emergency Management Agency), email to The Pew Charitable Trusts, July 11, 2018. The Consolidated and Further Continuing Appropriations Act of 2013 did not authorize FMA funding for fiscal year 2013 until March, six months after the start of the fiscal year on Oct. 1, 2012. This interruption delayed the awarding of fiscal 2013 FMA funds until fiscal 2014. Additionally, the Repetitive Flood Claims and Severe Repetitive Loss programs did not receive funding after fiscal 2012 because they ended that year. Instead, aspects of both programs were merged into the FMA program as part of the Biggert-Waters Flood Insurance Reform Act of 2012.

20 Oregon and North Carolina each received the largest share of their funding through HMGP (47 percent and 41.1 percent, respectively); however, the sum of PDM and FMA was greater than HMGP in both states.

21 Pew surveyed state emergency management offices for information on state program spending (expenditures for state-funded programs and state disaster declarations), federally related spending (expenditures required to receive certain federal grants), federal reimbursements received (federal funding provided to states to refund certain federally related spending), and breakdowns of spending by disaster phase (mitigation, preparedness, response, and recovery). See The Pew Charitable Trusts, "What We Don't Know About State Spending on Natural Disasters Could Cost Us."

22 States that reported data: Alabama, Alaska, Arizona, Arkansas, Colorado, Connecticut, Delaware, Florida, Georgia, Idaho, Iowa, Kansas, Maryland, Michigan, North Dakota, Ohio, Oregon, Pennsylvania, Utah, Virginia, Washington, Wisconsin, and Wyoming.

23 Pew researchers provided written questions to states to clarify ambiguous data and followed up with one or more interview sessions to further refine specific spending figures and descriptions of those figures used in this brief. The eight states were Arizona, Arkansas, Delaware, Maryland, Ohio, Pennsylvania, Wisconsin, and Wyoming. Individual data points used in this brief from the other 15 responding states were verified before publication. Following its original survey response, Arizona was able to identify an additional $2,555,559 in state spending on mitigation measures during the five-year study period. Darlene Quihuis (Assistant Director, Grant Administration, Arizona Division of Emergency Management), conversation with The Pew Charitable Trusts, Sept. 17, 2018.

24 See The Pew Charitable Trusts, "What We Don't Know About State Spending on Natural Disasters Could Cost Us."

For further information, please visit:

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