



June 2020

NATIONAL FLOOD INSURANCE PROGRAM

Fiscal Exposure Persists Despite Property Acquisitions

Accessible Version

GAO Highlights

Highlights of [GAO-20-508](#), a report to congressional requesters

Why GAO Did This Study

NFIP has faced significant financial challenges over the years, highlighted by a rise in catastrophic flood events and its \$20.5 billion debt to Treasury. Contributing to these challenges are repetitive loss properties—those that have flooded and received a claim payment multiple times. Acquiring and demolishing these properties is one alternative to paying for repeated claims, but questions exist about the cost, efficiency, and effectiveness of this approach.

GAO was asked to review FEMA's property acquisition efforts as a means of addressing NFIP's financial challenges. This report examines (1) funding programs available for acquisitions, (2) FEMA's flood mitigation efforts, and (3) factors contributing to NFIP's fiscal exposure.

To conduct this work, GAO reviewed FEMA guidance and other documentation; analyzed FEMA data sets related to NFIP policies and claims, repetitive loss properties, and mitigation projects; and interviewed FEMA officials.

What GAO Recommends

GAO suggested in [GAO-17-425](#) that Congress make comprehensive reforms to NFIP to improve the program's solvency. Given NFIP's continued debt growth, GAO maintains that comprehensive reform warrants consideration.

View [GAO-20-508](#). For more information, contact Alicia Puente Cackley at (202) 512-8678 or cackleya@gao.gov.

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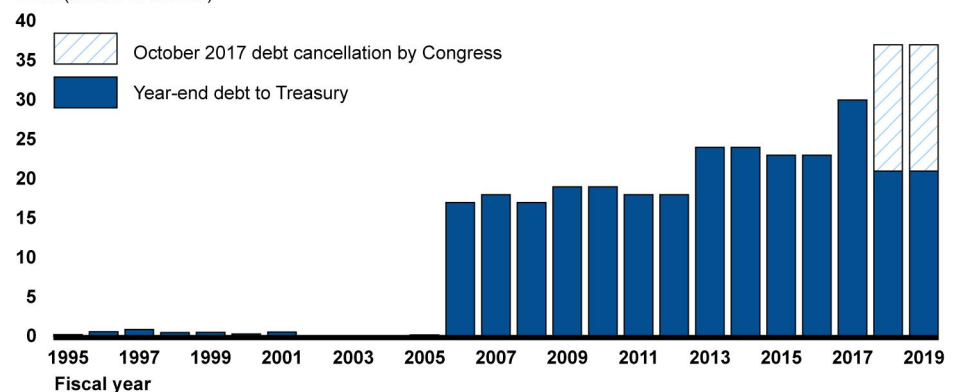
What GAO Found

The Federal Emergency Management Agency (FEMA) administers three grant programs that can fund efforts to mitigate the flood risk of properties insured by the National Flood Insurance Program (NFIP). Together, these three programs funded \$2.3 billion in mitigation projects from fiscal years 2014 through 2018. The largest program's funding is tied to federal recovery dollars following presidential disaster declarations, while the other two programs are funded each year through congressional appropriations. States and localities generally must contribute 25 percent of the cost of a mitigation project, but some other federal program funds can be used for that purpose. One example of such a project is property acquisition—purchasing a high-risk property from a willing property owner, demolishing the structure, and converting the property to green space.

From 1989 to 2018, FEMA has helped states and localities mitigate more than 50,000 properties; however, the number of nonmitigated repetitive loss properties (generally meaning those that flooded at least twice in 10 years) has grown. Mitigation efforts varied by state. Property acquisition accounted for about 80 percent of mitigated properties nationwide, but, in some states, elevation (raising a structure) was more commonly used. In addition, some states (e.g., Missouri and North Carolina) mitigated a high number of properties relative to their numbers of repetitive loss properties, while others (Florida, New York, Louisiana, and Texas) mitigated a low number.

While these efforts can reduce flood risk and claim payments, the federal government's fiscal exposure from NFIP remains high because premium rates do not fully reflect the flood risk of its insured properties. NFIP has experienced several catastrophic flood events in recent years, and the frequency and severity of floods is expected to increase. However, NFIP's premium rates have not provided sufficient revenue to pay claims. As a result, FEMA still owed Treasury \$20.5 billion as of March 2020, despite Congress cancelling \$16 billion of debt in 2017. As GAO has reported in the past ([GAO-17-425](#)), Congress will need to consider comprehensive reform, including mitigation and structural changes to premium rates, to ensure NFIP's solvency.

National Flood Insurance Program Annual Year-end Debt to Treasury, Fiscal Years 1995-2019
Debt (dollars in billions)



Source: GAO analysis of Treasury data. | [GAO-20-508](#)

**Data table for National Flood Insurance Program Annual Year-end Debt to Treasury,
Fiscal Years 1995-2019**

Year	Year-End Debt to Treasury	October 2017 debt cancellation by Congress
1995	0.265	--
1996	0.6266	--
1997	0.917	--
1998	0.522	--
1999	0.544	--
2000	0.345	--
2001	0.6	--
2002	0.01	--
2003	0	--
2004	0	--
2005	0.225	--
2006	17	--
2007	18	--
2008	17	--
2009	19	--
2010	19	--
2011	18	--
2012	18	--
2013	24	--
2014	24	--
2015	23	--
2016	23	--
2017	30	--
2018	21	16
2019	21	16

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Abbreviations

CDBG	Community Development Block Grant
FEMA	Federal Emergency Management Agency
FMA	Flood Mitigation Assistance
HMA	Hazard Mitigation Assistance
HMGP	Hazard Mitigation Grant Program
NFIP	National Flood Insurance Program
PDM	Pre-disaster Mitigation
RL	repetitive loss
Treasury	Department of the Treasury

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June 25, 2020

The Honorable Peter A. DeFazio
Chairman
Committee on Transportation and Infrastructure
House of Representatives

The Honorable Earl Blumenauer
House of Representatives

Congress created the National Flood Insurance Program (NFIP) to protect homeowners from flood losses, minimize the exposure of properties to flood damage, and alleviate taxpayers' exposure to flood losses.¹ However, as we have previously reported, the program faces a number of challenges.² The magnitude of major flood events since 2005, combined with attempts to keep policyholder rates affordable, have resulted in insufficient premium revenue, which threatens the program's ability to pay claims over the long term. Compounding these challenges is a small subset of NFIP-insured properties known as repetitive loss (RL) properties, which have flooded and received a claim payment multiple times.³ These factors have resulted in NFIP accruing billions of dollars in debt, as the Federal Emergency Management Agency (FEMA) has repeatedly borrowed from the Department of the Treasury (Treasury) to pay claims. While Congress cancelled \$16 billion of NFIP's debt in 2017, as of March 2020, NFIP still owed Treasury \$20.5 billion.⁴ NFIP has been

¹National Flood Insurance Act of 1968, Pub. L. No. 90-448, Tit. XIII, 82 Stat. 476, 572.

²GAO, *High Risk Series: Substantial Efforts Needed to Achieve Greater Progress on High-Risk Areas*, [GAO-19-157SP](#) (Washington, D.C.: March 2019); *Flood Insurance: Comprehensive Reform Could Improve Solvency and Enhance Resilience*, [GAO-17-425](#) (Washington, D.C.: Apr. 27, 2017); and *FEMA: Action Needed to Improve Administration of the National Flood Insurance Program*, [GAO-11-297](#) (Washington, D.C.: June 9, 2011).

³As discussed later, FEMA has three different definitions of RL properties for different purposes. Unless otherwise noted, we use RL property to refer to a property that meets any of FEMA's three definitions. RL properties do not necessarily need to be rebuilt each time.

⁴Department of the Treasury, Bureau of the Fiscal Service, *Monthly Treasury Statement, Receipts and Outlays of the United States Government, For Fiscal Year 2020 Through March 31, 2020, and Other Periods*.

on our high-risk list since 2006 because of its financial and management challenges.⁵

In addition to NFIP, FEMA administers several hazard mitigation assistance (HMA) grant programs that provide funding to states and localities to mitigate the flood risk of NFIP-insured properties and structures, using a variety of methods. One such method is property acquisition, where FEMA provides funding for the purchase of a property from a willing property owner, demolishes the structure, and converts the property to green space. These properties no longer pose a flood risk, and the green space can alleviate flooding of other properties. As a result, property acquisition can help reduce NFIP's fiscal exposure while also reducing flood risk for homeowners.⁶ However, questions exist about the cost, efficiency, and effectiveness of this approach.

You asked us to evaluate the efficacy of FEMA's property acquisition efforts as a means of addressing NFIP's financial challenges. This report examines (1) funding programs available for property acquisitions, (2) FEMA's flood mitigation efforts, and (3) factors contributing to NFIP's fiscal exposure. In a subsequent report, we plan to assess FEMA's acquisition process and the extent to which property acquisition is an effective tool for managing NFIP's fiscal exposure.

To describe funding programs available for property acquisitions, we identified HMA programs that fund property acquisition by reviewing FEMA documentation, legislation, and regulations. We also analyzed how the programs operate and the mitigation activities they entail. In addition, we analyzed each program's annual funding levels from their inception.

To review FEMA's flood mitigation efforts, we analyzed FEMA HMA data to determine how many properties FEMA helped states and communities to mitigate, and the financial resources FEMA provided for flood mitigation. We analyzed these data by type of mitigation (acquisition, elevation, floodproof, or relocation), grant program, and state. We also reviewed FEMA RL property data to assess the number of such

⁵[GAO-19-157SP](#).

⁶The term fiscal exposure refers to the responsibilities, programs, and activities that may either legally commit the federal government to future spending or create the expectation for future spending.

properties, their locations, and the extent to which they have been mitigated.

To examine factors contributing to NFIP's fiscal exposure, we analyzed FEMA's claims data set and its list of significant flood events. Further, we reviewed several of our previous reports and Treasury's statements of public debt to identify factors that contribute to NFIP's fiscal exposure and how the debt has changed over time. Finally, we reviewed available FEMA, stakeholder, and academic studies on how flood risk has changed over time and estimates of future trends.

We assessed the reliability of FEMA's HMA, policy, claims, and RL property data by testing the data for potential reliability concerns, such as outliers or missing values. We also interviewed FEMA officials with knowledge of the data sets and methods used to produce these data. We determined that all data elements we assessed were sufficiently appropriate and reliable for each of this report's objectives.

We conducted this performance audit from January 2019 to June 2020 in accordance with generally accepted government auditing standards. Those standards require that we plan and perform the audit to obtain sufficient, appropriate evidence to provide a reasonable basis for our findings and conclusions based on our audit objectives. We believe that the evidence obtained provides a reasonable basis for our findings and conclusions based on our audit objectives.

Background

Overview of the National Flood Insurance Program

In 1968, Congress created NFIP, with the passage of the National Flood Insurance Act, to help reduce escalating costs of providing federal flood assistance to repair damaged homes and businesses.⁷ According to FEMA, NFIP was designed to address the policy objectives of identifying flood hazards, offering affordable insurance premiums to encourage

⁷Pub. L. No. 90-448, Tit. XIII, 82 Stat. 476, 572 (1968). Congress broadened and modified the National Flood Insurance Act of 1968 with the passage of the Flood Disaster Protection Act of 1973 and other legislative measures. The National Flood Insurance Reform Act of 1994 and the Flood Insurance Reform Act of 2004 made additional changes. The Biggert-Waters Flood Insurance Reform Act of 2012 and the Homeowner Flood Insurance Affordability Act of 2014 further refined the program.

program participation, and promoting community-based floodplain management. To meet these policy objectives, NFIP has four key elements: identifying and mapping flood hazards, floodplain management, flood insurance, and incentivizing flood-risk reduction through grants and premium discounts. NFIP enables property owners in participating communities to purchase flood insurance and, in exchange, the community agrees to adopt and enforce NFIP minimum floodplain management regulations and applicable building construction standards to help reduce future flood losses. A participating community's floodplain management regulations must meet or exceed NFIP's minimum regulatory requirements.

Insurance offered through NFIP includes different coverage levels and premium rates, which are determined by factors that include property characteristics, location, and statutory provisions. NFIP coverage limits vary by program (Regular or Emergency) and building occupancy (for example, residential or nonresidential).⁸ In NFIP's Regular Program, the maximum coverage limit for one-to-four family residential policies is \$250,000 for buildings and \$100,000 for contents. For nonresidential or multifamily policies, the maximum coverage limit is \$500,000 per building and \$500,000 for the building owner's contents. Separate coverage is available for contents owned by tenants. NFIP also offers Increased Cost of Compliance coverage for most policies, which provides up to \$30,000 to help cover the cost of mitigation measures following a flood loss when a property is declared to be substantially or repetitively damaged.⁹

Flood Hazard Mapping

Through NFIP, FEMA maps flood hazard zones on a Flood Insurance Rate Map, which participating NFIP communities must adopt. According to FEMA, floodplain management standards are designed to prevent new

⁸If a community joining NFIP lacks a Flood Insurance Rate Map, it begins as an Emergency Program Community. According to FEMA guidance, FEMA makes available to community residents a limited amount of flood insurance coverage at less than actuarial rates and requires the community to adopt minimum floodplain management standards. When flood maps are completed, communities are converted to the Regular Program, under which higher amounts of flood insurance coverage are provided and more comprehensive floodplain management requirements are required.

⁹Substantial damage means damage of any origin sustained by a structure for which the cost of restoring the structure to its pre-damaged condition would equal or exceed 50 percent of the market value of the structure before the damage occurred. 44 C.F.R. § 59.1.

development from increasing the flood threat and to protect new and existing buildings from anticipated flooding.¹⁰ FEMA has a division responsible for flood mapping activities and policy and guidance, but stakeholders from various levels of government and the private sector participate in the mapping process, as appropriate.

A community's Flood Insurance Rate Map serves several purposes. They provide the basis for setting insurance premium rates and identifying properties whose owners are required to purchase flood insurance. Since the 1970s, homeowners with federally backed mortgages or mortgages held by federally regulated lenders on property in a special flood hazard area have been required to purchase flood insurance.¹¹ Others may purchase flood insurance voluntarily if they live in a participating community. The maps also provide the basis for establishing minimum floodplain management standards that communities must adopt and enforce as part of their NFIP participation. As of May 2020, 22,487 communities across the United States and its territories voluntarily participated in NFIP by adopting and agreeing to enforce flood-related building codes and floodplain management regulations.

Community-Level Flood Hazard Mitigation

FEMA supports a variety of community-level flood mitigation activities that are designed to reduce flood risk (and thus NFIP's financial exposure). These activities, which are implemented at the state and local levels, include hazard mitigation planning; adoption and enforcement of floodplain management regulations and building codes; and use of hazard control structures such as levees, dams, and floodwalls or natural protective features such as wetlands and dunes.¹² FEMA provides community-level mitigation funding through its HMA grant programs.

¹⁰Federal Emergency Management Agency, *Answers to Questions about the NFIP*, FEMA F-084 (Washington, D.C.: March 2011).

¹¹Special flood hazard areas, which are depicted on NFIP maps, represent the land areas that would be submerged by the floodwaters of the "base flood," or a flood that has a one percent chance of being equaled or exceeded in any given year. 44 C.F.R. § 59.1.

¹²According to FEMA's HMA guidance, hazard mitigation is "any sustained action taken to reduce or eliminate long-term risk to people and property from natural hazards and their effects." Mitigation actions have a long-term effect, as opposed to actions that are associated with immediate preparedness, response, and recovery activities.

In addition, FEMA's Community Rating System is a voluntary incentive program that recognizes and encourages community floodplain management activities that exceed the minimum NFIP requirements. Flood insurance premium rates are discounted to reflect the reduced flood risk resulting from community actions that meet the three goals of reducing flood damage to insurable property, strengthening and supporting the insurance aspects of NFIP, and encouraging a comprehensive approach to floodplain management.¹³

Property-Level Flood Hazard Mitigation

At the individual property level, mitigation options include property acquisition—or “buyouts”—to either demolish a building for green space or relocate a building to a low flood risk area, elevation, or floodproofing.

Acquisition and demolition (acquisition) is one of the primary methods by which states or localities use FEMA funding to mitigate flood risk. Through this process, a local or state government purchases land and structures that flooded or are at risk from future floods from willing sellers and demolishes the structures. The community restricts future development on the land, which is maintained as open space in perpetuity to restore and conserve the natural floodplain functions. According to FEMA officials, an advantage of property acquisition is that it offers a permanent solution to flood risks, whereas other mitigation methods make properties safer from floods but not immune. Property acquisition and demolition is a voluntary process, and property owners are paid fair market value for their land and structures.¹⁴ Acquisition is typically done on a community-wide scale, purchasing several or all properties in an at-risk neighborhood. Acquisition projects typically require

¹³Communities are assigned to one of ten Community Rating System classes based on the total number of credit points earned. Flood insurance premium discounts range from 5 percent up to 45 percent based on class assignments. For example, communities that earn 4,500 points or more qualify for Class 1, and property owners in the Special Flood Hazard Areas get a 45 percent discount on their flood insurance premiums. Communities that earn 500 points qualify for Class 9, and property owners in the Special Flood Hazard Areas get a 5 percent discount on their flood insurance premiums. Class 10 communities get no discount.

¹⁴The most common approach to estimate fair market value of the real property is for the community to hire an appraiser when the community receives a FEMA grant award and the homeowner agrees to sell the property. The appraisal must be conducted in accordance with the *Uniform Standards of Professional Appraisal Practice*. The community coordinates with the state to determine the assumptions that will be used in the appraisal.

building consensus from property owners and sustained communication and collaboration between residents and the government executing the project.

Acquisition and relocation (relocation) refers to purchasing a structure and moving it to another location instead of demolishing it. Through this process, state or local governments use FEMA funding to help purchase land from willing sellers and assist the property owners with relocating the structure. The structure must be sound and feasible to move outside of flood-prone areas. Relocation is a voluntary process and property owners are paid fair market value for their land.

Elevation involves raising a structure so that the lowest occupied floor is at or above the area's base flood elevation.¹⁵ Structure elevation may be achieved through a variety of methods, including elevating on continuous foundation walls; elevating on open foundations, such as piles, piers, or columns; and elevating on fill. Structures proposed for elevation must be structurally sound and capable of being elevated safely. Further, elevation projects must be designed and adequately anchored to prevent flotation, collapse, and lateral movement of the structure from flooding, waves, and wind.

Floodproofing falls into two categories: dry floodproofing and wet floodproofing. Dry floodproofing involves sealing a structure to prevent floodwater from entering. Examples of dry floodproofing measures include using waterproof coatings or coverings to make walls impermeable to water, installing waterproof shields, and installing devices that prevent sewer and drain backup. Dry floodproofing is appropriate only where floodwaters do not exceed three feet, the speed of flood waters is low, and the duration of flooding is relatively short because walls and floors may collapse from the pressure of higher water levels. Wet floodproofing involves changing a structure to allow floodwaters to enter and exit with minimal damage. Wet floodproofing is used in parts of a structure that are not used as living space, such as a crawlspace, basement, or garage. Examples of wet floodproofing measures include installing flood openings in the foundation and enclosure walls below the base flood elevation, using flood-resistant building materials and furnishings located below the

¹⁵According to FEMA guidance, base flood elevation is the computed elevation to which floodwater is anticipated to rise during a flood that has a 1 percent chance of being equaled or exceeded in any given year.

base flood elevation, and either elevating or floodproofing all utility systems and associated equipment to protect them from damage.

FEMA Mitigation Grant Programs

FEMA administers three HMA grant programs that can be used to fund flood mitigation projects: the Hazard Mitigation Grant Program (HMGP), Pre-Disaster Mitigation (PDM), and Flood Mitigation Assistance (FMA). Eligible HMA applicants include states, territories, and federally recognized tribal governments. Local communities cannot apply directly to FEMA for HMA funding but instead must collaborate as sub-applicants with their state, territory, or tribal government and then receive funding through that entity. Certain nonprofit organizations can act as sub-applicants but only under HMGP. Generally, individuals may not apply for HMA funding, but they may benefit from a community application.¹⁶ Applicants to all three programs must have FEMA-approved hazard mitigation plans. FEMA evaluates HMA applications based on technical feasibility and cost-effectiveness, among other factors. In fiscal year 2019, HMA awarded \$859 million in funding. Eligible activities differ for the three programs but must be consistent with FEMA's National Mitigation Framework.¹⁷

The **Hazard Mitigation Grant Program** helps communities implement hazard mitigation measures following a presidential major disaster declaration to improve community resilience to future disasters.¹⁸ HMGP provides funding to protect public or private property through various mitigation measures based on state or tribal priorities. Mitigation project examples include acquisition, relocation, retrofitting structures to minimize damages from various natural hazards, and elevating flood prone structures. HMGP recipients (states, territories, and federally recognized tribal governments) are primarily responsible for prioritizing, selecting, and administering state and local hazard mitigation projects. According to

¹⁶FMA financial assistance is also available to property owners in the form of direct grants for carrying out mitigation activities that reduce flood damage to individual structures for which two or more NFIP claims had been made if FEMA, after consultation with the state and community, determines that neither the state nor the community in which the structure is located has the capacity to manage the grant. 42 U.S.C. § 4104c(a)(3).

¹⁷Federal Emergency Management Agency, *National Mitigation Framework, Second Edition* (Washington, D.C.: June 2016).

¹⁸42 U.S.C. § 5170c and 44 C.F.R. § 206.430 et seq.

FEMA guidance, although individuals may not apply directly to the state for assistance, local governments engage interested property owners during the application process. A formula based on the size of the presidential disaster declaration determines the amount of money available to HMGP.¹⁹

Pre-Disaster Mitigation seeks to reduce overall risk to the population and structures from future natural hazard events, while also reducing reliance on federal funding in future disasters.²⁰ PDM grants fund mitigation plans and eligible projects that reduce or eliminate long-term risk to people and property from natural disasters, such as property acquisition, property elevation, earthquake hardening, and construction of tornado and high-wind safe rooms. Generally, local governments (i.e., sub-applicants) submit mitigation planning and project applications to their state, territory, or federally recognized tribal government (i.e., applicants) for review and prioritization. The state, territory, or federally recognized tribal government then submits one PDM grant application to FEMA for consideration. Annual Congressional appropriations fund these grants, and FEMA awards them on a nationally competitive basis.²¹ In fiscal year 2019, Congress appropriated \$250 million to PDM, which was the program's final year of funding.

¹⁹The federal government funds HMGP with up to 15 percent of the first \$2 billion of the estimated aggregate amount of disaster assistance. If disaster assistance is between \$2 billion and \$10 billion, then HMGP receives up to 10 percent of that amount and up to 7.5 percent of disaster assistance amounts between \$10 billion and \$35.333 billion. HMGP may receive up to 20 percent of disaster assistance (not to exceed \$35.333 billion) in states with a FEMA-approved Enhanced Hazard Mitigation Plan. To qualify, a state must demonstrate that it has developed a comprehensive mitigation program, effectively uses available mitigation funding, and is capable of managing increased funding to achieve its mitigation goals. 44 C.F.R. § 201.5(a). As of September 30, 2019, 13 states had qualifying enhanced state mitigation plans. A presidential disaster declaration occurs when a governor requests federal assistance to respond to an emergency event. 42 U.S.C. § 5170. A presidential disaster declaration triggers HMGP and relief funds for individuals and governments, known as Public Assistance and Individual Assistance.

²⁰42 U.S.C. § 5133.

²¹Legislative Pre-Disaster Mitigation was a variant of PDM active from fiscal year 2008 through 2010 in which Congress designated funding for mitigation projects in the Joint Explanatory Statements of those years' appropriations bills. Program guidelines were largely similar except that Congress authorized and funded specific projects, 219 designated programs in total, rather than FEMA approving and awarding project funding on a competitive basis. FEMA also assisted state and local beneficiaries to develop sub-applications, which PDM's competitive application process normally precludes.

In 2018, Congress passed the Disaster Recovery Reform Act, which included amendments to PDM, which FEMA calls the Building Resilient Infrastructure and Communities program.²² According to FEMA officials, this program is replacing PDM in fiscal year 2020 and will be funded through the Disaster Relief Fund as a 6 percent set-aside from the estimated total amount of grants for each major disaster declaration. FEMA has solicited public input on the program and said it expects to release a notice of funding opportunity in summer 2020.

Flood Mitigation Assistance is designed to reduce or eliminate flood insurance claims by funding cost-effective flood mitigation projects that reduce or eliminate long-term risk of flood damage to structures insured under NFIP.²³ Typical projects may include acquisition of RL properties, elevation of buildings, and neighborhood-scale flood defense investment. Generally, local communities will sponsor applications on behalf of homeowners and then submit the applications to their state.²⁴ A state or federally recognized tribal government must submit the grant applications to FEMA. Annual Congressional appropriations fund FMA grants, and FEMA awards them on a nationally competitive basis. FMA appropriations have remained relatively stable at about \$175 million for fiscal years 2016 through 2019.²⁵

²²Disaster Recovery Reform Act of 2018, Pub. L. No. 115-254, § 1234, 132 Stat. 3438, 3461.

²³42 U.S.C. § 4104c. In the Biggert-Waters Flood Insurance Reform Act of 2012, Congress eliminated the Repetitive Flood Claims and the Severe Repetitive Loss grant programs and created the FMA program. Pub. L. No. 112-141, § 100225, 126 Stat. 916, 941.

²⁴Financial assistance through FMA is available to property owners in the form of direct grants for carrying out mitigation activities that reduce flood damage to individual structures for which two or more NFIP claims are paid if the FEMA director, after consultation with the State and community, determines that neither the State nor community in which the structure is located has the capacity to manage the grant. 42 U.S.C. § 4104c(a)(3).

²⁵FMA funding is available until it is expended, so in certain years the amount awarded may exceed the amount authorized by Congress in an appropriation act for a specific fiscal year.

Repetitive Loss Properties

RL properties present a financial challenge for NFIP. FEMA has three definitions for such properties that vary slightly to meet the specific needs of different programs:

- **NFIP Repetitive Loss** refers to an NFIP-insured structure that has incurred flood-related damage on two occasions during a 10-year period, each resulting in at least a \$1,000 claim payment.²⁶ FEMA uses the NFIP RL definition for insurance purposes related to the Community Rating System, for local hazard mitigation plans, and for eligibility determinations for preferred risk policies and individual assistance.
- **FMA Repetitive Loss** refers to an NFIP-insured structure that (a) has incurred flood-related damage on two occasions in which the cost of repair, on average, equaled or exceeded 25 percent of the value of the structure at the time of each such flood event; and (b) at the time of the second incidence of flood-related damage, the flood insurance policy contained Increased Cost of Compliance coverage.²⁷ FEMA uses this definition for FMA purposes, as these properties are eligible for the largest federal cost share for mitigation, up to 90 percent. This is also the same definition NFIP uses to approve an Increased Cost of Compliance payment.
- **Severe Repetitive Loss** refers to an NFIP-insured structure that has incurred flood-related damage for which (a) four or more separate claims have been paid that exceeded \$5,000 each and cumulatively exceeded \$20,000; or (b) at least two separate claim payments have been made under such coverage, with the cumulative amount of such claims exceeding the fair market value of the insured structure.²⁸ FEMA has two severe RL definitions for mitigation and insurance, which are similar except that the insurance definition includes only residential structures, while the mitigation definition includes all

²⁶44 C.F.R. § 209.2. According to FEMA officials, the NFIP RL definition is the broadest of the three and may include properties that also meet the definition of an FMA RL and severe RL property. Unless otherwise noted, we use RL property to refer to a property that meets any of FEMA's three definitions.

²⁷42 U.S.C. § 4121(a)(7). Increased Cost of Compliance is a component of most NFIP policies. It provides up to \$30,000 to fund mitigation activities that make the building compliant with state or local floodplain laws.

²⁸42 U.S.C. § 4104c(h); 42 U.S.C. § 4014(h).

structures. FEMA uses the severe RL definition for grant eligibility and cost share, the Community Rating System, and insurance rate setting.

FEMA Grant Programs Are Key Funding Sources for Property Acquisition

FEMA Funds Acquisitions through Three Grant Programs That Have Varying Characteristics and Funding Levels

HMGP is the largest of FEMA's three HMA programs and, unlike the others, it is based on the amount of disaster assistance a state or territory receives following a presidential disaster declaration (see table 1). PDM and FMA are smaller grant programs that receive annual appropriations and are not directly tied to an immediately preceding disaster. Because these programs do not require an immediate disaster declaration, FEMA considers them pre-disaster programs, as their intent is to mitigate potential damage before disasters occur.

Table 1: Federal Emergency Management Agency’s (FEMA) Hazard Mitigation Assistance Grant Programs

	Hazard Mitigation Grant Program	Pre-Disaster Mitigation	Flood Mitigation Assistance
Response stage	Post-disaster	Pre-disaster	Pre-disaster
Program funding availability	Following a presidential disaster declaration	Annual appropriation	Annual appropriation
Eligible applicants	States, territories, tribal governments, and private nonprofit organizations	States, territories, and tribal governments	States, territories, and tribal governments ^a
Eligible sub-applicants	State agencies, tribal governments, local governments, and private nonprofit organizations	State agencies, tribal governments, and local governments	State agencies, tribal governments, and local governments
Eligible hazards	Any	Any	Flood
National Flood Insurance Program eligibility requirements	Only for properties remaining in a special flood hazard area after project completion ^b	Only for properties remaining in a special flood hazard area after project completion ^b	For all projects
Federal cost share	Up to 75 percent	Up to 75 percent Up to 90 percent (if recipient is small impoverished community) ^c	Up to 75 percent Up to 90 percent (if repetitive loss property) ^d Up to 100 percent (if severe repetitive loss property) ^e
Fiscal year 2014-2018 federal funding obligated (in dollars) ^f	1.4 billion	293 million	580 million

Source: GAO analysis of FEMA documentation. | GAO-20-508

^aFlood Mitigation Assistance financial assistance is also available to property owners in the form of direct grants for carrying out mitigation activities that reduce flood damage to individual structures for which two or more National Flood Insurance Program claims had been made if FEMA, after consultation with the state and community, determines that neither the state or community in which the structure is located has the capacity to manage the grant. 42 U.S.C. § 4104c(a)(3).

^bA special flood hazard area is an area identified by FEMA that will be inundated by a flood event having a 1-percent chance of being equaled or exceeded in any given year. The 1-percent annual chance flood is also referred to as the base flood or 100-year flood.

^cFEMA defines a small and impoverished community as a rural community with a population of 3,000 or fewer, where the average per capita income does not exceed 80 percent of the national average and the local unemployment rate exceeds the most recently reported national yearly average by at least one percentage point.

^dA repetitive loss property is any insurable building for which flood-related damage occurred on two occasions in which repair equaled or exceeded 25 percent of the value of the structure on average, and at the time of the second incident the contract for the National Flood Insurance Program contained Increased Cost of Compliance coverage. 42 U.S.C. § 4121(a)(7).

^eA severe repetitive loss property is any insurable building for which the National Flood Insurance Program paid (a) four or more claims of more than \$5,000 with a total claim of at least \$20,000 or (b) two or more claims where the total of the payments exceeds the current value of the property. 42 U.S.C. § 4104c(h)(3).

^fFederal funding was adjusted for inflation using the Bureau of Labor Statistics’ Consumer Price Index for All Urban Consumers. These numbers were based on FEMA data as of October 2019 and therefore will not include any projects using fiscal year 2014 through 2018 funding that are obligated after that time. As a result, these obligated amounts will increase over time.

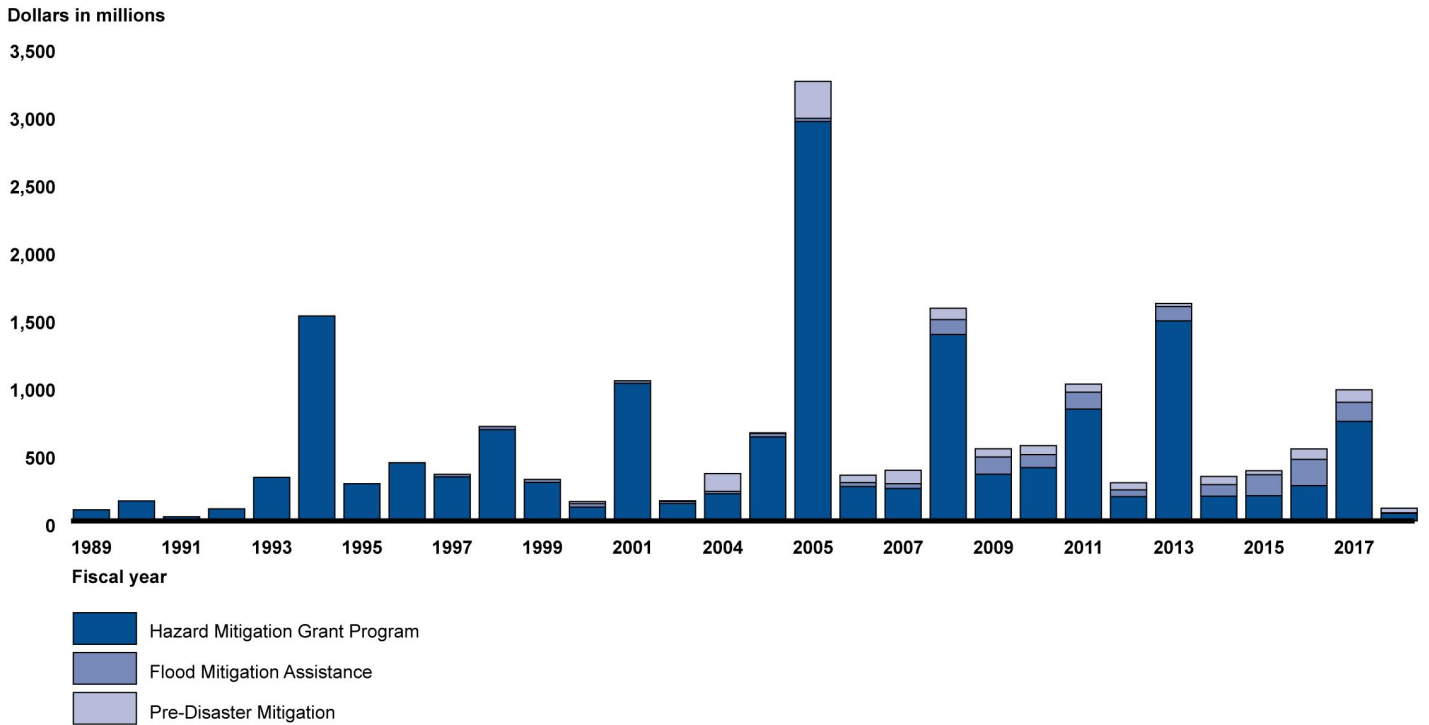
HMGP and PDM can be used for projects that mitigate the risk of many hazards, including flood, wind, fire, earthquake, and drought, but FMA can only be used to mitigate the risk of flood (see table 1). Furthermore, FMA funds can only be used to mitigate properties that are insured by NFIP, but HMGP and PDM funds can be used to mitigate properties without NFIP coverage. Properties mitigated in a special flood hazard area, where the structure remains on the parcel, must maintain a flood insurance policy after project completion. HMA grants fund a variety of methods to mitigate the flood risk of properties, including acquisition, elevation, relocation, and floodproofing.

In most cases, HMA grants cover up to 75 percent of the project cost, and the grantee generally must contribute the remainder using nonfederal funds (although there are some exceptions, discussed below). However, PDM will cover up to 90 percent of project costs for communities that meet FEMA's definition of small and impoverished.²⁹ Moreover, FMA will cover up to 90 percent for projects that mitigate RL properties and up to 100 percent for severe RL properties.

Funding levels for the three programs have varied over time because they have depended on disaster declarations and annual appropriations (see fig. 1). HMGP is the largest of the three programs—adjusted for inflation, annual HMGP grants have reached \$2.9 billion, while PDM and FMA have never exceeded \$300 million. According to FEMA officials, the estimated annual funding for the Building Resilient Infrastructure and Communities program, the successor to PDM, will average \$300 million to \$500 million, as it will be funded by a 6 percent set aside of annual estimated disaster grant expenditures.

²⁹FEMA defines a small and impoverished community as a rural community with a population of 3,000 or fewer, where the average per capita income does not exceed 80 percent of the national average and the local unemployment rate exceeds the most recently reported national yearly average by at least one percentage point.

Figure 1: Annual Hazard Mitigation Assistance Funding by Program, Fiscal Years 1989–2018



Source: GAO analysis of Federal Emergency Management Agency data. | GAO-20-508

Data Table for Figure 1: Annual Hazard Mitigation Assistance Funding by Program, Fiscal Years 1989–2018

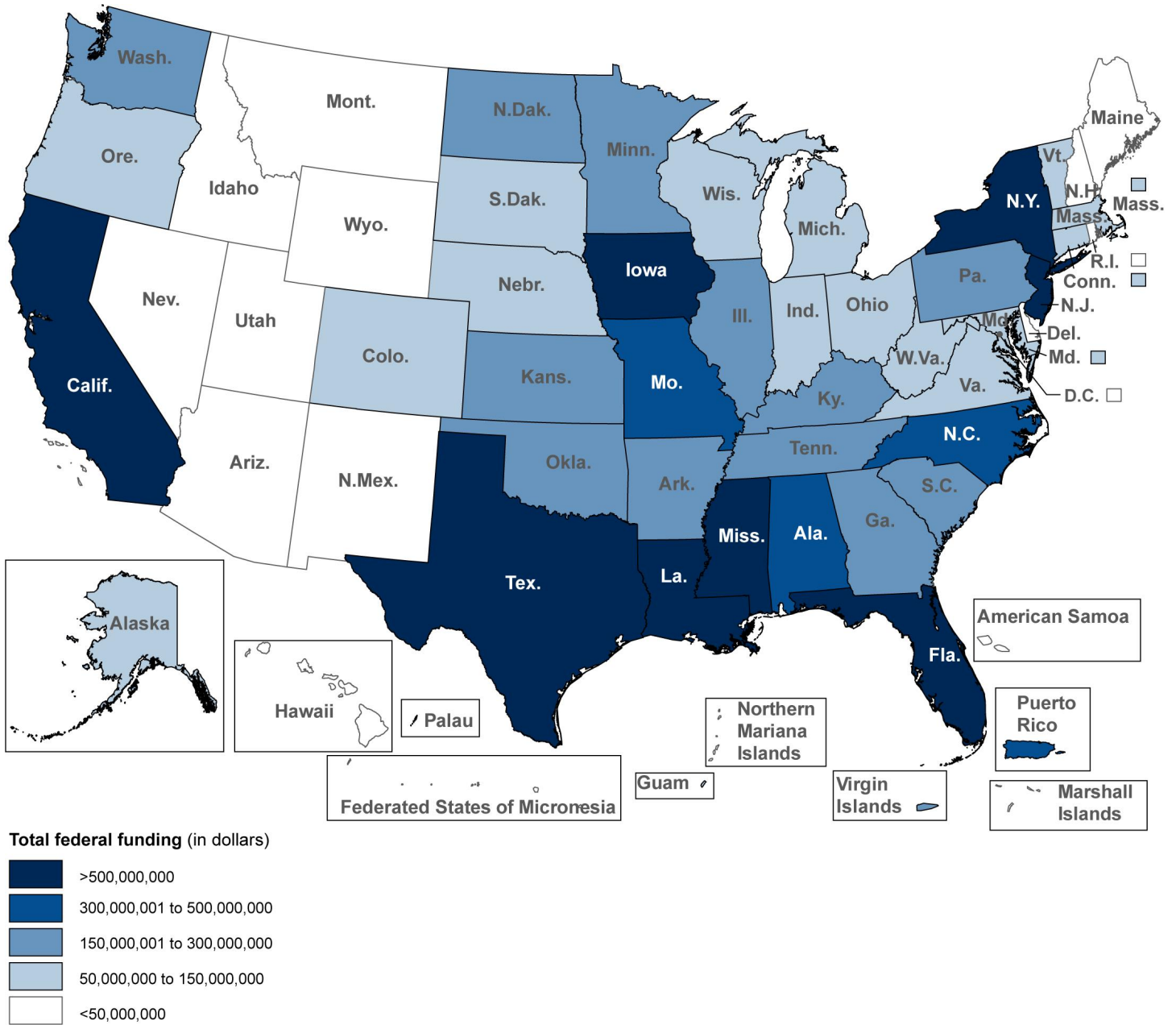
Year	HMGP	FMA	PDM
1989	81.753	-	-
1990	146.777	-	-
1991	30.3431	-	-
1992	88.5374	-	-
1993	321.181	-	-
1994	1512.47	-	-
1995	274.635	-	-
1996	427.967	1.51839	-
1997	324.367	19.1396	-
1998	673.416	23.3502	-
1999	283.694	22.1951	-
2000	102.148	25.5753	14.6303
2001	1015.57	17.8555	-

Year	HMGP	FMA	PDM
2002	128.965	15.1609	-
2003	200.215	16.9919	-
2004	620.032	25.6774	4.45874
2005	2946.78	24.2399	272.712
2006	253.818	29.0654	54.2566
2007	239.836	34.0175	99.0689
2008	1375.08	110.084	84.1774
2009	344.208	127.649	60.7927
2010	392.997	95.9295	66.0919
2011	825.238	124.169	59.392
2012	178.501	50.7213	52.2814
2013	1476.09	106.446	21.7883
2014	182.15	85.5456	60.2277
2015	186.01	154.344	29.5089
2016	260.712	193.627	76.6096
2017	733.831	141.739	92.061
2018	54.6731	4.42541	34.2087

Note: Federal funding was adjusted for inflation using the Bureau of Labor Statistics' Consumer Price Index for All Urban Consumers.

HMA funding also varies by state. Louisiana has obligated the most funding. After adjusting for inflation, it has obligated more than \$3.1 billion from all three programs since HMGP was created in 1989, followed by California (\$2.0 billion), Texas (\$1.8 billion), New York (\$1.6 billion), and Florida (\$1.5 billion), while the bottom 18 states and territories each obligated less than \$50 million (see fig. 2). Because HMGP is the largest program and is tied to presidential declarations, these totals reflect, in part, the extent to which states and territories have experienced natural disasters in this time period.

Figure 2: Hazard Mitigation Assistance Funding by State, Fiscal Years 1989–2018



Source: GAO analysis of Federal Emergency Management Agency data. | GAO-20-508

Data table for Figure 2: Hazard Mitigation Assistance Funding by State, Fiscal Years 1989–2018

State	Amount
AK	Not Available
AL	\$69,180,689
AR	\$334,893,757
AS	\$187,710,865
AZ	\$34,631,202
CA	\$41,601,176
CO	\$2,030,585,407
CT	\$147,765,084
DC	\$63,610,385
DE	\$11,312,673
FL	\$22,300,100
FM	\$1,472,899,943
GA	\$7,867,167
GU	\$297,373,341
HI	\$87,089,278
IA	\$25,723,105
ID	\$530,624,372
IL	\$32,215,730
IN	\$287,614,804
KS	\$77,711,087
KY	\$174,489,324
LA	\$219,900,848
MA	\$3,109,834,384
MD	\$126,458,317
ME	\$64,802,178
MH	\$37,026,553
MI	\$2,572,599
MN	\$104,206,748
MO	\$175,332,152
MP	\$420,475,254
MS	\$19,547,223
MT	\$526,562,825
NC	\$43,671,037
ND	\$473,166,195
NE	\$258,645,109

State	Amount
NH	\$104,681,348
NJ	\$40,676,217
NM	\$693,476,576
NV	\$27,797,112
NY	\$25,484,924
OH	\$1,599,118,016
OK	\$143,670,911
OR	\$240,539,445
PA	\$127,190,871
PR	\$217,649,732
PW	\$477,693,387
RI	\$652,408
SC	\$13,089,992
SD	\$167,132,928
TN	\$85,626,725
TX	\$179,487,824
UT	\$1,770,909,222
VA	\$49,974,371
VI	\$149,601,974
VT	\$204,525,572
WA	\$58,367,148
WI	\$214,764,477
WV	\$116,375,843
WY	\$110,296,094
AK	\$17,611,732

Note: Federal funding was adjusted for inflation using the Bureau of Labor Statistics' Consumer Price Index for All Urban Consumers.

States and Localities Can Use Other Federal Programs to Fund Cost Share Requirements for Acquisitions

Typically, recipients of federal mitigation grants must use nonfederal funds to meet cost share requirements because federal law prohibits the use of more than one source of federal disaster recovery funding for the

same purpose.³⁰ However, according to FEMA, some federal programs are exempt from these requirements due to authorizing statutes and therefore may be used in concert with HMA funds.

Department of Housing and Urban Development's Community Development Block Grant (CDBG) program. The Department of Housing and Urban Development awards CDBG funds to state and local governments to support a variety of community and economic development needs. According to FEMA's HMA Cost Sharing Guide, HMA applicants may use several categories of CDBG funds as a source of project cost share, as long as the project meets Department of Housing and Urban Development rules. CDBG Disaster Recovery funds are the most frequently used form of HMGP cost share from a federal agency, according to FEMA.

FEMA Increased Cost of Compliance coverage. NFIP offers Increased Cost of Compliance coverage, which provides up to \$30,000 for policyholders to fund mitigation efforts on their property if they experience substantial damage or if their structure is an RL property.³¹ Between 1997 and 2014, the vast majority (99 percent) of Increased Cost of Compliance claims met the substantially damaged property definition, according to a 2017 report from the University of Pennsylvania.³² Unlike CDBG, which is awarded to states and local governments, Increased Cost of Compliance is awarded directly to individuals. According to FEMA, it is eligible as an HMA nonfederal cost share because it is considered a direct contract between the insurer and policyholder. FEMA allows recipients to assign their funds to the community as part of a collective mitigation project, and the community is then obligated to provide HMA funding to any property

³⁰42 U.S.C. § 5155. The restriction was originally added by the Robert T. Stafford Disaster Relief and Emergency Assistance Act in 1988. Pub. L. No. 100-707, § 105(i), 102 Stat. 4689, 4693. The restriction was amended by the Disaster Recovery Reform Act of 2018. Pub. L. No. 115-254, § 1210(a)(1), 132 Stat. 3438, 3442.

³¹44 C.F.R. Pt. 61, App. A(1) III.D. Increased Cost of Compliance coverage is part of NFIP's Standard Flood Insurance Policy and not a mitigation program. For purposes of Increased Cost of Compliance, what could be called "substantial damage" is defined by FEMA to be a structure that has had flood damage in which the cost to repair equals or is greater than 50 percent of the market value of the structure at the time of the flood. The Increased Cost of Compliance definition of an RL property is similar to the FMA RL property definition.

³²Carolyn Kousky and Brett Lingle, *Issue Brief: Post-Flood Mitigation: The NFIP's Increased Cost of Compliance (ICC) Coverage* (Philadelphia, PA: Wharton School of the University of Pennsylvania Center for Risk Management and Decision Processes, Summer 2017).

owner who contributed Increased Cost of Compliance dollars toward the nonfederal cost share. As of September 2019, FEMA had closed more than 38,000 Increased Cost of Compliance claims with dates of loss since 1997, totaling more than \$877 million.

Small Business Administration disaster loans. Small Business Administration disaster loans provide up to \$200,000 for repairing or replacing a primary residence and \$40,000 for repairing or replacing personal items that have been affected by a disaster. The interest rate cannot exceed 4 percent for applicants unable to access credit elsewhere, and cannot exceed 8 percent for all others. Secondary or vacation homes are not eligible, but qualified rental properties may be eligible under the Small Business Administration's business disaster loan program, which offers loans of up to \$2 million. According to FEMA guidance, these loans can serve as a source of cost share if HMA grants are disbursed early enough; however, the differing award timelines often make these funding sources incompatible. Further, disaster loans may not be eligible in conjunction with HMA funds due to duplication of benefits, but general-purpose Small Business Administration loans are not subject to this restriction, according to FEMA.

Other Federal and Nonfederal Programs Fund Acquisitions

In addition to FEMA's three HMA programs, other federal, state, and local programs have helped acquire properties.

Community Development Block Grants. In addition to its use as a cost-share complement to HMA grants, states and communities can use CDBG Disaster Recovery funding as a stand-alone source of property acquisition funds, according to the Department of Housing and Urban Development. Availability of CDBG Disaster Recovery funds is subject to supplemental appropriations following a presidential disaster declaration and must be used in response to that specific disaster. CDBG Disaster Recovery funds are disbursed to state and local governments and not to individuals directly. However, the governmental recipient can award CDBG Disaster Recovery funds to private citizens, nonprofits, economic development organizations, businesses, and other state agencies. The Bipartisan Budget Act of 2018 appropriated funding for CDBG, of which the Department of Housing and Urban Development allocated almost \$6.9 billion for CDBG mitigation funds for the first time, as a result of the

2015 to 2017 disasters.³³ Unlike CDBG Disaster Recovery funds, which the recipient must use in response to a specific disaster, recipients may use CDBG Mitigation funds to mitigate risks from future disasters.³⁴

U.S. Army Corps of Engineers' National Nonstructural Committee.

The Army Corps of Engineers (Corps) conducts a range of mitigation measures through the National Nonstructural Committee, including acquisitions, elevations, relocations, and floodplain mapping. Nonstructural refers to measures that attempt to mitigate the consequences of floods, as opposed to structural measures intended to prevent floods from occurring. According to the Corps, except for limited research funding, it does not offer grants for flood risk management projects, and large projects generally require specific authorization from Congress. However, the Corps' Continuing Authority Program allows it to execute smaller projects at its discretion.³⁵ For example, for one of the programs, the federal government funds 65 percent of a project's cost, and the project sponsor must provide all land, easement, rights-of-way, relocations, and disposal areas required for the project. The sponsor's cost share includes credit for provision of the requirements above and pre-approved work-in-kind, but at least five percent must be provided in cash.

Department of Agriculture's Natural Resources Conservation Service Emergency Watershed Protection Program. The Federal Agriculture Improvement and Reform Act of 1996 enables the Emergency Watershed Protection Program to purchase floodplain easements on residential and agricultural land for flood mitigation purposes and to return the land to its natural state.³⁶ For agricultural and residential land, this program pays up to the entire easement value and also funds property

³³Pub. L. No. 115-123, 132 Stat. 64, 104 (2018); Allocations, Common Application, Waivers, and Alternative Requirements for Community Development Block Grant Mitigation Grantees, 84 Fed. Reg. 45838 (Aug. 30, 2019).

³⁴84 Fed. Reg. 45838.

³⁵The Continuing Authority Program refers to a group of nine legislative authorities that permits the Army Corps to carry out eligible water resources projects.

³⁶Pub. L. No. 104-127, § 382, 110 Stat. 888, 1016 (1996).

demolition or relocation, according to the Department of Agriculture.³⁷ Land generally must have flooded in the past year or twice within the previous 10 years to be considered eligible.³⁸

State and local acquisition programs. While state and local governments are active participants in federal acquisition projects, some have also developed their own acquisition programs. These programs vary on the extent to which they rely on federal funds, if at all. For example:

- The Harris County Flood Control District, a special purpose district, in Texas acquired about 3,100 properties between 1985 and 2017, according to a 2018 report from Rice University, using a combination of FEMA grants, Corps funds, and local dollars.³⁹
- Charlotte-Mecklenburg Storm Water Services, a joint city-county utility in North Carolina, has acquired more than 400 homes since 1999. Initially, it primarily used federal funds, but now it uses almost solely stormwater fees and other local revenue to fund acquisitions. The utility's Quick Buys program allows it to acquire properties soon after a flood, before homeowners invest in repairs, whereas federal acquisitions often occur after property owners have begun rebuilding, according to FEMA officials.
- New Jersey, through its Blue Acres program, plans to acquire up to 1,300 properties damaged by Superstorm Sandy. The program has used state funds, including \$36 million in bonds, as well as more than \$300 million in federal funding received from multiple agencies.

³⁷By regulation, the Natural Resources Conservation Service will determine easement compensation in accordance with applicable regulations and other laws. 7 C.F.R. § 624.10(b)(4). According to the program's website, the easement compensation to the landowner is the lowest of three values: (1) the land's fair market value, (2) the geographic area rate cap as determined by the state conservationist, or (3) an offer made by the landowner.

³⁸Eligible land can also include: (1) other lands within the floodplain that would contribute to the restoration of the flood storage and flow, erosion control, or that would improve the practical management of the easement, or (2) lands that would be inundated or adversely impacted as a result of a dam breach. 7 C.F.R. § 624.10(b)(2)(i),(ii).

³⁹Rice University Kinder Institute for Urban Research, *Case Studies in Floodplain Buyouts*, (Houston, Texas: 2018).

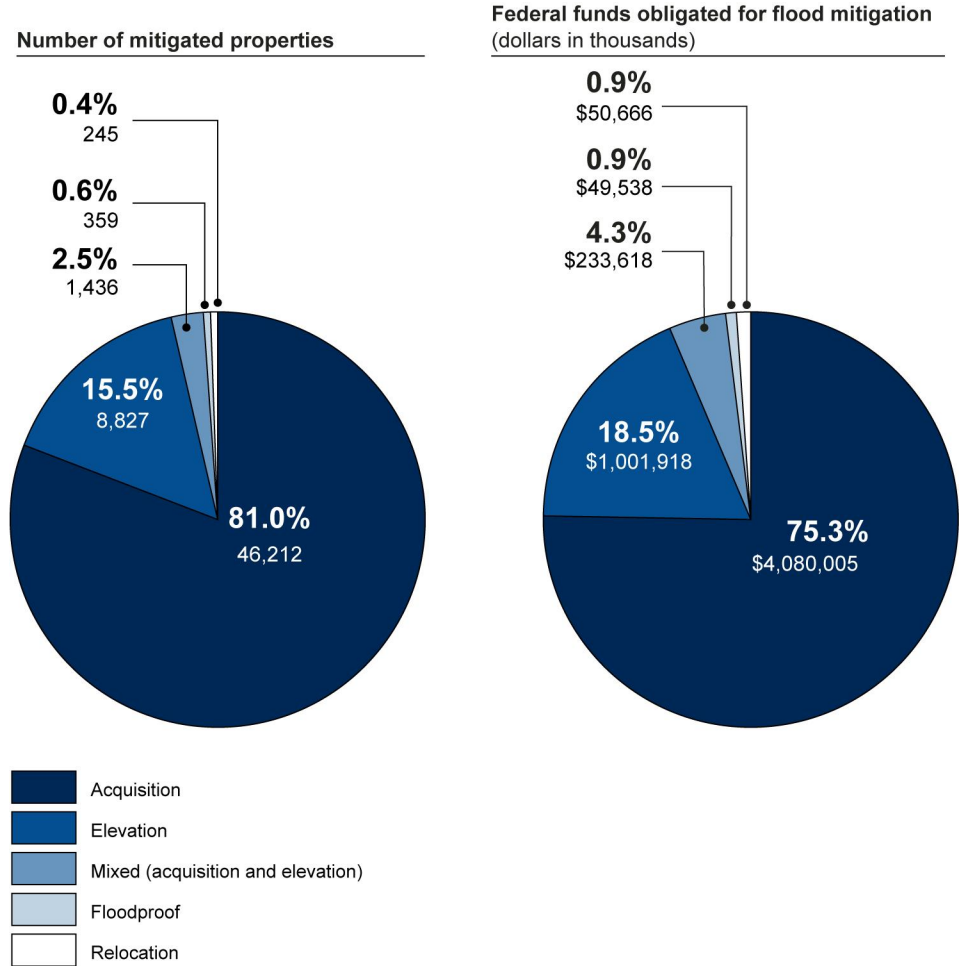
FEMA Has Funded the Mitigation of Many Properties, but the Number of Repetitive Loss Properties Continues to Rise

Most Flood Mitigation Spending Is Used for Property Acquisitions after Flooding Occurs

Since 1989, the primary means by which FEMA has mitigated flood risk at the property level has been by funding property acquisitions. Acquisitions accounted for about 75 percent of FEMA's \$5.4 billion in flood mitigation spending, adjusted for inflation, from 1989 to 2018 (see fig. 3). Most of the remaining spending was used to elevate properties, with smaller amounts used to floodproof and relocate properties. The average federal cost-per-property was \$136,000 for acquisitions and \$107,000 for elevations, according to 2008-2014 FEMA data.⁴⁰

⁴⁰These amounts include only the federal share of the project costs and not the state or local cost share.

Figure 3: Federal Emergency Management Agency Hazard Mitigation Assistance, Number of Properties Mitigated and Funding by Mitigation Method, Fiscal Years 1989–2018



Source: GAO analysis of Federal Emergency Management Agency data. | GAO-20-508

Data Table for Figure 3: Federal Emergency Management Agency Hazard Mitigation Assistance, Number of Properties Mitigated and Funding by Mitigation Method, Fiscal Years 1989–2018

Number of mitigated properties (percent)

Acquisition	Elevation	Mixed	Floodproof	Relocation
81	15.5	2.5	0.6	0.4

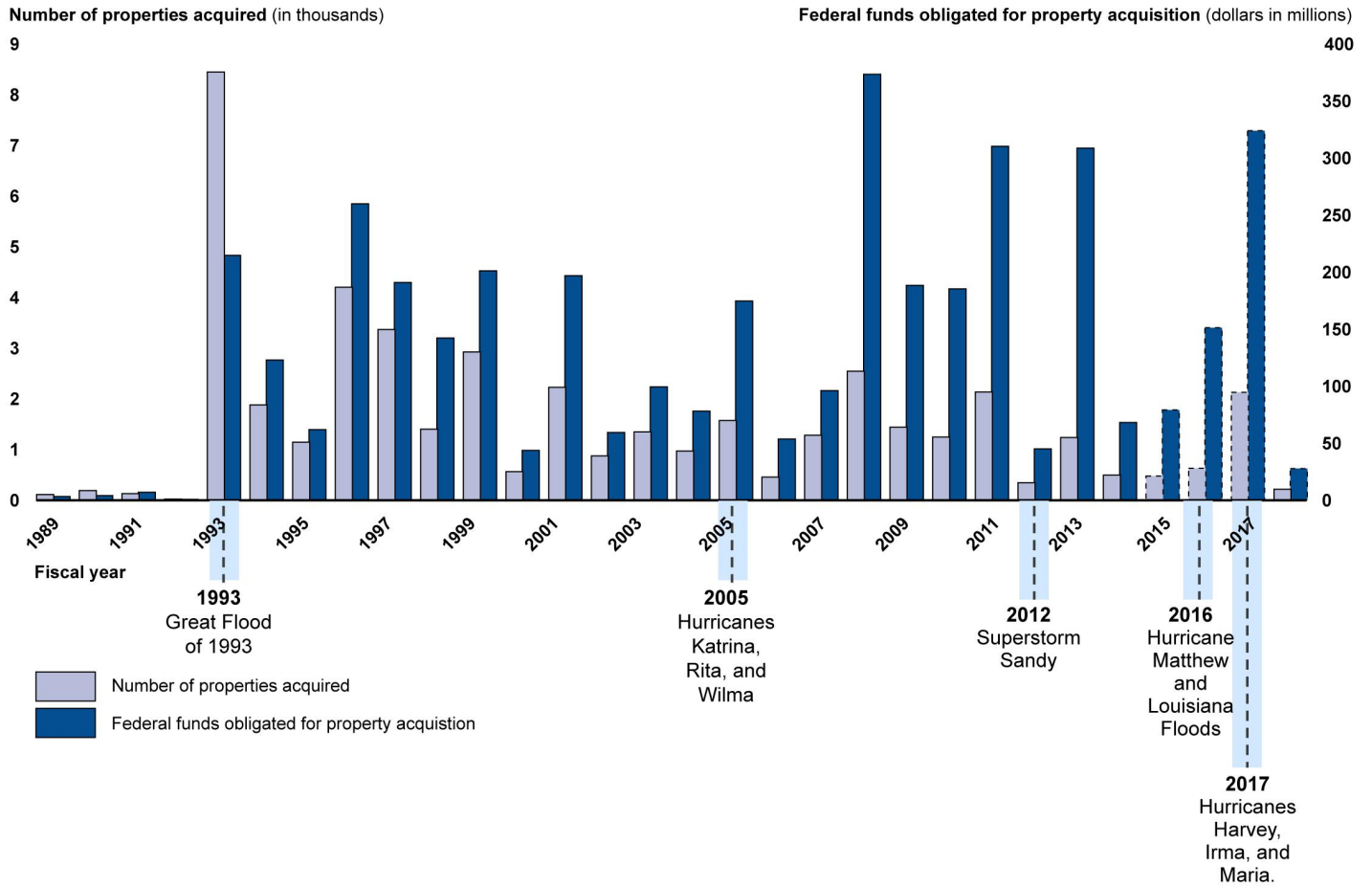
Federal funds obligated for flood mitigation (percent)

Pure Acquisition	Pure Elevation	Mixed	Pure Floodproof	Pure Relocation
75.3	18.5	4.3	0.9	0.9

Note: Federal funds obligated were adjusted for inflation using the Bureau of Labor Statistics' Consumer Price Index for All Urban Consumers.

As seen in figure 4, FEMA-funded property acquisitions have fluctuated over time but have generally increased since FEMA's HMA programs began. For example, from 1989 through 1992—the first four years of HMGP funding and prior to the creation of PDM and FMA—less than \$8 million, adjusted for inflation, was obligated for property acquisitions each year, resulting in fewer than 200 acquisitions each year (see fig. 4). The highest acquisition funding generally was associated with years that had significant flood events, such as Superstorm Sandy (2012) and Hurricanes Harvey, Irma, and Maria (2017).

Figure 4: Federal Emergency Management Agency Hazard Mitigation Assistance, Number of Properties Acquired and Acquisition Funding, Fiscal Years 1989–2018



Source: GAO analysis of Federal Emergency Management Agency data. | GAO-20-508

Data table for Figure 4: Federal Emergency Management Agency Hazard Mitigation Assistance, Number of Properties Acquired and Acquisition Funding, Fiscal Years 1989–2018

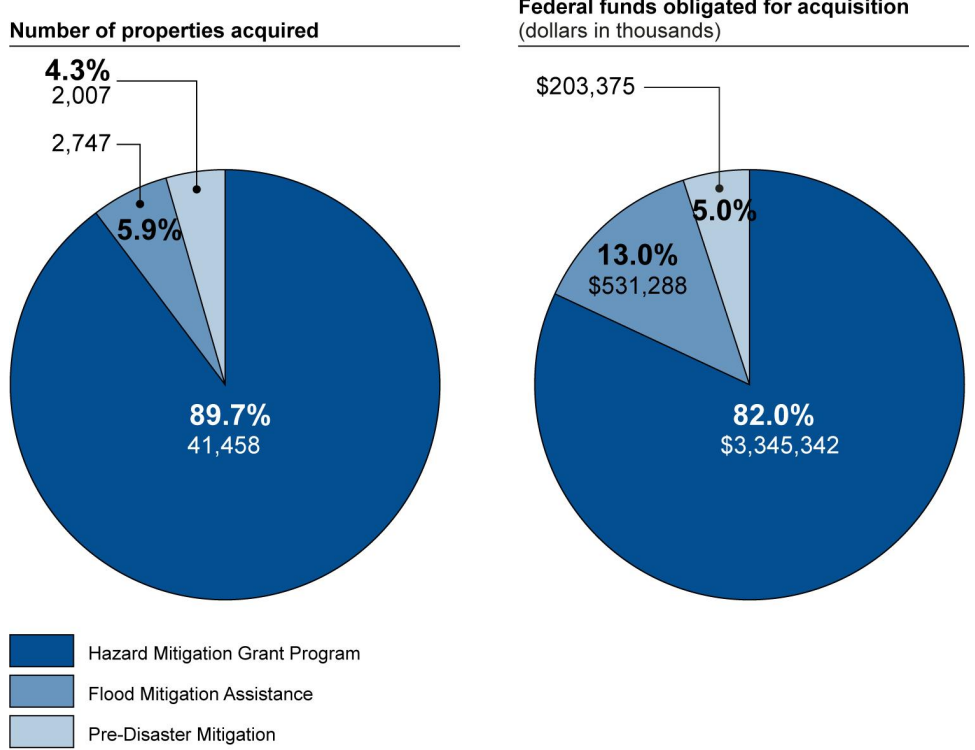
Year	Prop acq	Spent
1989	0.119	3.59309
1990	0.196	4.33351
1991	0.137	7.25839
1992	0.028	0.96012
1993	8.452	214.888
1994	1.888	123.232

Year	Prop acq	Spent
1995	1.152	62.1659
1996	4.209	260.227
1997	3.373	191.21
1998	1.408	142.463
1999	2.932	201.404
2000	0.569	43.903
2001	2.234	197.1
2002	0.881	59.6694
2003	1.355	99.6308
2004	0.976	78.381
2005	1.58	174.982
2006	0.463	53.9183
2007	1.288	96.4116
2008	2.552	373.768
2009	1.447	188.677
2010	1.253	185.586
2011	2.142	310.543
2012	0.352	45.225
2013	1.243	308.893
2014	0.503	68.4112
2015	0.484	79.4175
2016	0.637	151.507
2017	2.136	324.221
2018	0.223	28.0239

Note: Number of properties acquired includes only properties whose acquisitions have been completed and not those that are still in the process of being acquired. As a result, numbers for the last several years are expected to increase as projects are completed. Federal funds obligated were adjusted for inflation using the Bureau of Labor Statistics' Consumer Price Index for All Urban Consumers.

From fiscal years 1989-2018, approximately \$3.3 billion of property acquisition funding, adjusted for inflation, occurred through HMGP, resulting in the acquisition of 41,458 properties (see fig. 5). HMGP represented about 90 percent of all property acquisitions and 82 percent of all acquisition funding, with PDM and FMA representing the remainder. As a result, most FEMA-funded acquisitions occurred following flood events.

Figure 5: Federal Emergency Management Agency Hazard Mitigation Assistance Program, Number of Properties Acquired and Acquisition Funding by Mitigation Program, Fiscal Years 1989–2018



Source: GAO analysis of Federal Emergency Management Agency data. | GAO-20-508

Data table for Figure 5: Federal Emergency Management Agency Hazard Mitigation Assistance Program, Number of Properties Acquired and Acquisition Funding by Mitigation Program, Fiscal Years 1989–2018

Number of properties acquired by program (percent)

HMGP	FMA	PDM
89.7	5.9	4.3

Federal funds obligated for acquisition by program (percent)

HMGP	FMA	PDM
82	13	5

Note: Federal funds obligated were adjusted for inflation using the Bureau of Labor Statistics' Consumer Price Index for All Urban Consumers.

Most of the funding, adjusted for inflation, for HMGP's and PDM's flood mitigation projects has been for property acquisition (83 percent and 89

percent of total funds, respectively), while most FMA funding has been for elevation (49 percent).

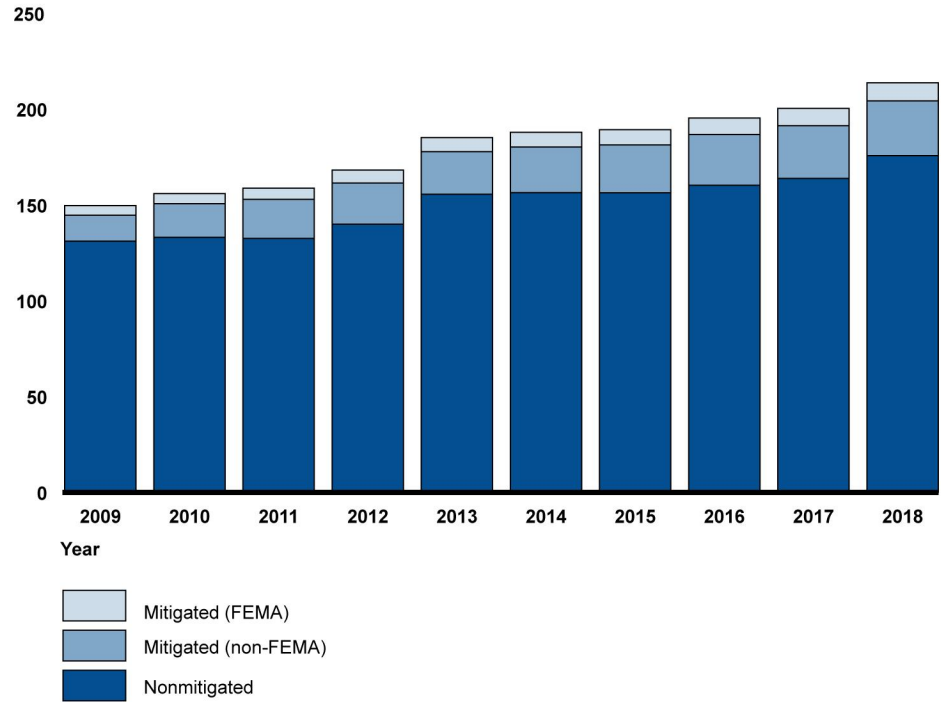
Despite Acquisition and Other Mitigation, Nonmitigated Repetitive Loss Properties Have Increased in Number

Although FEMA mitigated more than 57,000 properties for flood risk from 1989 to 2018, including more than 46,000 through acquisition, the number of nonmitigated RL properties increased from 2009 to 2018. Figure 6 shows that this growth in the number of RL properties has outpaced efforts to mitigate their flood risk. From 2009 through 2018, FEMA's inventory of new RL properties grew by 64,101. During this period, FEMA mitigated 4,436 RL properties through its three HMA programs, and an additional 15,047 were mitigated through other federal or state programs. As a result, the number of nonmitigated RL properties increased by 44,618—more than double the number of RL properties that were mitigated in that time period.⁴¹

⁴¹RL properties are any properties with multiple flood losses that have ever been deemed an RL property by FEMA. Nonmitigated RL properties are those that have never been acquired, elevated, relocated, or floodproofed.

Figure 6: National Flood Insurance Program, Cumulative Number of Mitigated and Nonmitigated Repetitive Loss Properties, 2009–2018

Number of repetitive loss properties (in thousands)



Source: GAO analysis of Federal Emergency Management Agency (FEMA) data. | GAO-20-508

Data table for Figure 6: National Flood Insurance Program, Cumulative Number of Mitigated and Nonmitigated Repetitive Loss Properties, 2009–2018

Year	Non-mitigated	Mitigated (non-FEMA)	Mitigated (FEMA)
2009	130.976	13.592	4.996
2010	133.046	17.542	5.276
2011	132.393	20.402	5.851
2012	139.868	21.502	6.725
2013	155.478	22.238	7.384
2014	156.363	23.792	7.651
2015	156.258	24.943	7.966
2016	160.164	26.506	8.565
2017	163.73	27.529	9.054
2018	175.594	28.639	9.432

Note: FEMA provided these data as of June each year.

Some States Have Mitigated More Properties than Others Relative to Their Population of Repetitive Loss Properties

States varied in the extent to which they mitigated high-risk properties, including RL properties, between 1989 and 2018. While FEMA does not require a property to be an RL property to receive flood mitigation funding, the number of properties mitigated by a state relative to its population of RL properties provides context to its flood mitigation progress. For example, some states with large numbers of RL properties, such as Texas, Louisiana, Florida, and New York, mitigated few properties relative to their numbers of RL properties (see table 2). Other states, such as Missouri and North Carolina, have far fewer RL properties but have mitigated more properties relative to their numbers of RL properties.

Table 2: Repetitive Loss Properties as of August 2019 and Properties Mitigated Using Federal Emergency Management Agency Hazard Mitigation Assistance Funding, Fiscal Years 1989 through 2018, as of October 2019, by State

State	Repetitive loss (total)	Mitigated (total) ^a	Acquired	Elevated, relocated, or floodproofed	Ratio of mitigated to repetitive loss
Louisiana	38,406	3,869	747	3,122	0.10
Texas	36,666	5,684	5,076	608	0.16
Florida	20,443	923	558	365	0.05
New York	19,390	1,050	879	171	0.05
New Jersey	17,503	3,424	1,715	1,709	0.20
North Carolina	12,254	4,970	4,156	814	0.41
Pennsylvania	8,942	1,745	1,646	99	0.20
Mississippi	7,067	691	632	59	0.10
Virginia	6,782	1,162	560	602	0.17
Missouri	6,082	5,454	5,441	13	0.90
Illinois	5,525	3,280	3,262	18	0.59
Alabama	5,238	1,310	1,255	55	0.25
Ohio	2,742	2,110	1,949	161	0.77
Iowa	1,453	2,726	2,701	25	1.88
Other states and territories	40,235	18,681	15,635	3,046	0.46
Total	228,728	57,079	46,212	10,867	0.25

Source: GAO analysis of FEMA data. | GAO-20-508

Note: The table only includes states that had either at least 4,000 repetitive loss properties or 2,000 mitigated properties.

^aMitigated properties includes both repetitive loss properties and other high-risk properties and is the sum of properties acquired, elevated, relocated, and floodproofed.

States also varied in their methods for flood mitigation (see table 2). For example, while property acquisition accounted for 81 percent of mitigated properties nationwide, it represented closer to half of mitigated properties in Virginia, New Jersey, and Florida and only 19 percent in Louisiana. According to some FEMA and local officials, high property values in some regions can make acquisitions cost prohibitive and other mitigation methods such as elevation more attractive because they do not incur the cost of purchasing the land.

Many other factors could affect mitigation, including homeowners' preferences. Further, the voluntary nature of FEMA's HMA programs may limit states' ability to acquire properties with known flood risk. According to FEMA, acquisition permanently addresses flood risk because, unlike elevation or floodproofing, it moves individuals and structures away from flood risk rather than mitigating a structure in place. In a subsequent report, we plan to explore in more detail the factors, including homeowner demand for acquisition, that have affected the extent to which states have used acquisition to mitigate flood risk.

While Property Acquisitions Help Reduce Flood Risk for Properties, Insufficient Premium Revenue Perpetuates Fiscal Exposure

NFIP represents a fiscal exposure to the federal government because its premium rates have not kept pace with the flood risk of the properties it insures. Addressing this imbalance would mean reducing the flood risk of the insured properties, increasing premium revenue, or some combination of both. Despite FEMA's efforts to mitigate its insured properties' flood risk, premium rates for many properties do not reflect the full estimated risk of loss. As we have reported previously, mitigation alone will not be sufficient to resolve NFIP's financial challenges; structural reforms to the program's premium rates will also be necessary.⁴²

⁴²GAO, *Fiscal Exposures: Federal Insurance and Other Activities That Transfer Risk or Losses to the Government*, [GAO-19-353](#) (Washington, D.C.: Mar. 27, 2019); [GAO-19-157SP](#); and [GAO-17-425](#).

Recent Catastrophic Flood Events and Projections Indicate Potential Increases in Flood Risk

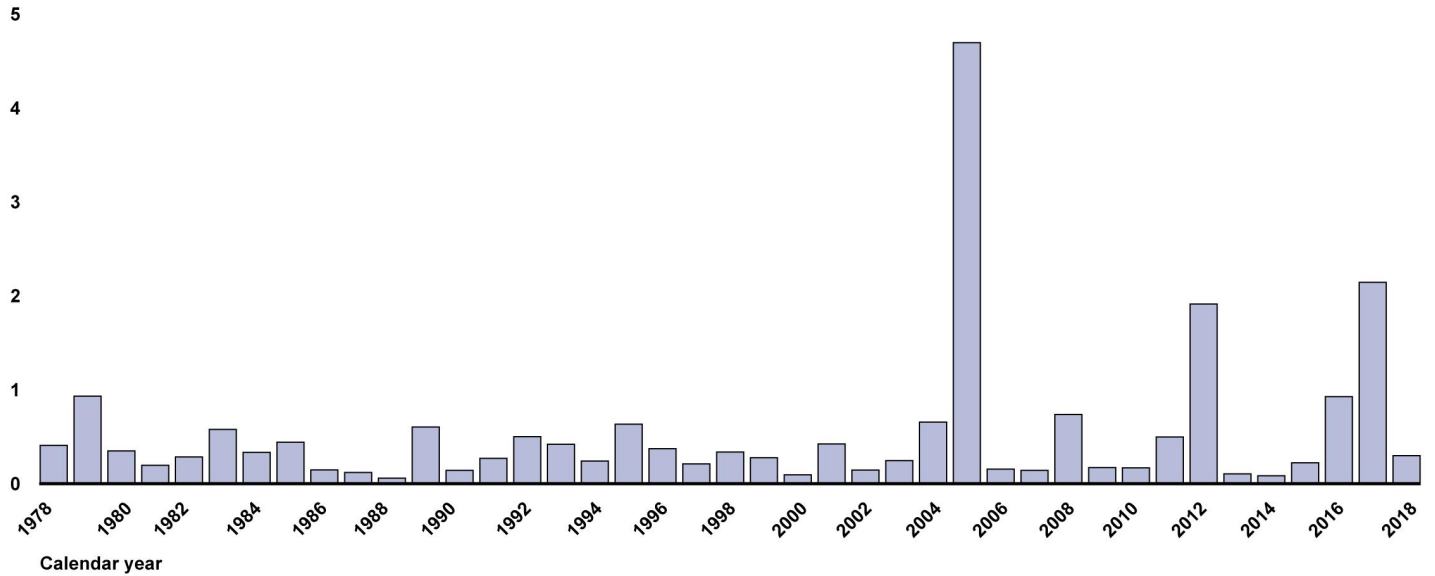
NFIP's total annual flood claim payments have grown in recent years, potentially indicating an increase in flood risk. For example, the eight years of the highest annual NFIP claims have all occurred since 2004, with particularly catastrophic flood events accounting for much of these claims:

- In 2005, claims reached \$17.8 billion (\$23.3 billion, adjusted for inflation), largely due to Hurricanes Katrina, Rita, and Wilma.
- In 2012, claims reached \$9.6 billion (\$10.7 billion, adjusted for inflation), largely due to Superstorm Sandy.
- In 2017, claims reached \$10.5 billion (\$11.0 billion, adjusted for inflation), largely due to Hurricanes Harvey, Irma, and Maria.

These severe weather events appear to be contributing to the long-term increases in claims paid by NFIP, as would be expected with infrequent but severe events. As seen in figure 7, the amount of claims paid per policy, adjusted for inflation, does not show a steady increase in claims but rather substantial spikes in certain years associated with catastrophic flooding events.

Figure 7: National Flood Insurance Program Annual Claims Paid per Policy, Calendar Years 1978–2018

Annual claims paid per policy (inflation-adjusted dollars in thousands)



Source: GAO analysis of National Flood Insurance Program data. | GAO-20-508

Data table for Figure 7: National Flood Insurance Program Annual Claims Paid per Policy, Calendar Years 1978–2018

(Inflation adjusted dollars in thousands)

Year	Amount
1978	0.4
1979	0.923
1980	0.34
1981	0.187
1982	0.276
1983	0.569
1984	0.325
1985	0.434
1986	0.139
1987	0.112
1988	0.051
1989	0.595
1990	0.133
1991	0.262
1992	0.493

Letter

1993	0.412
1994	0.233
1995	0.625
1996	0.365
1997	0.202
1998	0.328
1999	0.268
2000	0.086
2001	0.414
2002	0.136
2003	0.238
2004	0.647
2005	4.688
2006	0.147
2007	0.134
2008	0.729
2009	0.163
2010	0.161
2011	0.489
2012	1.905
2013	0.097
2014	0.076
2015	0.215
2016	0.919
2017	2.135
2018	0.29

Note: Total claims paid in each calendar year were divided by the number of policies-in-force during that calendar year and adjusted for inflation using the Bureau of Labor Statistics' Consumer Price Index for All Urban Consumers.

RL properties have contributed heavily to NFIP's claims and, as noted earlier, the number of RL properties continues to rise despite FEMA's mitigation efforts. Of the \$69.7 billion in claims NFIP paid out from 1978 to

2019, \$22.2 billion was for flood damage sustained by RL properties (32 percent).⁴³

The frequency and intensity of extreme weather events, such as floods, are expected to increase in coming years due to climate change, according to the U.S. Global Change Research Program and the National Academies of Sciences.⁴⁴ Further, numerous studies have concluded that climate change poses risks to many environmental and economic systems and a significant financial risk to the federal government. For example, according to the November 2018 National Climate Assessment report, the continued increase in the frequency and extent of high-tide flooding due to sea level rise threatens America's trillion-dollar coastal property market.⁴⁵ According to the National Oceanic and Atmospheric Administration, minor flood events (sometimes referred to as nuisance flooding) also are projected to become more frequent and widespread due to climate change.⁴⁶

Several Categories of Premium Rates Do Not Fully Reflect Flood Risk

While it is uncertain the exact extent to which flood risk has changed and will continue to change, NFIP's fiscal exposure will persist as long as premium rates do not keep pace with flood risk. As we have been reporting since 1983, NFIP's premium rates do not reflect the full risk of

⁴³The \$22.2 billion represents the total claims for all 228,728 properties that at any point had met one of FEMA's three RL property definitions. Note that while these high-risk properties account for a disproportionate share of claims, they also likely pay higher premiums. Due to the nature of the data, we did not adjust these dollars for inflation.

⁴⁴U.S. Global Change Research Program, *Impacts, Risks, and Adaptation in the United States: Fourth National Climate Assessment*, Volume II (Washington, D.C.: 2018) and The National Academies, Committee on Increasing National Resilience to Hazards and Disasters and Committee on Science, Engineering, and Public Policy, *Disaster Resilience: A National Imperative* (Washington, D.C.: 2012).

⁴⁵U.S. Global Change Research Program, *Impacts, Risks, and Adaptation in the United States: Fourth National Climate Assessment*, Volume II (Washington, D.C.: 2018).

⁴⁶National Oceanic and Atmospheric Administration, *Sea Level Rise and Nuisance Flood Frequency Changes around the United States*, NOAA Technical Report NOS CO-OPS 073 (Silver Spring, MD: June 2014).

loss because of various legislative requirements and FEMA practices.⁴⁷ To set premium rates, FEMA considers several factors, including location in flood zones, elevation of the property relative to the community's base flood elevation, and characteristics of the property, such as building type, number of floors, presence of a basement, and year built relative to the year of the community's original flood map. Most NFIP policies have premium rates that are deemed by FEMA to be full-risk rates, which FEMA defines as sufficient to pay anticipated losses and expenses.⁴⁸ However, FEMA's overall rate structure may not reflect the full long-term estimated risk of flooding, as discussed below.

Subsidized rates. NFIP offers some policyholders subsidized rates—that is, rates that intentionally do not reflect the full risk of flooding.⁴⁹ These premium rates are intended to encourage the widespread purchase of flood insurance by property owners and encourage floodplain management by communities. Subsidized rates generally are offered to properties in high-risk locations (special flood hazard areas) that were built before flood maps were created.⁵⁰ FEMA staff said they have begun increasing rates for certain subsidized properties as prescribed under the Biggert-Waters Flood Insurance Reform Act of 2012 and the Homeowner

⁴⁷See, for example, [GAO-17-425](#); [GAO-11-297](#); *Flood Insurance: Options for Addressing the Financial Impact of Subsidized Premium Rates on the National Flood Insurance Program*, [GAO-09-20](#) (Washington, D.C.: Nov. 14, 2008); *Flood Insurance: Financial Resources May Not Be Sufficient to Meet Future Expected Losses*, [GAO/RCED-94-80](#) (Washington, D.C.: Mar. 21, 1994); and *National Flood Insurance Program: Major Changes Needed if It Is To Operate Without Federal Subsidy*, [GAO/RCED-83-53](#) (Washington, D.C.: Jan. 3, 1983).

⁴⁸According to FEMA, these rates are based on the probability of a range of possible floods, damage estimates based on that level of flooding, and accepted actuarial principles.

⁴⁹FEMA defines subsidized rates as those charged to a group of policies that result in aggregate premiums insufficient to pay for anticipated losses and expenses.

⁵⁰Because RL properties have, by definition, repeatedly experienced flood losses, they are likely to be located in special flood hazard areas, and many have premium rates that do not reflect the full risk of loss. However, FEMA does not currently track the extent to which RL properties have subsidized premium rates.

Flood Insurance Affordability Act of 2014.⁵¹ In addition, the percentage of subsidized policies is decreasing. According to FEMA data, the percentage of NFIP policies receiving subsidized rates dropped from about 22 percent in July 2013 to about 17 percent in June 2019.

In 2013, we recommended that FEMA obtain elevation information to determine full-risk rates for subsidized properties.⁵² As of January 2020, FEMA had not fully implemented this recommendation but was in the process of doing so. For example, FEMA had requested proposals from third-party vendors for obtaining the elevation information and was reviewing these proposals. This information remains necessary for FEMA to determine the adequacy of its premium rates and the costs of any subsidization. It will also allow Congress and the public to understand the amount of unfunded subsidization within the program and the federal fiscal exposure it creates.

Grandfathered rates. FEMA allows some property owners whose properties are remapped into higher-risk flood zones to continue to pay the premium rate from the lower-risk zone.⁵³ FEMA data show that about 9 percent of NFIP policies were receiving a grandfathered rate as of June 2019. In 2008, we recommended that FEMA collect data to analyze the effect of grandfathered policies on NFIP's fiscal exposure.⁵⁴ As of February 2020, FEMA officials said they had not fully implemented this recommendation but were in the process of doing so. The officials told us

⁵¹This included increased rates for subsidized policies covering businesses, nonprimary residences, severe RL properties, and substantially damaged/substantially improved properties as required by the Biggert-Waters Flood Insurance Reform Act of 2012. The Homeowner Flood Insurance Affordability Act of 2014 generally established caps on the yearly percentage rate increases for rate classes and individual properties. When setting subsidized rates for individual properties, FEMA staff said they also consider flood risk, previous rate increases, and statutory limits on rate increases.

⁵²GAO, *Flood Insurance: More Information Needed on Subsidized Properties*, [GAO-13-607](#) (Washington, D.C.: July 3, 2013).

⁵³According to FEMA officials, in the aggregate, policy classes that contain grandfathered policies collect enough in premiums to reflect the full risk of loss for that class and thus are not generally considered subsidized. However, FEMA does not yet possess the data to verify this. FEMA officials acknowledged that in such classes of policies, property owners who obtain grandfathered rates are cross-subsidized by other policyholders in the same flood zone. That is, other policyholders pay higher rates to cover the shortfall in premiums from grandfathered policies.

⁵⁴GAO, *Flood Insurance: FEMA's Rate-Setting Process Warrants Attention*, [GAO-09-12](#) (Washington, D.C.: Oct. 31, 2008).

they had finished collecting data on grandfathered policies and that they planned to analyze it as they completed efforts to update their premium rate setting approach.⁵⁵ Collection and analysis of data on grandfathered policies will help FEMA understand and communicate the extent to which these policies are contributing to NFIP's fiscal exposure.

Rates designated full-risk. As we reported in 2008 and 2016, it is unclear whether premiums FEMA considers to be full-risk actually reflect the full long-term estimated risk of loss.⁵⁶ For example, NFIP full-risk premium rates do not fully reflect the risk of catastrophic losses or the expenses associated with managing them. Private insurers typically manage catastrophic risk using capital, reinsurance, and other instruments, such as catastrophe bonds, and include the associated expenses in premium rates.

By contrast, FEMA has traditionally managed catastrophic risk by relying on its authority to borrow from Treasury. In January 2017, FEMA began purchasing reinsurance to transfer some of its flood risk exposure to the private reinsurance market. However, FEMA has not accounted for these expenses in setting its NFIP premium rates. Reinsurance could be beneficial because it would allow FEMA to recognize some of its flood risk and the associated costs up front through the premiums it must pay to the reinsurers rather than after the fact in borrowing from Treasury. However, because reinsurers must charge FEMA premiums to compensate for the risk they assume, reinsurance's primary benefit would be to manage risk rather than to reduce NFIP's expected long-term fiscal exposure.

⁵⁵In April 2018, FEMA officials told us they had begun redesigning NFIP's risk rating system to help ensure premium rates better reflect an individual property's risk of flooding. The redesign, known as Risk Rating 2.0, includes efforts to use catastrophe models and updated map information to better reflect the variation in flood risk. While FEMA initially announced that new rates for all single-family homes would go into effect nationwide on October 1, 2020, it announced in November 2019 that it would defer implementation to October 1, 2021. FEMA said this would allow it to conduct a comprehensive analysis of the proposed rating structure so as to protect policyholders and minimize any unintentional negative effects of the transition and that the new implementation date would cover all NFIP policies.

⁵⁶GAO, *National Flood Insurance Program: Continued Progress Needed to Fully Address Prior GAO Recommendations on Rate-Setting Methods*, [GAO-16-59](#) (Washington, D.C.: March 17, 2016) and [GAO-09-12](#).

Insufficient Premium Revenue Contributes to NFIP's Fiscal Exposure

Congress has directed FEMA to provide discounted premium rates to promote affordability for policyholders but did not provide FEMA with dedicated funds to pay for these subsidies.⁵⁷ As a result, premium revenue has been insufficient to pay claims in some years, requiring borrowing from Treasury to make up for the shortfall.⁵⁸ While Congress passed reforms to NFIP in 1994 and 2004, neither set of actions sufficiently addressed program revenue.⁵⁹

In 2005, Hurricanes Katrina, Rita, and Wilma hit the Gulf Coast and resulted in NFIP borrowing nearly \$17 billion from Treasury to pay claims (see fig. 8). In July 2012, Congress passed the Biggert-Waters Flood Insurance Reform Act, which contained significant reforms to NFIP's premium rates.⁶⁰ But a few months later, Superstorm Sandy occurred, pushing NFIP's debt to \$24 billion. Following policyholders' concerns about the rate increases authorized by the 2012 act, Congress slowed the pace of many of these rate increases in 2014 with the Homeowner Flood Insurance Affordability Act.⁶¹

In the fall of 2017, Hurricanes Harvey, Irma, and Maria occurred, prompting additional borrowing from Treasury and causing NFIP to reach its borrowing limit. In response, Congress canceled \$16 billion of NFIP's debt in October 2017, which allowed NFIP to pay claims from these storms. Since September 2017, NFIP has been operating under a series of short-term authorizations, the most recent of which expires in

⁵⁷ [GAO-17-425](#); [GAO-16-59](#); *Flood Insurance: Forgone Premiums Cannot Be Measured and FEMA Should Validate and Monitor Data System Changes*, [GAO-15-111](#) (Washington, D.C.: Dec. 11, 2014); [GAO-13-607](#); and [GAO-09-12](#).

⁵⁸ Beginning in 1983, we have recommended that FEMA and Congress take actions to address this shortfall and other program weaknesses. See Appendix II at the end of this report for a summary of those recommendations and other significant events related to NFIP's fiscal exposure.

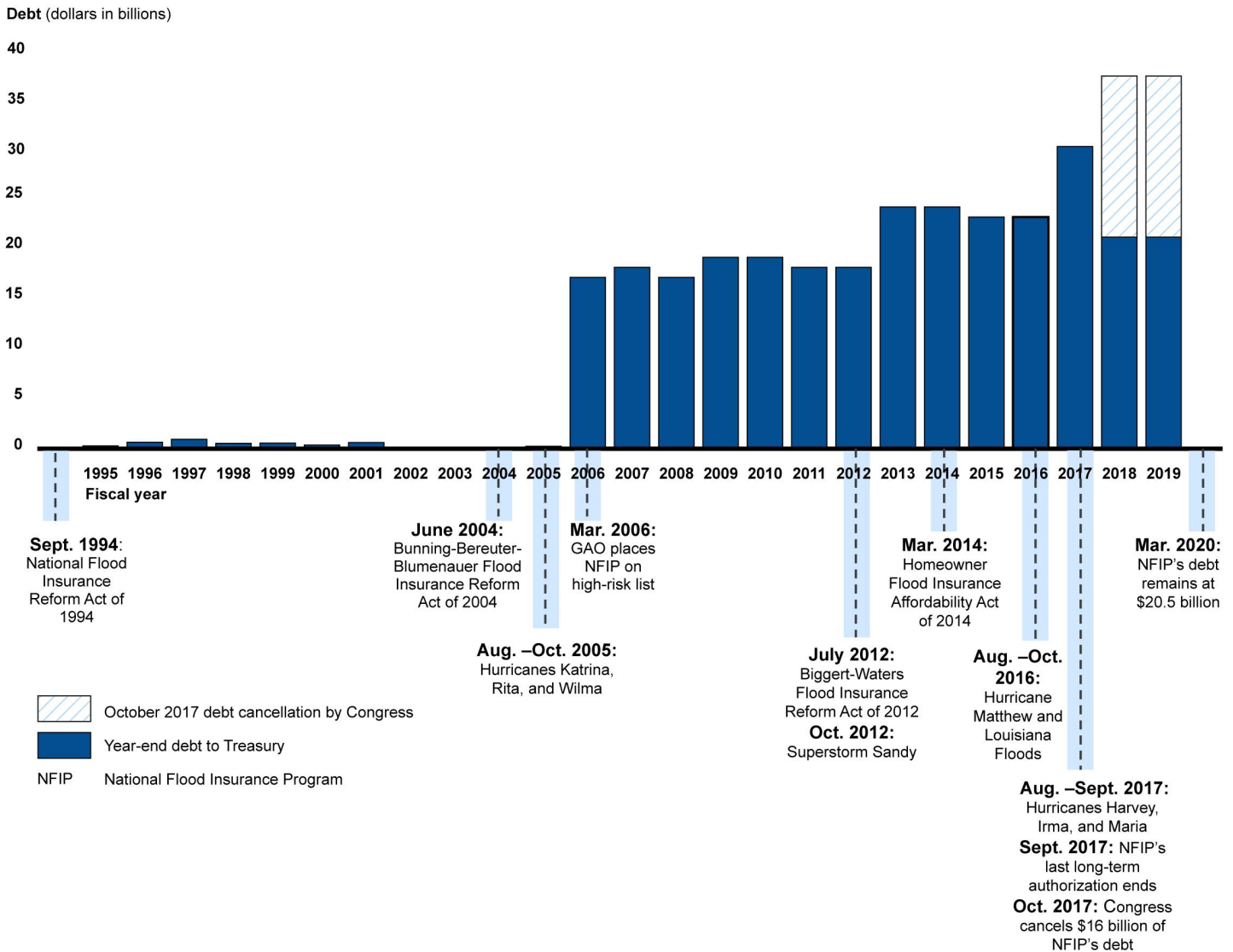
⁵⁹ National Flood Insurance Reform Act of 1994, Pub. L. No. 103-325, 108 Stat. 2255; Bunning-Bereuter-Blumenauer Flood Insurance Reform Act of 2004, Pub. L. No. 108-264, 118 Stat. 712.

⁶⁰ Biggert-Waters Flood Insurance Reform Act of 2012, Pub. L. No. 112-141, 126 Stat. 916.

⁶¹ Homeowner Flood Insurance Affordability Act of 2014, Pub. L. No. 113-89, 128 Stat. 1020.

September 2020. As of March 2020, NFIP's debt remained at \$20.5 billion.

Figure 8: National Flood Insurance Program Annual Year-end Debt to the Department of the Treasury, Fiscal Years 1995–2019



Source: GAO analysis of Treasury data. | GAO-20-508

Data table for Figure 8: National Flood Insurance Program Annual Year-end Debt to the Department of the Treasury, Fiscal Years 1995–2019

Year	Year-End Debt to Treasury	October 2017 debt cancellation by Congress
1995	0.265	--
1996	0.6266	--
1997	0.917	--
1998	0.522	--
1999	0.544	--
2000	0.345	--
2001	0.6	--
2002	0.01	--
2003	0	--
2004	0	--
2005	0.225	--
2006	17	--
2007	18	--
2008	17	--
2009	19	--
2010	19	--
2011	18	--
2012	18	--
2013	24	--
2014	24	--
2015	23	--
2016	23	--
2017	30	--
2018	21	16
2019	21	16

Note: Dollar values are not adjusted for inflation.

To improve NFIP’s solvency and enhance the nation’s resilience to flood risk, we suggested in 2017 that Congress could make comprehensive

reforms that include actions in six areas.⁶² We reported that it was unlikely that FEMA would be able to repay its debt and that addressing it would require Congress to either appropriate funds or eliminate the requirement that FEMA repay the accumulated debt. However, eliminating the debt without addressing the underlying cause of the debt—insufficient premium rates—would leave the federal taxpayer exposed to a program requiring repeated borrowing.⁶³

To address NFIP's fiscal exposure, there are two general approaches: decrease costs or increase revenue. Decreasing costs to the program in the form of claims involves mitigating insured properties' flood risks. Mitigation can be very costly, but there will be some properties for which the cost to mitigate will be outweighed by the benefit of reduced flood risk and, ultimately, fiscal exposure. Mitigation may be a cost-effective option for those properties for which full-risk rates would be cost-prohibitive.

Increasing revenue would require reforms to NFIP's premium rates. FEMA has begun increasing rates on subsidized properties. But, as we suggested in 2017, Congress could remove existing legislative barriers to FEMA's premium rate revisions.⁶⁴ Members of Congress and others have raised concerns about such reforms because raising premium rates may make coverage unaffordable for some policyholders. To address these concerns, we suggested that all policies include full-risk premium rates, with targeted, means-based, appropriated subsidies for some policies. This would improve the program's solvency while also addressing affordability concerns.⁶⁵ Assigning full-risk premium rates to all policies would remove subsidies from those who do not need them, helping improve solvency. It would also more accurately signal the true flood risk

⁶²[GAO-17-425](#). Comprehensive reform of NFIP could include actions in six areas: (1) addressing the current debt, (2) removing existing legislative barriers to FEMA's revising premium rates to reflect the full risk of loss, (3) addressing affordability, (4) increasing consumer participation, (5) removing barriers to private-sector involvement, and (6) protecting NFIP flood resilience efforts.

⁶³Actuarially sound premium rates that reflect the full risk of loss would reduce but not eliminate the likelihood of future borrowing. Because of the highly variable nature of flood risk, adverse loss experience over a relatively short period could require borrowing if a sufficient reserve had not yet been accumulated.

⁶⁴[GAO-17-425](#). As of June 2019, Congress had not implemented this recommendation.

⁶⁵[GAO-17-425](#); *National Flood Insurance Program: Options for Providing Affordability Assistance*, [GAO-16-190](#) (Washington, D.C.: Feb. 10, 2016); [GAO-11-297](#); [GAO-09-12](#); and [GAO/RCED-83-53](#).

to property owners and enhance resilience by incentivizing mitigation measures, such as acquisition. Means-based subsidies would ensure that property owners who needed help would get it, and an explicit appropriation for the subsidies would make their true cost transparent to taxpayers. We maintain that a comprehensive approach that includes mitigation and rate reform is needed to address NFIP's fiscal exposure.⁶⁶

Concluding Observations

Because several categories of NFIP premium rates do not reflect the full risk of flood loss, FEMA has had to borrow \$36.5 billion from Treasury to pay claims from several catastrophic flood events since 2005. To address this, some have suggested additional funding to mitigate RL properties.⁶⁷ While we acknowledge that mitigation is part of the solution, we maintain that a more comprehensive approach is necessary to address the program's fiscal exposure.

We have made two recommendations to FEMA that, if implemented, could help inform Congress' efforts to reform NFIP. In 2008, we recommended that FEMA collect information on grandfathered properties and analyze their financial effect on NFIP, and in 2013, we recommended that FEMA obtain elevation information on subsidized properties.⁶⁸ By implementing these recommendations, FEMA would better understand NFIP's fiscal exposure and be able to communicate this information to Congress.

Further, we suggested in 2017 that Congress take a comprehensive approach to reforming NFIP.⁶⁹ One important first step would be to implement full-risk premium rates for all policies, with appropriated means-based subsidies for some policies. Full-risk premium rates would remove subsidies from those who do not need them, helping improve

⁶⁶[GAO-17-425](#).

⁶⁷Union of Concerned Scientists, *Underwater: Rising Seas, Chronic Floods, and the Implications for US Coastal Real Estate* (Cambridge, MA: June 2018); NRDC, *Seeking Higher Ground: How to Break the Cycle of Repeated Flooding with Climate-Smart Flood Insurance Reforms* (New York, NY: July 2017); and C. Kousky and H. Kunreuther, "Addressing Affordability in the National Flood Insurance Program." *Journal of Extreme Events*, vol. 01, no. 01, (2014) p. 19.

⁶⁸[GAO-13-607](#) and [GAO-09-12](#).

⁶⁹[GAO-17-425](#).

solvency, and also more accurately signal the true flood risk to property owners and incentivize efforts to mitigate flood risk. Further, means-based subsidies would ensure that property owners who need help will get it, and having Congress explicitly appropriate for the subsidies would make the true cost of the subsidy transparent to taxpayers. While this would be an important step to putting NFIP on a sustainable path, comprehensive reform of the program should also address the other issues we have identified, including mitigating the flood risk of insured properties.

Agency Comments

We provided a draft of this report to the Department of Homeland Security for its review and comment. The agency provided technical comments, which we incorporated as appropriate.

We are sending copies of this report to the appropriate congressional committees, the Acting Secretary of Homeland Security, and other interested parties. In addition, the report is available at no charge on the GAO website at <https://www.gao.gov>.

If you or your staff have any questions about this report, please contact me at (202) 512-8678 or cackleya@gao.gov. Contact points for our Offices of Congressional Relations and Public Affairs may be found on the last page of this report. GAO staff who made key contributions to this report are listed in appendix III.



Alicia Puente Cackley
Director, Financial Markets and Community Investment

Appendix I: Objectives, Scope, and Methodology

This report addresses the Federal Emergency Management Agency's (FEMA) National Flood Insurance Program (NFIP). Our objectives were to examine (1) funding programs available for property acquisitions, (2) FEMA's flood mitigation efforts, and (3) factors contributing to NFIP's fiscal exposure.

To describe funding programs available for property acquisitions, we reviewed authorizing legislation, the Code of Federal Regulations, and FEMA guidance and manuals, including the Hazard Mitigation Assistance Guidance and Cost Share Guide, to identify program characteristics, eligibility requirements, and application guidelines. To identify funding for these programs, we analyzed FEMA's project-level Hazard Mitigation Assistance (HMA) data from its Enterprise Applications Development Integration and Sustainment system, which FEMA uses to track mitigation projects funded through its HMA grant programs. To summarize Increased Cost of Compliance coverage, which NFIP policyholders can use to fund mitigation efforts, we analyzed FEMA's NFIP claims database to identify the number and amount of such claims. We also interviewed the FEMA officials responsible for administering these grant programs. Further, we identified other federal agency programs that can fund property acquisitions or meet cost share requirements and reviewed their authorizing legislation and their relevant federal regulations. Finally, to identify examples of state and local programs that have been used to fund property acquisitions, we reviewed academic reports, including from the University of North Carolina and Rice University.

To review FEMA's flood mitigation efforts, we analyzed FEMA's project-level HMA data from the "Mitigation Universe" of its Enterprise Applications Development Integration and Sustainment system. We analyzed several variables in this dataset, including number of properties, federal share obligated, mitigation type category, grant program area, grant program fiscal year, and state.

For the analyses by mitigation type category, we excluded projects (79 percent of the total records) that did not include a flood mitigation activity (those with values of "Other" or "Pure Retrofit"). Of the remaining records, 98 percent were "Pure," meaning all properties within each project were

of a single mitigation method type (acquisition, elevation, floodproof, or relocation). The remaining 2 percent were “Mixed,” indicating a project contained at least one acquisition and at least one elevation but could also contain other mitigation methods. For analyses by grant program area, we treated projects funded through the Severe Repetitive Loss and Repetitive Flood Claims grant programs as being part of the Flood Mitigation Assistance program and projects funded through the Legislative Pre-Disaster Mitigation program as being part of the Pre-Disaster Mitigation program. For data on the number of flood mitigated properties, we used the final number of properties mitigated by a project. For data on funding, we used the federal share of the project’s obligated funding.

To analyze mitigated and nonmitigated repetitive loss (RL) properties, we summarized FEMA’s RL property mitigation report, which tracked the cumulative number of RL properties by year from June 2009 through June 2018. To describe the number of RL properties by state, we analyzed FEMA’s list of RL properties as of August 31, 2019, which included every property that at any point FEMA had designated as an RL property under any of its three definitions. The list included properties that had since been mitigated, as well as those that are no longer insured by NFIP.

To examine factors contributing to NFIP’s fiscal exposure, we analyzed FEMA’s claims dataset as of September 30, 2019. This dataset includes the more than 2 million claims paid to NFIP policyholders since the beginning of the program. We excluded records whose status was “open” or “closed without payment.” Further, we excluded records whose year of loss was before 1978 because FEMA officials told us that that was the first year they considered their claims data to be reliable and complete. To identify factors that contribute to NFIP’s fiscal exposure and illustrate how this fiscal exposure has materialized and changed over time, we reviewed several of our previous reports and the Department of the Treasury’s statements of public debt. Finally, to summarize how flood risk could change in the future, we reviewed our previous reports on climate change.

In general, we adjusted for inflation any dollar figures that we compared or aggregated across multiple years and indicated this accordingly. To do this, we used the Bureau of Labor Statistics’ Consumer Price Index for All Urban Consumers.

To assess the reliability of all of the datasets we analyzed for this report, we requested and reviewed preliminary versions of the data and accompanying data dictionaries. We used the data dictionary to identify potential variables for use in our analyses and output statistics on these variables (e.g., frequencies of values, number of blanks or zero values, minimum, maximum, and mean) to identify any potential reliability concerns such as outliers or missing values. We met with relevant FEMA officials to discuss each of the data sets to understand how FEMA collected, used, and maintained the data; the reliability and completeness of key variables; reasons for any potential discrepancies we identified; and whether our understanding of the data and approach to analyzing them were accurate and reasonable. After these meetings, we requested updated versions of the data and updated our analyses accordingly. We determined that all data elements we assessed were sufficiently appropriate and reliable for this report's objectives.

We conducted this performance audit from January 2019 to June 2020 in accordance with generally accepted government auditing standards. Those standards require that we plan and perform the audit to obtain sufficient, appropriate evidence to provide a reasonable basis for our findings and conclusions based on our audit objectives. We believe that the evidence obtained provides a reasonable basis for our findings and conclusions based on our audit objectives.

Appendix II: Significant Events and GAO Reports Related to the National Flood Insurance Program's Fiscal Exposure

- **January 1983:** We recommended that FEMA improve its rate-setting process to ensure adequate income for NFIP and suggested that Congress either limit FEMA's borrowing for extraordinary losses or establish an emergency fund for such losses, and pay for NFIP subsidies with appropriations.¹
- **March 1994:** We found that NFIP's premium income was insufficient to meet expected future losses because of subsidized rates and suggested that Congress consider how any changes in premium rates would affect policyholder participation.²
- **September 1994: National Flood Insurance Reform Act.** Developed a mitigation assistance program and expanded the mandatory purchase requirement.³
- **June 2004: Flood Insurance Reform Act.** Authorized grant programs to mitigate properties that experienced repetitive flooding losses.⁴
- **August-October 2005: Hurricanes Katrina, Rita, Wilma.** Caused \$17.1 billion in NFIP claims. FEMA debt to Treasury increased to \$16.9 billion in fiscal year 2006.
- **March 2006:** We added NFIP to our high-risk list.⁵

¹GAO, *National Flood Insurance Program: Major Changes Needed if It Is To Operate Without Federal Subsidy*, [GAO/RCED-83-53](#) (Washington, D.C.: Jan. 3, 1983).

²GAO, *Flood Insurance: Financial Resources May Not Be Sufficient to Meet Future Expected Losses*, [GAO/RCED-94-80](#) (Washington, D.C.: Mar. 21, 1994).

³National Flood Insurance Reform Act of 1994, Pub. L. No. 103-325, 108 Stat. 2255.

⁴Bunning-Bereuter-Blumenauer Flood Insurance Reform Act of 2004, Pub. L. No. 108-264, 118 Stat. 712.

⁵GAO, *High Risk Series: An Update*, [GAO-07-310](#) (Washington, D.C.: January 2007).

- **October 2008:** We recommended that FEMA collect data to analyze the effect of grandfathered policies on NFIP's fiscal exposure.⁶
- **November 2008:** We identified three options for addressing the financial impact of subsidies: increasing mitigation efforts; eliminating or reducing subsidies; and targeting subsidies based on need.⁷
- **June 2011:** We suggested that Congress allow NFIP to charge full-risk premium rates to all property owners and provide assistance to some categories of owners to pay those premiums.⁸
- **July 2012: Biggert-Waters Flood Insurance Reform Act.** Required FEMA to increase rates for certain subsidized properties and grandfathered properties; create a NFIP reserve fund; and improve flood risk mapping.⁹
- **October 2012: Superstorm Sandy.** Caused \$8.8 billion in NFIP claims. FEMA debt to Treasury increased to \$24 billion in fiscal year 2013.
- **February 2013:** We added limiting the federal government's fiscal exposure by better managing climate change risks to our high-risk list.¹⁰
- **July 2013:** We recommended that FEMA obtain elevation information to determine full-risk rates for subsidized policyholders.¹¹
- **March 2014: Homeowner Flood Insurance Affordability Act.** Reinstated certain rate subsidies removed by the Biggert-Waters Flood Insurance Reform Act of 2012; established a new subsidy for properties that are newly mapped into higher-risk zones; restored

⁶GAO, *Flood Insurance: FEMA's Rate-Setting Process Warrants Attention*, [GAO-09-12](#) (Washington, D.C.: Oct. 31, 2008).

⁷GAO, *Flood Insurance: Options for Addressing the Financial Impact of Subsidized Premium Rates on the National Flood Insurance Program*, [GAO-09-20](#) (Washington, D.C.: Nov. 14, 2008).

⁸GAO, *FEMA: Action Needed to Improve Administration of the National Flood Insurance Program*, [GAO-11-297](#) (Washington, D.C.: June 9, 2011).

⁹Biggert-Waters Flood Insurance Reform Act of 2012, Pub. L. No. 112-141, Div. F, Title II, 126 Stat. 916.

¹⁰GAO, *High Risk Series: An Update*, [GAO-13-283](#) (Washington, D.C.: February 2013).

¹¹GAO, *Flood Insurance: More Information Needed on Subsidized Properties*, [GAO-13-607](#) (Washington, D.C.: July 3, 2013).

grandfathered rates; and created a premium surcharge that would be deposited into the NFIP reserve fund.¹²

- **October 2014:** We recommended that FEMA amend NFIP minimum standards for floodplain management to encourage forward-looking construction and rebuilding efforts that reduce long-term risk and federal exposure to losses.¹³
- **July 2015:** We recommended that the Mitigation Framework Leadership Group establish an investment strategy to identify, prioritize, and guide federal investments in disaster resilience and hazard mitigation-related activities.¹⁴
- **August-October 2016: Hurricane Matthew and Louisiana floods.** Caused \$3.1 billion in NFIP claims. FEMA debt to Treasury debt increased to \$24.6 billion in early fiscal year 2017.
- **April 2017:** We suggested that Congress make comprehensive reforms to NFIP that include actions in six areas: (1) addressing the debt; (2) removing legislative barriers to full-risk premium rates; (3) addressing affordability; (4) increasing consumer participation; (5) removing barriers to private-sector involvement; and (6) protecting NFIP flood resilience efforts.¹⁵
- **August-September 2017: Hurricanes Harvey, Irma, and Maria.** Caused \$10 billion in NFIP claims. FEMA reached the limit of its Treasury borrowing authority of \$30.4 billion.

¹²Homeowner Flood Insurance Affordability Act of 2014, Pub. L. No. 113-89, 128 Stat. 1020.

¹³GAO, *Climate Change: Better Management of Exposure to Potential Future Losses Is Needed for Federal Flood and Crop Insurance*, [GAO-15-28](#) (Washington, D.C.: Oct. 29, 2014).

¹⁴GAO, *Hurricane Sandy: An Investment Strategy Could Help the Federal Government Enhance National Resilience for Future Disasters*, [GAO-15-515](#) (Washington, D.C.: July 30, 2015). The Mitigation Framework Leadership Group is an intergovernmental coordinating body that was created to integrate federal efforts and promote a national cultural shift that incorporates risk management and hazard mitigation in all planning, decision-making, and development to the extent practicable. It was established to coordinate mitigation efforts across the federal government and to assess the effectiveness of mitigation capabilities as they are developed and deployed across the nation.

¹⁵GAO, *Flood Insurance: Comprehensive Reform Could Improve Solvency and Enhance Resilience*, [GAO-17-425](#) (Washington, D.C.: Apr. 27, 2017).

**Appendix II: Significant Events and GAO
Reports Related to the National Flood
Insurance Program's Fiscal Exposure**

- **September 2017**: NFIP's last long-term authorization ended, resulting in a string of short-term reauthorizations.
- **October 2017**: Congress canceled \$16 billion of NFIP's debt to enable FEMA to continue paying flood claims.¹⁶ This reduced FEMA's debt to Treasury to \$20.5 billion.
- **March 2020**: FEMA's debt to Treasury remained at \$20.5 billion.
- **September 2020**: NFIP's current short-term authorization ends.¹⁷

¹⁶Additional Supplemental Appropriations for Disaster Relief Requirement Act, 2017, Pub. L. No. 115-72, § 308, 131 Stat. 1224, 1228.

¹⁷Further Consolidated Appropriations Act, 2020, Pub. L. No. 116-94, § 201, 133 Stat. 2534, 3019 (2019).

Appendix III: GAO Contact and Staff Acknowledgments

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In addition to the contact named above, Patrick Ward (Assistant Director), Christopher Forys (Analyst in Charge), Emily Bond, Christina Cantor, William Chatlos, Eli Dile, Lijia Guo, Holly Halifax, Laura Ann Holland, Yann Panassie, Stephen Ruszczuk, Jessica Sandler, Joseph Silvestri, Jena Sinkfield, and Kelsey Wilson made key contributions to this report.

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