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The Status of Puerto Rico's Recovery and Ongoing Challenges Following Hurricanes Irma and María: FEMA, SBA, and HUD Assistance

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SUMMARY

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The Status of Puerto Rico's Recovery and Ongoing Challenges Following Hurricanes Irma and María: FEMA, SBA, and HUD Assistance

Three years after Hurricanes Irma and María, Puerto Rico is still recovering from the devastation to communities, homes and property, businesses, and infrastructure that was caused by the hurricanes. At the same time, Puerto Rico has faced destruction caused by an earthquake swarm, which began in 2019 and is continuing into 2020, as well as the Coronavirus Disease 2019 (COVID-19) pandemic. These consecutive disasters have complicated response and recovery for each incident.

Many types of federal assistance were authorized to support Puerto Rico's recovery efforts following the hurricanes, and the provision of assistance is ongoing. This report focuses on the assistance provided by three federal agencies: the Federal Emergency Management Agency (FEMA), the U.S. Small Business Administration (SBA), and the U.S. Department of Housing and Urban Development (HUD). These programs provided grants, loans, and other forms of assistance to the Government of Puerto Rico and its local governments (referred to as municipios), certain private nonprofit organizations, businesses, and individuals and households. Some of these programs supported short- and intermediate-term recovery efforts, and some continue to support Puerto Rico's long-term recovery. Many other federal assistance programs were also authorized to support Puerto Rico's recovery following these major disasters; however, this report does not address funding provided by other federal agencies (including the U.S. Army Corps of Engineers, the U.S. Department of Agriculture, the U.S. Department of Transportation, and the U.S. Department of Education).

Members of Congress have raised serious concerns about the pace of Puerto Rico's recovery; inequities in the deployment of federal personnel to Puerto Rico and the delivery of assistance, including through the FEMA Public Assistance (PA) program; the timely provision of federal assistance; and delayed, partial, or improper federal payments and reimbursements, among other concerns described in this report.

Congress has taken an active role in supporting Puerto Rico's hurricane recovery efforts by conducting oversight and appropriating funding for recovery. For example, Congress passed the Bipartisan Budget Act of 2018 (BBA of 2018), which required the development of Puerto Rico's recovery plan and instructed the Government of Puerto Rico to submit regular reports to Congress about the status of its recovery activities and progress towards implementing its recovery plan. Congressional committees have also conducted numerous hearings and published reports focused on the recovery efforts following Hurricanes Irma and María. Additionally, at the request of Congress, the U.S. Government Accountability Office has authored multiple reports focused exclusively or substantially on Puerto Rico's recovery. In 2020, the Government of Puerto Rico and FEMA reported an increase in the pace, number, and dollar amounts of Public Assistance project obligations (almost all of the funds for reconstruction and replacement of physical structures or permanent work were obligated during September 2020). Further, Congress passed three supplemental appropriations acts that included a total of $35.4 billion in HUD Community Development Block Grant—Disaster Recovery (CDBG-DR) assistance (through BBA of 2018 and two other acts). Of the total amount provided in these three supplemental appropriations acts (i.e., $35.4 billion), Puerto Rico's allocation was $20.2 billion. However, Puerto Rico had only expended approximately $20.6 million in CDBG-DR funds, which represents approximately 0.1% of all appropriated funds, according to a March 2020 report. A significant amount of project work remains to be done, and a significant amount of the obligated and appropriated funding remains to be spent, including related to the PA and CDBG-DR projects and funding. This is also true of FEMA's Hazard Mitigation Grant Program (HMGP), the total available funding to Puerto Rico for which is $3.5 billion. However, by September 2020, FEMA had only obligated approximately 1.1% of the HMGP funds for Puerto Rico for Irma and María, and no HMGP funds have yet been disbursed for either hurricane. Meanwhile, other disasters, such as the earthquake swarm that began in 2019, continue to affect Puerto Rico and its recovery, by delaying the progress and increasing costs of ongoing hurricane recovery work.

Many challenges to Puerto Rico's ongoing hurricane recovery efforts and future disaster preparedness remain. Frequent policy and rule-making changes in pilot and non-statutory programs, such as FEMA's PA Section 428 Alternate Procedures and HUD's CDBG-DR program, may have generated confusion and contributed to recovery delays. Further, low participation rates in insurance programs and an inconsistent application of current building codes for hurricane-related projects jeopardize community resilience. These challenges, and others described in this report, may also affect other states, territories, and tribal governments, and considerations for Congress are discussed.

This report is intended to provide information to help inform Congress's understanding of the status of Puerto Rico's recovery, including a recap of the above-listed forms of federal assistance provided to Puerto Rico, as well as considerations for improving these and future recovery efforts. To that end, this report begins by describing the impact Hurricanes Irma and María had on Puerto Rico, and the roles of the Government of Puerto Rico and of the federal government in administering and implementing disaster recovery programs. It describes in detail the support provided by the above-listed federal assistance programs, and it discusses the recovery challenges Puerto Rico may face in the future. Additionally, the Appendices to this report describe Puerto Rico's ongoing earthquake swarm and how it has affected Puerto Rico's recovery efforts following the 2017 hurricanes; sources of recovery program data; detailed information on building codes; and additional Congressional Research Service products on topics relevant to understanding the underlying federal assistance programs and the status of disaster recovery in Puerto Rico.

The data included in this report were obtained at different times, with most dating to September and October, 2020. The dates associated with the data are noted. This report may be updated if warranted.

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Introduction

September 2020 marked the three-year anniversary of the significant destruction caused in Puerto Rico by Hurricanes Irma and María. This report focuses on Puerto Rico's recovery from these disasters, with consideration given to additional disasters that have compounded and complicated its recovery efforts, including an ongoing earthquake swarm and the Coronavirus Disease 2019 (COVID-19) pandemic.[1]

The Government of Puerto Rico has received significant federal assistance in the recovery effort, primarily from:

- the Federal Emergency Management Agency (FEMA) (part of the U.S. Department of Homeland Security (DHS));
- the U.S. Small Business Administration (SBA); and
- the U.S. Department of Housing and Urban Development (HUD).

This report does not address the funding and assistance provided by other federal agencies (to include the U.S. Army Corps of Engineers, the U.S. Department of Agriculture, the U.S. Department of Transportation, and the U.S. Department of Education). **Appendix D** lists additional Congressional Research Service (CRS) products on topics relevant to understanding the underlying federal assistance programs and the status of disaster recovery in Puerto Rico. For example, additional information on the restoration of Puerto Rico's power grid can be found in CRS Report R45263, *Puerto Rico—Status of Electric Power Recovery*, by Richard J. Campbell, and CRS Insight IN10785, *Puerto Rico and Electric Power Restoration from Hurricane Maria*, by Richard J. Campbell; and the status of U.S. Army Corps of Engineers work can be found in CRS Insight IN10764, *2017 Hurricanes and Army Corps of Engineers: Background for Flood Response and Recovery*, by Nicole T. Carter and Charles V. Stern. Additionally, this report does not address issues related to Puerto Rico's political status (more information on this topic may be found in CRS Report R44721, *Political Status of Puerto Rico: Brief Background and Recent Developments for Congress*, by R. Sam Garrett).

Appendix A provides specific information on the earthquakes that began in 2019 and the assistance that has been provided through FEMA and the SBA.

Appendix B describes the sources of recovery data that may be referenced to help inform an understanding of the status of specific recovery programs being used to support Puerto Rico's recovery efforts and work. However, this report does not independently estimate the total amount of assistance required for Puerto Rico to recover, nor does it independently estimate the amount of recovery work that remains to be completed.

[1] For example, see "FEMA [Federal Emergency Management Agency] Administrator Pete Gaynor approved Puerto Rico for a FEMA grant under the Lost Wages Assistance program. FEMA's grant funding will allow Puerto Rico to provide $300 per week—on top of their regular unemployment benefit—to those unemployed due to COVID-19" (Federal Emergency Management Agency (FEMA), "FEMA Announces Lost Wages Grant for Puerto Rico," news release HQ-20-283, October 7, 2020, https://www.fema.gov/press-release/20201007/fema-announces-lost-wages-grant-puerto-rico). On March 27, 2020, the President declared a major disaster under the Robert T. Stafford Disaster Relief and Emergency Assistance Act (P.L. 93-288, as amended) authorizing Public Assistance Category B (emergency protective measures) for Puerto Rico due to the Coronavirus Disease 2019 (COVID-19) pandemic (FEMA, "Puerto Rico; Major Disaster and Related Determinations," 85 *Federal Register* 21874, April 20, 2020). The declaration was amended to add Individual Assistance limited to Crisis Counseling (FEMA, "Puerto Rico; Amendment No. 2 to Notice of a Major Disaster Declaration," 85 *Federal Register* 35326, June 9, 2020).

Appendix C provides detailed information on building codes, which are referenced particularly in the context of Puerto Rico's rebuilding efforts, including as they relate to assistance provided by the Public Assistance and Hazard Mitigation Assistance programs.

Acronyms

Puerto Rico and Federal Departments/Agencies:

- **COR3**—Central Office of Recovery, Reconstruction, and Resiliency (Puerto Rico)
- **DHS**—U.S. Department of Homeland Security
- **FEMA**—Federal Emergency Management Agency
- **GAO**—U.S. Government Accountability Office
- **HUD**—U.S. Department of Housing and Urban Development
- **P3**—Public-Private Partnerships Authority (Puerto Rico)
- **SBA**—U.S. Small Business Administration

Programs and Funding Sources:

- **CDBG-DR**—Community Development Block Grant-Disaster Recovery (HUD)
- **CDBG-MIT**—Community Development Block Grant-Mitigation (HUD)
- **DRF**—Disaster Relief Fund (FEMA)
- **HMGP**—Hazard Mitigation Grant Program (FEMA)
- **IA**—Individual Assistance (FEMA)
- **NFIP**—National Flood Insurance Program (FEMA)
- **PA**—Public Assistance (FEMA)

Major Disasters Affecting Puerto Rico Between 2017 and 2020

Puerto Rico has received presidential declarations of emergency and major disaster under the Stafford Act[2] for Hurricanes Irma and María, as well as other natural disasters, including other hurricanes,[3] an ongoing swarm of earthquakes,[4] and the COVID-19 pandemic.[5] Puerto Rico's recovery efforts from these events are ongoing.

[2] Robert T. Stafford Disaster Relief and Emergency Assistance Act (Stafford Act; P.L. 93-288, as amended; 42 U.S.C. §§5121 et seq.).

[3] FEMA's "Declared Disasters" webpage, available at https://www.fema.gov/disasters/disaster-declarations, includes information on other emergencies and major disasters that have affected Puerto Rico, such as Tropical Storm Isaias (see FEMA, "Puerto Rico Tropical Storm Isaias (DR-4560-PR)," https://www.fema.gov/disaster/4560). For additional information regarding hurricanes, including how they form and are categorized, see the National Oceanic and Atmospheric Administration's (NOAA's) website on "Hurricanes," available at https://www.noaa.gov/education/resource-collections/weather-atmosphere/hurricanes.

[4] FEMA, "Puerto Rico Earthquakes (DR-4473-PR)," https://www.fema.gov/disaster/4473. For additional information regarding earthquakes, including what earthquakes are and how they are measured, see the U.S. Geological Survey's (USGS's) website on "The Science of Earthquakes," available at https://www.usgs.gov/natural-hazards/earthquake-hazards/science/science-earthquakes?qt-science_center_objects=0#qt-science_center_objects.

[5] FEMA, "Puerto Rico Covid-19 Pandemic (DR-4493-PR)," https://www.fema.gov/disaster/4493. Additional information regarding the nation's response to COVID-19 can be found by visiting the websites for federal agencies, including FEMA's COVID-19 Response website, available at https://www.fema.gov/disasters/coronavirus (for additional information see CRS Report R46326, *Stafford Act Declarations for COVID-19 FAQ*, by Elizabeth M. Webster, Erica A. Lee, and William L. Painter).

The following sections briefly describe Hurricanes Irma and María, which caused substantial physical damage to infrastructure, homes, and businesses, and resulted in significant loss of life in 2017.

Hurricane Irma

Hurricane Irma was a category 5 hurricane when it passed just north of Puerto Rico on September 6, 2017. The damage in Puerto Rico was caused by tropical-storm-force winds and significant rainfall, which resulted in:

- "near-total" losses of electricity and water;
- damage to homes;
- damage to businesses;
- collapsed structures;
- uprooted trees; and
- three reported indirect deaths.[6]

Hurricane Terminology and Definitions

"The Saffir-Simpson Hurricane Wind Scale is a 1 to 5 rating based on a hurricane's sustained wind speed. This scale estimates potential property damage."

- category 5 hurricane = sustained winds of ≤157 miles per hour (mph)
- tropical-storm-force winds = maximum sustained winds of 39 to 73 mph

Source: National Oceanic and Atmospheric Administration (NOAA), "Saffir-Simpson Hurricane Wind Scale," https://www.nhc.noaa.gov/aboutsshws.php; NOAA, "Tropical Cyclone Climatology," https://www.nhc.noaa.gov/climo/.

Figure 1 displays the wind speeds and the track of the hurricane.

The National Oceanic and Atmospheric Administration (NOAA) issued a hurricane warning for Puerto Rico, Vieques, and Culebra on September 5, 2017. President Donald J. Trump declared an emergency under the Stafford Act on September 5, 2017, which initially authorized Public Assistance Categories A and B (assistance for debris removal and emergency protective measures, respectively).[7] The hurricane warning was discontinued on September 7, 2017.[8]

The Archipelago of Puerto Rico

Puerto Rico is comprised of several islands. The main island is named Puerto Rico. Other islands in the Puerto Rico archipelago include the adjacent islands of Vieques (which is also a municipio—defined below) and Culebra (also a municipio), among others. "Under the jurisdiction known as Puerto Rico are approximately 140 insular geostructures, including islands, islets and keys of various sizes and magnitudes that border the coasts of the main island."

Source: Harrison Flores Ortiz, "Archipelago of Puerto Rico," in the Encyclopedia of Puerto Rico Online, Puerto Rican Endowment for the Humanities, https://enciclopediapr.org/encyclopedia/archipelago-of-puerto-rico/.

[6] John P. Cangialosi, Andrew S. Latto, and Robbie Berg, "Tropical Cyclone Report: Hurricane Irma," National Hurricane Center, AL112017, June 30, 2018, pp. 3, 5, 12, and 14, https://www.nhc.noaa.gov/data/tcr/AL112017_Irma.pdf. More specifically, Hurricane Irma's eye tracked about 50 nautical miles north of San Juan, Puerto Rico, on September 6, 2017, just before 0000 UTC (Universal Time Coordinated) on September 7, 2017. The highest wind speed reported as 48 knots (kt) (or approximately 55.2 miles per hour (mph)), with a gust of 64 kt (or approximately 73.6 mph) at 2230 UTC on September 6, 2017.

[7] FEMA, "Puerto Rico Hurricane Irma (EM-3384-PR)," https://www.fema.gov/disaster/3384; and FEMA, "Puerto Rico; Emergency and Related Determinations," 82 *Federal Register* 44647, September 25, 2017.

[8] The incident period was closed on September 7, 2017 (FEMA, "Puerto Rico; Amendment No. 1 to Notice of an Emergency Declaration," 82 *Federal Register* 44640, September 25, 2017; and FEMA, "Puerto Rico; Amendment No. 3 to Notice of a Major Disaster Declaration," 82 *Federal Register* 44641, September 25, 2017). The *incident period* is defined as "[t]he time interval during which the disaster-causing incident occurs. No Federal assistance under the Act

The President declared a major disaster on September 10, 2017.[9] This decision was expedited because Hurricane Irma was of such severity and magnitude that the need for supplemental federal assistance was apparent even prior to the completion of a joint Preliminary Damage Assessment (PDA).[10] The major disaster declaration authorized Individual Assistance, expanded Public Assistance in the designated areas, and authorized Hazard Mitigation throughout Puerto Rico.[11] Additionally, the President's major disaster declaration enabled the U.S. Small Business Administration (SBA) to provide SBA Disaster Loans, including Physical Loans for homeowners, businesses, and nonprofit organizations, and Economic Injury Disaster Loans (EIDLs) for businesses and nonprofit organizations.[12]

Hurricane María

Two weeks after Hurricane Irma, a second hurricane made landfall in Puerto Rico. Hurricane María was a category 4 hurricane (with wind speeds just below the category 5 threshold) when it came ashore in Puerto Rico on September 20, 2017, and lingered for several hours. Strong winds, as well as powerful storm surge, heavy rainfall, and severe flooding resulted in:

- loss of power (80% of utility poles and all transmission lines were downed);[13]
- loss of cell service;
- loss of water;
- extensive damage to or the destruction of buildings;
- extensive damage to or the destruction of homes;
- blown off roofs;
- sunken boats;
- extensive damage to roads;

shall be approved unless the damage or hardship to be alleviated resulted from the disaster-causing incident which took place during the incident period or was in anticipation of that incident.... " (44 C.F.R. §206.32(f)). For more information, see CRS Report R41981, *Congressional Primer on Responding to and Recovering from Major Disasters and Emergencies*, by Bruce R. Lindsay and Elizabeth M. Webster.

[9] FEMA, "Puerto Rico Hurricane Irma (DR-4336-PR)," https://www.fema.gov/disaster/4336; FEMA, "Preliminary Damage Assessment Report: Puerto Rico—Hurricane Irma," FEMA-4336-DR, September 10, 2017, https://www.fema.gov/sites/default/files/2020-03/FEMA4336DRPR_Expedited.pdf; and FEMA, "Puerto Rico; Major Disaster and Related Determinations," 82 *Federal Register* 44639, September 25, 2017.

[10] FEMA, "Preliminary Damage Assessment Report: Puerto Rico—Hurricane Irma," FEMA-4336-DR, September 10, 2017, https://www.fema.gov/sites/default/files/2020-03/FEMA4336DRPR_Expedited.pdf.

[11] FEMA, "Puerto Rico; Major Disaster and Related Determinations," 82 *Federal Register* 44639, September 25, 2017. Initially, the municipios of Culebra and Vieques were authorized for Individual Assistance and Public Assistance. Additional areas were then added for Individual Assistance, including Canóvanas, Loíza, Dorado, Fajardo, Toa Baja, Cataño, Luquillo, and Vega Baja; and additional areas were added for Public Assistance, including Adjuntas, Canóvanas, Carolina, Guaynabo, Juncos, Loíza, Luquillo, Orocovis, Patillas, Utuado, Aguas Buenas, Barranquitas, Bayamón, Camuy, Cataño, Ciales, Comerío, Hatillo, Jayuya, Las Piedras, Quebradillas, Salinas, San Juan, Vega Baja, Yauco, Dorado, Guarabo, and Naguabo (FEMA, "Puerto Rico; Amendment No. 1 to Notice of a Major Disaster Declaration," 82 *Federal Register* 44639, September 25, 2017; FEMA, "Puerto Rico; Amendment No. 2 to Notice of a Major Disaster Declaration," 82 *Federal Register* 44632, September 25, 2017; and FEMA, "Puerto Rico; Amendment No. 4 to Notice of a Major Disaster Declaration," 82 *Federal Register* 46816, October 6, 2017).

[12] U.S. Small Business Administration (SBA), "Presidential Declaration of a Major Disaster for the Commonwealth of Puerto Rico," 82 *Federal Register* 43441, September 15, 2017.

[13] By the end of 2017, which was several months after Hurricane María made landfall in Puerto Rico, nearly half of its residents lacked power.

- downed, splintered, and defoliated trees;[14] and
- 2,975 "total excess mortality" for the period of September 2017 through February 2018 (this is Puerto Rico's official death toll, which is based on an independent study by the George Washington University Milken Institute School of Public Health that was commissioned by former-Governor Ricardo Rosselló Nevares).[15]

Figure 1 displays the wind speeds and the track of the hurricane.

NOAA issued a hurricane warning for Puerto Rico, Vieques, and Culebra on September 18, 2017. The President declared an emergency under the Stafford Act on September 18, 2017, which initially authorized Public Assistance Categories A and B (assistance for debris removal and emergency protective measures, respectively).[16]

The President declared a major disaster on September 20, 2017.[17] As with Hurricane Irma, this decision was expedited because Hurricane María was of such severity and magnitude that the need for supplemental federal assistance was apparent even prior to the completion of a joint Preliminary Damage Assessment (PDA).[18] The hurricane warning was discontinued on September 21, 2017.[19]

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[14] Richard J. Pasch, Andrew B. Penny, and Robbie Berg, "Tropical Cyclone Report: Hurricane Maria," National Hurricane Center, February 14, 2019, AL152017, pp. 2, and 4-8, https://www.nhc.noaa.gov/data/tcr/AL152017_Maria.pdf (hereinafter Pasch, Penny, and Berg, "Tropical Cyclone Report: Hurricane Maria"). In 1928, a category 5 hurricane made landfall in Puerto Rico, and Hurricane María is the strongest hurricane to make landfall in Puerto Rico since then. Hurricane María crossed near Yabucoa on Puerto Rico's southeast coast around 1015 UTC on September 20, 2017. The highest wind speed was reported as 135 kt (or approximately 155.4 mph), weakening to 95 kt (or approximately 109.3 mph) by the time Hurricane María emerged into the Atlantic Ocean around 1800 UTC on September 20, 2017.

[15] The George Washington University Milken Institute School of Public Health, with the University of Puerto Rico Graduate School of Public Health, estimated the excess mortality post-hurricane to be 2,975 (The George Washington University's Milken Institute School of Public Health, *Ascertainment of the Estimated Excess Mortality from Hurricane María in Puerto Rico*, project report, August 28, 2018, https://publichealth.gwu.edu/sites/default/files/downloads/projects/PRstudy/Acertainment%20of%20the%20Estimated%20Excess%20Mortality%20from%20Hurricane%20Maria%20in%20Puerto%20Rico.pdf). Puerto Rico commissioned the Milken Institute School of Public Health "to conduct an independent analysis to ... determine the loss of life ... [resulting from] Hurricane Maria. The hurricane took the lives of 2,975. ... based on that fact, ... [Puerto Rico] adjusted the official death toll" (La Fortaleza, Oficina De La Gobernadora, "Authorized statement of the Governor of Puerto Rico, Ricardo Rosselló," September 13, 2018, https://www.fortaleza.pr.gov/content/authorized-statement-governor-puerto-rico-ricardo-rossell-5). There are other death toll estimates that are both lower than and higher than that adopted by Puerto Rico. For example, the Government of Puerto Rico initially estimated the death toll at 64 people. Additionally, a study initiated by the Harvard T.H. Chan School of Public Health, Harvard University, and published in the *New England Journal of Medicine*, estimated a total of 4,645 excess deaths during the period from September 20 through December 31, 2017 (Nishant Kishore et al., "Mortality in Puerto Rico after Hurricane Maria," *New England Journal of Medicine*, online, May 29, 2018, https://www.nejm.org/doi/full/10.1056/NEJMsa1803972).

[16] FEMA, "Puerto Rico Hurricane Maria (EM-3391-PR)," https://www.fema.gov/disaster/3391; and FEMA, "Puerto Rico; Emergency and Related Determinations," 82 *Federal Register* 45874-45875, October 2, 2017.

[17] FEMA, "Puerto Rico Hurricane Maria (DR-4339-PR)," https://www.fema.gov/disaster/4339; FEMA, "Preliminary Damage Assessment Report: Puerto Rico—Hurricane Maria," FEMA-4339-DR, September 20, 2017, https://www.fema.gov/sites/default/files/2020-03/FEMA4339DRPR_Expedited.pdf; and FEMA, "Puerto Rico; Major Disaster and Related Determinations," 82 *Federal Register* 46820, October 6, 2017.

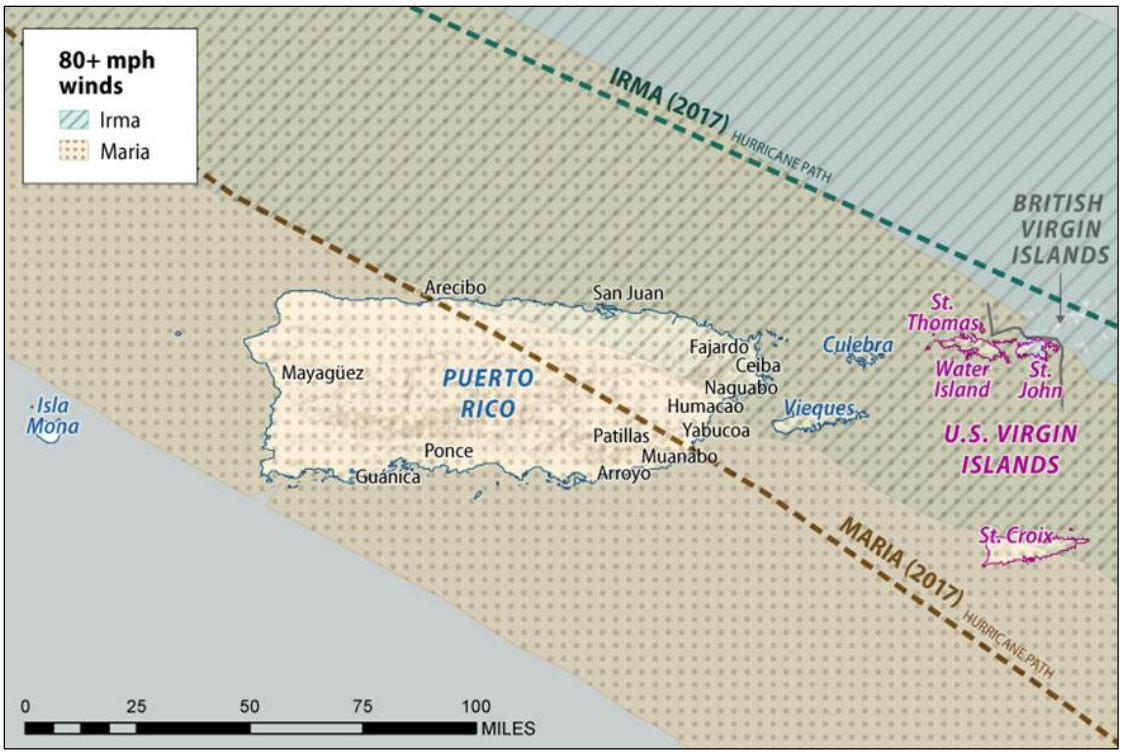
[18] FEMA, "Preliminary Damage Assessment Report: Puerto Rico—Hurricane Maria," FEMA-4339-DR, September 20, 2017, https://www.fema.gov/sites/default/files/2020-03/FEMA4339DRPR_Expedited.pdf.

[19] The incident period was closed on November 15, 2017 (FEMA, "Puerto Rico; Amendment No. 2 to Notice of an Emergency Declaration," 82 *Federal Register* 61768, December 29, 2017; FEMA, "Puerto Rico; Amendment No. 6 to Notice of a Major Disaster Declaration," 82 *Federal Register* 61787, December 29, 2017).

The major disaster declaration authorized Individual Assistance and expanded Public Assistance in the designated areas, and Hazard Mitigation throughout Puerto Rico.[20] Additionally, the major disaster declaration enabled the provision of SBA Disaster Loans, including Physical Loans for homeowners, businesses, and nonprofit organizations, and EIDLs for businesses and nonprofit organizations.[21]

In addition to the FEMA grants and direct assistance authorized pursuant to the President's major disaster declarations for Hurricanes Irma and María, Congress ultimately appropriated $20,223,446,230 in recovery funding for Puerto Rico through HUD's Community Development Block Grant-Disaster Recovery (CDBG-DR) and Community Development Block Grant-Mitigation (CDBG-MIT) programs through multiple pieces of enacted legislation (see **Table 8** for the allocation of CDBG-DR directed to Puerto Rico).

Figure 1. Wind Speeds Affecting Puerto Rico Caused by Hurricanes Irma and María



Sources: Created by CRS using data from the National Oceanic and Atmospheric Administration–National Ocean Service, the Humanitarian Data Exchange–British Red Cross Mapping Team, and Esri Data and Maps 2018.

Notes: Hurricane Irma passed to the north of Puerto Rico, but Hurricane María's path passed directly over Puerto Rico's main island, and significantly affected the principal other islands of Vieques and Culebra.

[20] FEMA, "Puerto Rico; Major Disaster and Related Determinations," 82 *Federal Register* 46820, October 6, 2017. Initially, Public Assistance Categories A and B were authorized for all of Puerto Rico. Subsequently, Public Assistance Categories C-G, permanent work, were authorized for all of Puerto Rico (FEMA, "Puerto Rico; Amendment No. 4 to Notice of a Major Disaster Declaration," 82 *Federal Register* 53515, November 16, 2017). Individual Assistance was ultimately authorized for all of Puerto Rico through amendments to the declaration (FEMA, "Puerto Rico; Amendment No. 2 to Notice of a Major Disaster Declaration," 82 *Federal Register* 47569, October 12, 2017).

[21] SBA, "Presidential Declaration of a Major Disaster for the Commonwealth of Puerto Rico," 82 *Federal Register* 45349, September 28, 2017.

Relationship Between the Government of Puerto Rico and the Federal Government in Delivering Assistance

The United States takes a "bottom up" approach to emergency management, meaning that disaster response and recovery begin at the "local" level. To that end, the Government of Puerto Rico and its municipios manage disaster response and recovery, except in the most extraordinary circumstances. When Puerto Rico's resources and capacity were overwhelmed by Hurricanes Irma and María, then-Governor Rosselló Nevares requested federal assistance. The role of the federal government is to supplement the efforts and resources of the Government of Puerto Rico and its municipios, and disaster relief organizations through the provision of assistance via federal recovery programs.[22] The government of Puerto Rico and the federal government have different roles and responsibilities in administering these programs and supporting Puerto Rico's recovery efforts, which are described below.

Defining Municipios

Puerto Rico has 78 municipalities, the Spanish term for which is "municipios." Municipios are second order administrative divisions, which are run by mayors, and they are the primary legal subdivision of Puerto Rico. Municipios are "geographic, urban and suburban, adjacent areas governed by the same local government.... They are equivalent to the 'county'...." The municipalities of Puerto Rico are referred to as municipios throughout this report.

Source: Mercedes Casablanca, "About the Municipalities: Yesterday and Today," in the Encyclopedia of Puerto Rico Online, Puerto Rican Endowment for the Humanities, https://enciclopediapr.org/encyclopedia/sobre-los-municipios-ayer-y-hoy/.

Notes: The Government of Puerto Rico's website includes a directory of municipios, available at https://www2.pr.gov/Directorios/Pages/DirectoriodeMunicipios.aspx.

Role of the Government of Puerto Rico

Puerto Rico is responsible for establishing and implementing its recovery plan, managing various federally-funded recovery programs, and meeting federal grants requirements, per congressional and federal requirements. These responsibilities are described below.

Former-Governor Ricardo Rosselló Nevares established the Central Office of Recovery, Reconstruction, and Resiliency (COR3) through Executive Order OE-2017-65[23] to implement Puerto Rico's recovery plan, entitled *Transformation and Innovation in the Wake of Devastation: An Economic and Disaster Recovery Plan for Puerto Rico* (hereinafter *Economic and Disaster Recovery Plan for Puerto Rico*).[24] COR3 "acts as the oversight function for the Governor's Office to verify compliance of the use of all disaster recovery grant funding [including FEMA

[22] 42 U.S.C. §5122(2). For more information on federal response and recovery, see CRS Report R41981, *Congressional Primer on Responding to and Recovering from Major Disasters and Emergencies*, by Bruce R. Lindsay and Elizabeth M. Webster.

[23] Government of Puerto Rico, Executive Order of the Governor of Puerto Rico, Hon. Ricardo A. Rosselló Nevares, To Create the Central Recovery and Reconstruction Office of Puerto Rico, Administrative Bulletin No. OE-2017-65, October 23, 2017 (to access the Executive Order, visit the website of the Gobierno de Puerto Rico, Departamento de Estado, available at https://www.estado.pr.gov/en/executive-orders/); see also Central Office of Recovery, Reconstruction, and Resiliency (COR3), *Transformation and Innovation in the Wake of Devastation: An Economic and Disaster Recovery Plan for Puerto Rico*, August 8, 2018, p. iv, https://recovery.pr/documents/pr-transformation-innovation-plan-congressional-submission-080818.pdf (hereinafter COR3, *Economic and Disaster Recovery Plan for Puerto Rico*). The Executive Order OE-2017-65 names the Central Recovery and Reconstruction Office, which is now known as COR3.

[24] COR3, *Economic and Disaster Recovery Plan for Puerto Rico*, p. viii. COR3 is a division of the Puerto Rico Public-Private Partnerships (P3) Authority. The website of the Puerto Rico Public-Private Partnerships Authority (P3) is available at https://aafaf.pr.gov/p3/.

assistance].... The COR3 office maintains an oversight and coordination role across all federal funding streams."[25] Further, COR3 maintains a "Transparency Portal" website (described in **Appendix B**), which is intended to make recovery information related to Hurricanes Irma and María publicly available.[26]

Separately, the Puerto Rico Department of Housing (PRDOH) was appointed by the Governor to administer the Community Development Block Grant-Disaster Recovery (CDBG-DR) program, in close collaboration with COR3.[27] Thus, PRDOH is responsible for HUD grant management, and CDBG-DR-funded program implementation and compliance (for which there are also program guidance documents that align with the *Economic and Disaster Recovery Plan for Puerto Rico*).[28] PRDOH reports information on the use of CDBG-DR funds to COR3, and this information is included in required reports to Congress (described below).[29]

Puerto Rico's Goals for Recovery

The Bipartisan Budget Act of 2018 (BBA of 2018), which provided relief funding through congressional appropriations in the wake of the 2017 hurricanes, includes requirements to support congressional oversight of Puerto Rico's recovery progress. The BBA of 2018 required the Governor of Puerto Rico to submit a report to Congress describing the plan for economic and disaster recovery, to include Puerto Rico's priorities, goals, and expected outcomes.[30] It also requires regular progress reports (every 180 days), which are made public.[31] The Government of Puerto Rico, with support from FEMA and the Homeland Security Operational Analysis Center (HSOAC), developed the *Economic and Disaster Recovery Plan for Puerto Rico*.[32] The four core areas that define the vision for Puerto Rico's recovery, as outlined in the plan, are:

1. **Society:** which is focused on promoting an educated, healthy, and sustainable society;
2. **Economy:** which is focused on ensuring rebuilding and restoration efforts promote sustainable economic growth and social transformation, and contribute to an economy that is more "vibrant and competitive" and can provide job growth and personal advancement opportunities;

[25] Puerto Rico Department of Housing (PRDOH), *Puerto Rico Disaster Recovery Action Plan for the Use of CDBG-DR Funds in Response to 2017 Hurricanes Irma and María*, Amendment 3, February 24, 2020, p. 8, https://cdbg-dr.pr.gov/en/download/action-plan-amendment-3-nonsubstantial-amendment-effective-on-february-24-2020/ (hereinafter PRDOH, *Action Plan for the Use of CDBG-DR Funds* (Amendment 3)).

[26] Governor of Puerto Rico to U.S. Congressional Leaders, *Third Congressional Status Report on the Economic and Disaster Recovery Plan*, January 29, 2020, https://recovery.pr/documents/Puerto_Rico_Third_Report_to_Congress.pdf (hereinafter Governor of Puerto Rico, *Third Congressional Status Report*).

[27] PRDOH, *Action Plan for the Use of CDBG-DR Funds* (Amendment 3), p. v.

[28] PRDOH, *Action Plan for the Use of CDBG-DR Funds* (Amendment 3), p. 8.

[29] Section 21210 of the Bipartisan Budget Act of 2018 (BBA of 2018; P.L. 115-123); and PRDOH, *Action Plan for the Use of CDBG-DR Funds* (Amendment 3), p. 8.

[30] Section 21210 of the BBA of 2018 (P.L. 115-123).

[31] See, for example, Government of Puerto Rico, *Fourth Congressional Status Report*, which is required by Section 21210(c) of the BBA of 2018 (P.L. 115-123). Government of Puerto Rico, *Fourth Congressional Status Report on the Economic and Disaster Recovery Plan*, August 3, 2020, p. 2, https://recovery.pr/documents/Congressional%20Report%20073020[2].pdf (hereinafter Government of Puerto Rico, *Fourth Congressional Status Report*).

[32] COR3, *Economic and Disaster Recovery Plan for Puerto Rico*, p. viii.

3. **Resilience:** which is focused on future disaster response and recovery through preparedness (individual, business, community, and government), and mitigation (e.g., improved codes and standards); and
4. **Infrastructure:** which is focused on modern, sustainable, resilient design and reconstruction of critical infrastructure.[33]

The plan also sets forth the recovery activities to achieve long-term recovery, including shorter-term (1-2 year) objectives, such as:

- reestablishing energy, telecommunications, water, and transportation systems;
- repairing or rebuilding residential structures;
- improving emergency preparedness; and
- clarifying responsibility for infrastructure and services.[34]

Further, the plan sets forth longer-term (3-11 year) objectives, such as:

- encouraging economic growth;
- revitalizing urban centers;
- improving infrastructure and social services to meet the current and future population's needs;
- rebuilding infrastructure to modern codes and standards; and
- enhancing recovery and daily operational decisionmaking resources for the public and private sectors.[35]

In total, the recovery plan identifies 276 courses of action (or individual goals)—grouped into Capital Investments and Strategic Initiatives—to achieve Puerto Rico's recovery goals.[36] The federal assistance programs, described in the "Federal Assistance Provided to Puerto Rico Following Hurricanes Irma and María" section of this report, support Puerto Rico's efforts to achieve its recovery goals.

Puerto Rico's Responsibilities as a Federal Grant Recipient

In addition to orchestrating the disaster recovery process at the state and substate level, the Government of Puerto Rico serves as the primary grant recipient for federal disaster assistance, such as FEMA's Public Assistance program. The primary grant recipient plays a role in vetting projects for eligibility and in coordinating with FEMA on project development and implementation. The primary grant recipient is also responsible for ensuring compliance with all federal requirements, including ensuring that subgrantees and subcontractors of the primary grant recipient comply with the statutory and regulatory requirements of the federal assistance.[37] The primary grant recipient is also responsible for ensuring that any conditions placed on the federal assistance, such as cost-share requirements, are met—regardless of whether the primary grant

[33] COR3, *Economic and Disaster Recovery Plan for Puerto Rico*, pp. ix, and 4-5.

[34] COR3, *Economic and Disaster Recovery Plan for Puerto Rico*, pp. 8-9.

[35] COR3, *Economic and Disaster Recovery Plan for Puerto Rico*, pp. 8-9.

[36] Letter from Ricardo Rosselló Nevares, Governor of Puerto Rico, to Leader McConnell, Senator, Minority Leader Schumer, Senator, and Speaker Pelosi, Representative, and Minority Leader McCarthy, Representative, February 4, p. 2, 2019, https://recovery.pr/documents/Letter_Gov_Rossello_to_Congressional.pdf.

[37] For more information on federal grants management, see CRS Report R42769, *Federal Grants-in-Aid Administration: A Primer*, by Natalie Keegan.

recipient directly expended the funds or passed them through to be expended by subgrantees or subcontractors.

Role of Federal Agencies

Federal agencies are supporting the disaster recovery efforts of Puerto Rico. One of the federal government's primary recovery functions is to perform grants management, categorized as financial management, program administration, and grant oversight.[38] Further, federal grant administration activities include:

- providing guidance on the use of funds, as well as technical assistance to grant recipients;
- reviewing activities conducted under the terms of the grant award;
- reviewing and approving changes in the scope of work to be done under the grant agreement; and
- assessing compliance with program and financial reporting requirements.[39]

Federal agencies also investigate allegations of waste, fraud, and abuse in the use of federal assistance, and are required to conduct risk assessments to identify risks of improper payments under grant programs and to implement additional grant management procedures to reduce that risk.[40] For purposes of administering aid under the Stafford Act, Puerto Rico is considered a "state"[41] by federal agencies, and, as such, is subject to the same statutory and regulatory requirements as states.[42] Federal agencies conduct risk assessments to review the financial integrity of the state with respect to managing federal funding to determine whether there is a high risk of waste, fraud, and abuse in the use of the federal grant award.[43] Though FEMA does not have a formal process for designating a grantee as "high risk," it implemented a manual review of reimbursement requests several times during the recovery period for payments requested under the Public Assistance program (this is further discussed in the "Public Assistance Obligation and Disbursement" section) to mitigate the risk of waste, fraud, and abuse. Because manual review of reimbursements requires an additional step in the processing of reimbursement payments, this may have caused additional delay in the processing of payments to Puerto Rico. HUD also conducts risk assessments of grantees, but has established criteria to make a high-risk grantee determination that may result in additional monitoring and oversight.[44]

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[38] Financial management activities are generally conducted by the agency's finance personnel and include tracking expenditures made under the terms of a grant award and disbursing grant funds. Program administration is often undertaken by agency program specialists and involves monitoring grant recipient activities (e.g., compliance with the terms of the grant award. With regard to oversight, the offices of inspector general (OIG) have broad authority to conduct audits and investigations of federal grant programs to assess the efficiency and effectiveness of the programs and to reduce waste, fraud, and abuse. For more information on federal grants administration, see CRS Report R42769, *Federal Grants-in-Aid Administration: A Primer*, by Natalie Keegan.

[39] For more information, see the Office of Management and Budget's (OMB's) *Uniform Administrative Requirements, Cost Principles, and Audit Requirements for Federal Awards*, codified in 2 C.F.R. Part 200, available at https://www.grants.gov/learn-grants/grant-policies/omb-uniform-guidance-2014.html.

[40] Improper Payments Elimination and Recovery Improvement Act, P.L. 112-248.

[41] 42 U.S.C. §5122(4).

[42] 44 C.F.R. §59.1.

[43] 2 C.F.R. §200.205(1).

[44] For additional information related to the U.S. Department of Housing and Urban Development (HUD) high-risk considerations, see U.S. Government Accountability Office (GAO), *Disaster Recovery: Better Monitoring of Block Grant Funds Is Needed*, GAO-19-232, March 2019, pp. 34-35, https://www.gao.gov/assets/700/697827.pdf.

Federal Assistance Provided to Puerto Rico Following Hurricanes Irma and María

The following sections describe select forms of federal assistance that were authorized to support Puerto Rico following Hurricanes Irma and María, and the sources of funding for such programs. First, brief overviews of each program are provided, organized by the agency that delivers the assistance. This is followed by an overview of the sources of federal recovery program funding. The section concludes with more in-depth information, which is organized according to each specific program. The program-specific sections include a brief overview of the work that has been completed and the work that remains to be completed. Additionally, a few program-specific considerations that may be of interest to Congress are included.

The presidential major disaster declarations under the Stafford Act authorized the Federal Emergency Management Agency to provide the following disaster assistance:

- Public Assistance (PA), which provides grants to Puerto Rico and its local governments, as well as certain private nonprofit organizations, for emergency protective measures and debris removal operations, as well as the repair or replacement of eligible public and nonprofit facilities;[45]
- Individual Assistance (IA), which provided direct aid to affected individuals and households for housing assistance and other needs, crisis counseling, case management services, legal services, and disaster unemployment assistance;[46] and
- Hazard Mitigation Grant Program (HMGP) funding, which supports mitigation and resiliency projects and programs across Puerto Rico.[47] Hazard mitigation funding is intended to save lives, preserve property, reduce the need for temporary shelter, lower costs associated with disaster recovery, and facilitate economic recovery after a disaster.[48]

In addition to assistance authorized pursuant to the major disaster declarations, the National Flood Insurance Program (NFIP) paid flood insurance claims to program participant policyholders. Property owners or renters may elect to purchase a flood insurance policy, either through the NFIP or from private companies. In the case of Puerto Rico, however, there were low rates of NFIP and private flood insurance participation when Hurricane María made landfall.

(FEMA consolidated the grants of assistance provided for Hurricanes Irma and María for purposes of program administration.[49])

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[45] FEMA, "Public Assistance: Local, State, Tribal and Private Non-Profit," https://www.fema.gov/public-assistance-local-state-tribal-and-non-profit.

[46] For more information, see CRS Report R46014, *FEMA Individual Assistance Programs: An Overview*, by Elizabeth M. Webster; see also FEMA, "Individual Disaster Assistance," https://www.fema.gov/individual-disaster-assistance.

[47] FEMA, "The Hazard Mitigation Grant Program Guide for State/Local Governments," https://www.fema.gov/grants/mitigation/hazard-mitigation/governments.

[48] Multihazard Mitigation Council, National Institute of Building Sciences, *Natural Hazard Mitigation Saves*, 2017 Interim Report, Washington, DC, December 2017, p. i, https://www.nibs.org/page/reports.

[49] For administrative purposes, FEMA consolidated Public Assistance work and obligations for either incident that was initiated on or after September 17, 2017, into the declaration for Hurricane María, DR-4339. Alejandro R. De La Campa, FEMA Federal Coordinating Officer, to Governor Ricard A. Rosselló Nevares, "FEMA-4336-DR-PR and FEMA-4339-DR-PR," memorandum, October 6, 2017, provided to CRS by FEMA Congressional Affairs staff.

The presidential major disaster declarations under the Stafford Act authorized the Small Business Administration to provide disaster assistance through the SBA Disaster Loan Program, which provided Physical Loans for homeowners, businesses, and nonprofit organizations, and EIDLs for businesses and nonprofit organizations.

Following Hurricanes Irma and María, Congress, in a series of separate legislative actions, appropriated recovery funding for Puerto Rico through the Department of Housing and Urban Development Community Development Block Grant-Disaster Recovery (CDBG-DR) and Community Development Block Grant-Mitigation (CDBG-MIT) programs (see **Table 8** for the allocation of CDBG-DR directed to Puerto Rico under P.L. 115-56, P.L. 115-123, and P.L. 116-20 to address unmet needs and mitigation activities).[50]

Sources of Federal Recovery Program Funding

The President and Congress authorized various forms of FEMA, SBA, and HUD assistance to support the recovery efforts of Puerto Rico, as listed in **Table 1** and described below.

Table 1. Sources of Recovery Program Funding

Agency	Program	Funding Source(s)
FEMA	Public Assistance (PA)	Disaster Relief Fund
FEMA	Hazard Mitigation Grant Program (HMGP)	Disaster Relief Fund
FEMA	National Flood Insurance Program (NFIP)	• Policy Premiums • Annual Appropriations • Borrowing from the U.S. Treasury
FEMA	Individual Assistance (IA)	Disaster Relief Fund
SBA	Disaster Loan Program	SBA Disaster Loan Account
HUD	Community Development Block Grant-Disaster Recovery (CDBG-DR) Community Development Block Grant-Mitigation (CDBG-MIT)	Supplemental Appropriations: • P.L. 115-56 • P.L. 115-123 • P.L. 116-20

Sources: Compiled by CRS based on program funding data from FEMA, the SBA, and HUD.

Notes: For more information on assistance provided to Puerto Rico following Hurricanes Irma and María, see CRS Report R45084, *2017 Disaster Supplemental Appropriations: Overview*, by William L. Painter.

Federal funding for disaster recovery is provided through a combination of annual and supplemental appropriations. The most well-known of these appropriations is the Disaster Relief Fund (DRF): a "no-year appropriation" that funds FEMA's activities under the Stafford Act,

Available to Members and congressional staff upon request. FEMA also consolidated the Individual Assistance data for the hurricanes (email from FEMA Congressional Affairs staff, September 10, 2020).

[50] On February 7, 2020, the House of Representatives passed Emergency Supplemental Appropriations for Disaster Relief and Puerto Rico Disaster Tax Relief Act, 2020, H.R. 5687, which would include additional CDBG-DR funds and provide flexibilities for the use of funds previously appropriated and allocated in response to Hurricanes Irma and María. The bill has been placed on the Senate Legislative Calendar under General Orders.

including disaster response and recovery.[51] The DRF is used to pay for FEMA's PA, IA, and HMGP programs.[52]

SBA disaster loans are provided through the SBA Disaster Loan Account, which is funded via annual and supplemental appropriations.[53]

CDBG-DR and CDBG-MIT funding is provided via supplemental appropriations.

The following sections provide a more in-depth overview of the assistance programs provided by FEMA, the SBA, and HUD. Some of these programs supported short- and intermediate-term recovery efforts in Puerto Rico, including certain forms of:

- FEMA Public Assistance (PA);
- FEMA Individual Assistance (IA); and
- SBA disaster loans.

Others continue to support Puerto Rico's long-term recovery efforts, such as some forms of:

- FEMA PA;
- FEMA's Hazard Mitigation Grant Program (HMGP); and
- HUD's Community Development Block Grant—Disaster Recovery and—Mitigation (CDBG-DR and CDBG-MIT, respectively).

These ongoing programs support many types of recovery work, including repairing or rebuilding public infrastructure, mitigating against the threat of future disasters, and assisting with community and individual recovery. Further, these programs connect in various ways. For example, in addition to supporting infrastructure-related projects, the HUD CDBG-DR program is continuing the housing recovery efforts that began with assistance provided through FEMA's PA and IA programs.

The following sections provide program-specific overviews. First, programs that provide assistance to government entities and nonprofit organizations are described, followed by programs that provide assistance to individuals and businesses, and then a combination of government entities and individuals. It begins with FEMA's PA program, which was the first form of federal assistance authorized to support Puerto Rico's disaster response and recovery efforts.[54] The report then describes FEMA-funded mitigation. These sections are followed by an overview of assistance to individuals and households, which includes assistance provided by FEMA, the SBA, and HUD. Then, SBA assistance is described, followed by HUD assistance. The section concludes by describing insurance that supported individual recovery efforts.

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[51] For more information on the Disaster Relief Fund (DRF), see CRS Report R45484, *The Disaster Relief Fund: Overview and Issues*, by William L. Painter.

[52] Unlike other FEMA programs, the National Flood Insurance Program (NFIP) does not rely on congressional involvement, nor is a presidential declaration under the Stafford Act required to allow policyholders to file claims. Instead, the NFIP is funded in three ways: (1) receipts from the premiums of flood insurance policies, including fees and surcharges; (2) direct annual appropriations for part of the costs of the flood hazard mapping and risk analysis program; and (3) borrowing from the U.S. Treasury when funding is insufficient to pay the NFIP's obligations (e.g. insurance claims) (U.S. Department of Homeland Security (DHS), *FEMA Budget Overview FY2020*, FEMA—NFIP – 4).

[53] For more information on the SBA Disaster Loan Account, see CRS Insight IN11433, *Supplemental Appropriations: SBA Disaster Loan Account*, coordinated by Bruce R. Lindsay.

[54] FEMA, "Puerto Rico; Emergency and Related Determinations," 82 *Federal Register* 44647, September 25, 2017; FEMA, "Puerto Rico; Emergency and Related Determinations," 82 *Federal Register* 45874-45875, October 2, 2017.

FEMA Public Assistance[55]

FEMA's Public Assistance (PA) Program provides supplemental financial assistance to states, tribes, and territories, as well as certain private nonprofit organizations, when authorized as part of an emergency or major disaster declaration by the President under the Stafford Act.[56] Public Assistance for "emergency work" includes financial and direct assistance for debris removal and emergency protective measures undertaken in immediate response to a hazard.[57] Public Assistance for "permanent work" provides assistance to repair, reconstruct, and replace disaster-damaged public and eligible nonprofit facilities to facilitate long-term recovery.[58] **Table 2** lists the categories of PA work.

Table 2. Statutory Authorities for Public Assistance

Stafford Act Sections	Category of Assistance	What It Provides
Section 407	Category A[a]	Emergency Work: Debris Removal
Section 403	Category B[a]	Emergency Work: Emergency Protective Measures
Section 406 or Section 428	Category C[b]	Permanent Work: Roads/Bridges
Section 406 or Section 428	Category D[b]	Permanent Work: Water Control Facilities
Section 406 or Section 428	Category E[b]	Permanent Work: Buildings/Equipment
Section 406 or Section 428	Category F[b]	Permanent Work: Utilities
Section 406 or Section 428	Category G[b]	Permanent Work: Parks, Recreational, and Other Facilities

Source: FEMA, *Public Assistance Program and Policy Guide (PAPPG)*, FP 104-009-2, April 2018, https://recovery.pr/documents/PAPPG_3.1_508_FINAL_5-4-2018.pdf (effective for declarations for the 2017 hurricanes and 2019-2020 earthquakes).

Notes: The Public Assistance (PA) categories of assistance (i.e., Categories A-G) do not align with the numbering in Section 403 of the Robert T. Stafford Disaster Relief and Emergency Assistance Act (Stafford Act, P.L. 93-288, as amended; 42 U.S.C. §§5121 et seq.).

a. This type of assistance may be made available if authorized pursuant to a presidential declaration of emergency or major disaster.

b. This type of assistance may only be made available if authorized pursuant to a presidential declaration of major disaster.

Public Assistance provides financial assistance for at least 75% of eligible costs for both urgent response and long-term recovery needs. In certain catastrophic situations, the President may increase the federal cost share; the federal cost share may also be increased legislatively.[59] Remaining costs are generally paid by nonfederal sources, unless the statute authorizing the funds

[55] For more information on FEMA's Public Assistance (PA) program, contact Erica A. Lee, Analyst in Emergency Management and Disaster Recovery.

[56] For general information on FEMA's Public Assistance program, see CRS In Focus IF11529, *A Brief Overview of FEMA's Public Assistance Program*, by Erica A. Lee.

[57] Assistance for PA emergency protective measures is authorized under Stafford Act Sections 402, 403, 418, 419, and 502; 42 U.S.C. §§5170a, 5170b, 5185, 5186, and 5192. Assistance for PA debris removal is authorized under Stafford Act Sections 407, 428, and 502; 42 U.S.C. §§5173, 5189f, and 5192.

[58] Assistance for PA permanent work is authorized under Stafford Act Sections 406 and 428; 42 U.S.C. §§5172 and 5189f. See 44 C.F.R. §206.220 for general eligibility for Public Assistance. See also 44 C.F.R. §206.226 for federal regulations on restoration of damaged facilities.

[59] 44 C.F.R. §206.47.

explicitly provides that they may be applied to cost sharing requirements of other federal programs.[60] For example, when appropriated, Community Development Block Grant funding for disaster assistance (CDBG-DR) may be used to cover FEMA non-federal cost share amounts.

The President authorized Public Assistance "emergency work" in emergency declarations issued for the 2017 hurricanes.[61] The major disaster declaration for Hurricane María additionally authorized PA "permanent work" throughout Puerto Rico's 78 municipios.[62] In acknowledgement of the severity and magnitude of the hurricanes' impact, the President amended the initial major disaster declaration for Hurricane María to increase the federal cost share for "emergency work" to 100% for a limited period of time.[63]

For the 2017 hurricanes, the Government of Puerto Rico is designated as the PA Recipient.[64] Then-Governor Ricardo Rosselló Nevares delegated responsibility for PA administration to the Central Office of Recovery, Reconstruction and Resiliency (COR3) in 2017.[65] The Government of Puerto Rico and municipio agencies, as well as eligible nonprofits (hereinafter Applicants), submit applications for funding for specific projects to both COR3 and FEMA.[66] For example, the Puerto Rico Electric Power Authority (PREPA) submitted applications for specific PA projects as an Applicant.[67] COR3, as the Recipient, and FEMA together assist Applicants in project formulation and review of eligibility requirements.

Section 428 Alternative Procedures

On November 5, 2017, the President amended the major disaster declaration for Hurricane María in Puerto Rico. The President's amendment stated that Puerto Rico had elected to administer Public Assistance for all permanent work large projects (in FY2017, those above $123,100) for Hurricane María recovery according to Stafford Act Section 428—Alternative Procedures (hereinafter Alternative Procedures).[68] In recognition of Puerto Rico's use of Alternative

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[60] See, for example, Section 406 of the Stafford Act, 42 U.S.C. §5172, which states "Except as provided in paragraph (2), the Federal share of assistance under this section shall be not less than 75 percent of the eligible cost of repair, restoration, reconstruction, or replacement carried out under this section." On the use of federal funds to meet nonfederal cost shares, see 44 C.F.R. §200.306(b)(5).

[61] FEMA, "Puerto Rico; Emergency and Related Determinations," 82 *Federal Register* 44647, September 25, 2017; FEMA, "Puerto Rico; Emergency and Related Determinations," 82 *Federal Register* 45874-45875, October 2, 2017.

[62] "Puerto Rico; Amendment No. 4 to Notice of a Major Disaster Declaration," 82 *Federal Register* 53515, November 16, 2017.

[63] "Puerto Rico; Amendment No. 1 to Notice of a Major Disaster Declaration," 82 *Federal Register* 46816, October 6, 2017.

[64] 2 C.F.R. §200.86.

[65] Government of Puerto Rico, Executive Order of the Governor of Puerto Rico, Hon. Ricardo A. Rosselló Nevares, To Create the Central Recovery and Reconstruction Office of Puerto Rico, Administrative Bulletin No. OE-2017-65, October 23, 2017. To access the Executive Order, visit the website of the Gobierno de Puerto Rico, Departamento de Estado, available at https://www.estado.pr.gov/en/executive-orders/, or visit https://noticiasmicrojuris.files.wordpress.com/2017/10/oe-2017-065.pdf.

[66] Per 2 C.F.R. §200.93, a Subrecipient is an Applicant that receives a subaward from a pass-through entity [here, the Recipient] to carry out part of a federal program. FEMA refers to Subrecipients as Applicants, defined as entities responsible for PA Projects. See 44 C.F.R. §206.22 for eligibility of Public Assistance Applicants, and FEMA, *Public Assistance Program and Policy Guide*, FP 104-009-2, effective June 1, 2020, pp. 22, 42-47. See also 44 C.F.R. §§206.220-228 for federal regulations regarding eligibility for public assistance.

[67] See PR Electric Power Authority, Applicant ID 000-UA2QU-00, in FEMA, OpenFEMA, "Public Assistance Applicants," downloaded August 17, 2020, https://www.fema.gov/openfema-data-page/public-assistance-applicants.

[68] FEMA, "Puerto Rico; Amendment No. 5 to Notice of a Major Disaster Declaration," 82 *Federal Register* 53514, November 16, 2017. In FY2017, large projects were defined as those that exceed $123,100. FEMA, "Per Capita Impact

Procedures at this scale, the President increased the federal cost share for all PA projects for Hurricane María from 75% to 90%, except those previously authorized at 100%.[69] The cost share increase was conditioned on the use of Alternative Procedures for all large, permanent work projects, among several other requirements.[70]

The Sandy Recovery Improvement Act (SRIA) amended the Stafford Act to authorize Alternative Procedures in the wake of Hurricane Sandy in 2012, in order to reduce costs, reward timely and adept completion of PA projects, and allow Applicants to complete projects on basis of need rather than pre-disaster design.[71] Unlike the standard procedures that govern PA projects, in which the awards are based on the costs of the actual work undertaken, under Alternative Procedures, the awards are capped based on up-front and mutually agreed-to estimates of the cost of the work to be done. Congress authorized Alternative Procedures as a pilot program and allowed FEMA to waive the standard rulemaking process in order to expeditiously implement the new procedures.[72] FEMA has instead issued guidance on Alternative Procedures. To address the specifics of Puerto Rico's complex recovery, FEMA issued three iterations of guidance on PA Alternative Procedures and established policy changes in official letters to COR3. The GAO found that the lack of clear, consistent, and accessible guidance sometimes generated confusion and contributed to recovery delays in Puerto Rico.[73]

Congress has repeatedly expressed concern over whether Puerto Rico voluntarily elected to use Alternative Procedures,[74] as required by the Stafford Act.[75] Though FEMA previously implemented Alternative Procedures on a project-by-project basis elsewhere in the United States,

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Indicator and Project Thresholds," https://www.fema.gov/public-assistance-indicator-and-project-thresholds. For general information on the Public Assistance program and a description of Section 406 and Section 428 program procedures, see FEMA, *Public Assistance Program and Policy Guide (PAPPG)*, FP 104-009-2, April 2018, https://www.fema.gov/media-library-data/1591036773793-4b7a09fc1680e09984629fc3ea77467a/PAPPG_3.1_508_FINAL_5-4-2018_ARCHIVED.pdf (effective for declarations for the 2017 hurricanes and 2019-2020 earthquakes).

[69] FEMA, "Puerto Rico; Amendment No. 5 to Notice of a Major Disaster Declaration," 82 *Federal Register* 53514, November 16, 2017.

[70] FEMA, "Puerto Rico; Amendment No. 5 to Notice of a Major Disaster Declaration," 82 *Federal Register* 53514, November 16, 2017.

[71] The Sandy Recovery Improvement Act (SRIA), P.L. 113-2, 127 Stat. 39; Stafford Act Section 428. The Public Assistance Program Alternative Procedures are codified at Section 1102 of SRIA; 42 U.S.C. §5189(f).

[72] Section 1102 of SRIA, P.L. 113-2, 127 Stat. 41, as codified at 42 U.S.C. §5189f(f), Section 428(f) of the Stafford Act.

[73] GAO, *Puerto Rico Hurricanes: Status of FEMA Funding, Oversight, and Recovery Challenges*, GAO 19-256, March 2019, https://www.gao.gov/assets/700/697528.pdf (hereinafter GAO, *Puerto Rico Hurricanes 2019*); and GAO, *Puerto Rico Disaster Recovery: FEMA Actions Needed to Strengthen Project Cost Estimation and Awareness of Program Guidance*, GAO 20-221, February 2020, pp. 27-29, https://www.gao.gov/assets/710/704282.pdf (hereinafter GAO, *FEMA Actions*).

[74] Letter from Peter A. DeFazio, Ranking Member, Committee on Transportation and Infrastructure, Bennie G. Thompson, Ranking Member, Committee on Homeland Security, and Frank Pallone, Jr., Ranking Member, Committee on Energy and Commerce, to William B. "Brock" Long, FEMA Administrator, March 20, 2018; Letter from Senators Robert Menendez, Sherrod Brown, Elizabeth Warren, and Catherine Cortez Masto, to Kathy Kraniger, OMB Program Associate Director, July 10, 2018, pp. 2-3; Rep. DeFazio, U.S. Congress, House Committee on Transportation and Infrastructure, *Emergency Response and Recovery: Central Takeaways from the Unprecedented Hurricane Season*, hearing, 115th Cong., 1st sess., Nov. 2, 2017, H.Hrg. 115-29 (Washington, DC: GPO, 2017), p. 95.

[75] Section 1102 of SRIA, P.L. 113-2, 127 Stat. 41, as codified at 42 U.S.C. §5189f(f), Section 428(d)(1) of the Stafford Act.

the required use of Alternative Procedures across an entire state, tribe, or territory is unprecedented.[76]

In January 2020, in response to a request from COR3 to allow the use of standard PA procedures, FEMA changed its policy to permit the use of standard procedures in certain cases.[77] FEMA permitted the use of standard procedures for large, permanent work projects that had not yet been obligated and were not considered "critical services" (which include power, water, sewer, wastewater treatment, communications, education, and medical care). FEMA estimated that approximately 80% of the total estimated recovery costs for Hurricane María would continue to use Alternative Procedures.[78] **Table 3** provides a comparison of the key features of the PA standard procedures and the Alternative Procedures implemented in Puerto Rico.

Table 3. Public Assistance Alternative Procedures as Implemented in Puerto Rico

Key Variations from Public Assistance Standard Procedures

Topic	Standard Public Assistance Procedures ("406 Procedures")	Alternative Public Assistance Procedures in Puerto Rico ("428 Procedures")
Award	Awards are based on costs of actual work.	Awards are capped on the basis of estimates of the cost of eligible work agreed to by FEMA, Puerto Rico, and the Applicant. Fixed-cost estimates may not be amended after agreement is reached, except if insurance proceeds or failure to obtain and maintain insurance alters the estimated cost of the project. Certain cost estimates are validated by a third-party expert panel.
Cost Overruns	Applicants may receive PA on a cost-share basis for eligible costs that exceed initial project estimates.	The Applicant is responsible for the difference between the cost of estimated and actual work.
Excess Funds	Applicants may not access funds remaining if project estimates exceed actual project costs.	Applicants may use award funds remaining after the completion of actual work on eligible work, including mitigation and other PA projects.
Consolidated Projects	Standard procedures require Applicants to use funds for the project documented in the original scope of work.	An Applicant using Alternative Procedures may consolidate funds from multiple fixed-cost PA awards across multiple facilities or projects. For example, an Applicant may use funds from a project that runs under budget to fund a project that runs over budget.

[76] As of April 2018, FEMA had implemented 428 alternative procedures in 30 states on a case-by-case basis. GAO, *Puerto Rico Hurricanes 2019*, p. 9.

[77] Letter from Alex Amparo, FEMA Federal Disaster Recovery Coordinator, FEMA-4339-DR-PR, to Ottmar J. Chávez Piñero, Governor's Authorized Representative (GAR) for the Commonwealth of Puerto Rico, January 23, 2020. Provided by FEMA Congressional and Legislative Affairs.

[78] Letter from Alex Amparo, FEMA Federal Disaster Recovery Coordinator, FEMA-4339-DR-PR, to Ottmar J. Chávez Piñero, Governor's Authorized Representative (GAR) for the Commonwealth of Puerto Rico, January 23, 2020. Provided by FEMA Congressional and Legislative Affairs.

Topic	Standard Public Assistance Procedures ("406 Procedures")	Alternative Public Assistance Procedures in Puerto Rico ("428 Procedures")
Alternate Projects	Standard procedures reduced funding for alternate projects by 10% at the time of the Hurricane María Stafford Act declarations, though the Disaster Recovery Reform Act of 2018 (P.L. 115-254) eliminated this reduction upon its enactment in October 2018.	Applicants using Alternative Procedures may complete alternate projects using funds from a fixed-cost estimate without any reduction in funding.

Sources: Stafford Act Section 428; 42 U.S.C. §4189f; 44 C.F.R. §206.204(e). See also FEMA, "Public Assistance Alternative Procedures (Section 428) Guide for Permanent Work FEMA 4339-DR-PR," February 10, 2020, pp 6-16; Section §1207(a) of DRRA, P.L. 115-254, as it amends §406(c) of the Stafford Act, P.L. 93-288, 42 U.S.C. §5172(c).

Public Assistance Obligation and Disbursement

PA funding procedures are complex and vary depending on a project's size, purpose, and approval under either alternative or standard procedures. In Puerto Rico, FEMA obligates funds to COR3 after approving a PA project. COR3 then disburses funds to the Applicant.

Small projects are obligated according to special procedures established in federal regulations.[79] According to these procedures, COR3 may disburse funds to Applicants as soon as FEMA approves and obligates a small project (those up to $123,100).[80] As a result, Applicants do not need to locate nonfederal funds to cover initial funds needed to launch a project.[81] FEMA approved the obligation of small projects in Puerto Rico according to these procedures in February 2019. Before that change, Applicants executing small projects were required to have initial funds to launch and pay for completed work before requesting reimbursement through PA.[82] In December 2019, COR3 created the State Recovery Fund (SRF) in order to provide working capital to Applicants launching small projects, so that work can be completed and paid for prior to obligation.[83] In February 2019, FEMA approved small project procedures, enabling

[79] 44 C.F.R. §206.205(a).

[80] 44 C.F.R. §206.205(a). FEMA defines project size based on an annually adjusted cost threshold. In FY2017 (the year Hurricane Irma and María struck), a small project is a project above $3,300 and equal to or less than $123,100. FEMA, "Per Capita Impact Indicator and Thresholds," https://www.fema.gov/assistance/public/applicants/per-capita-impact-indicator.

[81] COR3, "Payment and Cash Management," Chapter 7 in *COR3 Disaster Recovery Federal Funds Management Guide,* p. 27, May 15, 2019, https://recovery.pr/documents/CH7%20Payment%20and%20Cash%20Management%20FINAL%20V1.1.pdf (hereinafter COR3, "Payment and Cash Management").

[82] FEMA Representative Alex Amparo, *Hurricanes Irma, María, & Earthquake Progress and Innovation in Puerto Rico,* briefing slides, p. 2, August 11, 2020; Government of Puerto Rico, *Fourth Congressional Status Report,* p. 4.

[83] Letter from Wanda Vázquez Garced, Governor of Puerto Rico, to Leader McConnell, Senator, Minority Leader Schumer, Senator, Speaker Pelosi, Representative, and Minority Leader McCarthy, Representative, January 29, 2020, p. 2, https://recovery.pr/documents/Puerto_Rico_Third_Report_to_Congress.pdf; COR 3, *State Recovery Fund,* Presentation Slides, December 26, 2019, https://recovery.pr/documents/CP122619-%20Presentaci%C3%B3n%20COR3.pdf; Government of Puerto Rico, *2020 Fiscal Plan for Puerto Rico, As Submitted to the Financial Oversight and Management Board for Puerto Rico on May 3, 2020,* p. 18, https://www.aafaf.pr.gov/assets/2020-fiscal-plan-may-3-2020.pdf (hereinafter Government of Puerto Rico, *2020 Fiscal Plan*).

Applicants to access the full PA award upon the obligation of a small project, eliminating the need to await reimbursement.[84]

For larger projects executed under either standard or Alternative Procedures, Applicants generally receive reimbursement for costs paid for completed work, as noted earlier.[85] As a result, Applicants generally need nonfederal funds to pay upfront costs before they may request and receive reimbursement.[86] In certain circumstances, COR3 may approve requests for advances to Applicants after FEMA has obligated funds for PA projects using either standard or Alternative Procedures.[87] COR3 explains that such exceptional advances are limited to the minimum amounts needed, and are timed in accordance with actual, immediate cash requirements fully documented in a procurement, contract, and cash needs timeline,[88] as is the case under standard PA procedures.[89] The Government of Puerto Rico and U.S. congressional staff have found that Applicants have sometimes lacked capital needed to begin or advance PA projects before receiving reimbursement, resulting in substantial response and recovery delays.[90]

When completing projects under Alternative Procedures, Applicants may retain funds remaining if actual costs fall short of project cost estimates. These excess funds may be put towards specific uses, including additional eligible projects or mitigation measures (see **Figure 2**).[91] Conversely, Applicants are responsible for project costs that exceed the initial fixed-cost estimate, as noted above.

At several points in the recovery process, FEMA instated "manual reimbursement" procedures for hurricane recovery work to help ensure that federal funds were used properly.[92] Under manual reimbursement procedures, FEMA reviews PA Applicants' documentation of payment for work completed on PA projects (e.g., paid invoices, work orders) after COR3 submits a Request for Reimbursement to the Agency (see **Figure 3**).[93] FEMA may request additional documentation if submissions are found insufficient. FEMA reviews documentation for completion, compliance, and accuracy, after which COR3 may disburse obligated funds to PA Applicants.[94] Under PA's standard "reimbursement procedures" for large projects, COR3, rather than FEMA, is responsible for reviewing reimbursement requests and documentation for compliance and accuracy before

[84] FEMA Representative Alex Amparo, *Hurricanes Irma, María, & Earthquake Progress and Innovation in Puerto Rico,* briefing slides, p. 2, August 11, 2020; Government of Puerto Rico, *Fourth Congressional Status Report*, p. 4.

[85] 44 C.F.R. §206.205(a); and email from FEMA Congressional Affairs staff, August 24, 2020.

[86] Governor of Puerto Rico, *Third Congressional Status Report*, pp. 3-4.

[87] See 44 C.F.R. §206.205(a)-(b) and 2 C.F.R. §200.305; COR3, "Payment and Cash Management," pp.13-14, 21-22, 74.

[88] COR3, "Payment and Cash Management," p. 74.

[89] 2 C.F.R. §200.305.

[90] Government of Puerto Rico, *2020 Fiscal Plan*, pp. 28-29.

[91] Stafford Act Section 428(c)(4) authorizes the provision of "financial incentives and disincentives for a State, tribal, or local government, or owner or operator of a private nonprofit facility for the timely and cost-effective completion of projects with such assistance." 42 U.S.C. §5189f(c)(4). See also "Use of Excess Funds" in FEMA, "Public Assistance Alternative Procedures-4339," 2020, pp. 16-18.

[92] Manual reimbursement procedures were in place from November 2017, through April 1, 2019, and from July 2019, to September 2019. See GAO, *FEMA Actions*, pp. 33-35; and FEMA, "FEMA to Reinstate Manual Drawdown Process for the Commonwealth of Puerto Rico," July 25, 2019, https://www.fema.gov/news-release/20200220/fema-reinstate-manual-drawdown-process-commonwealth-puerto-rico.

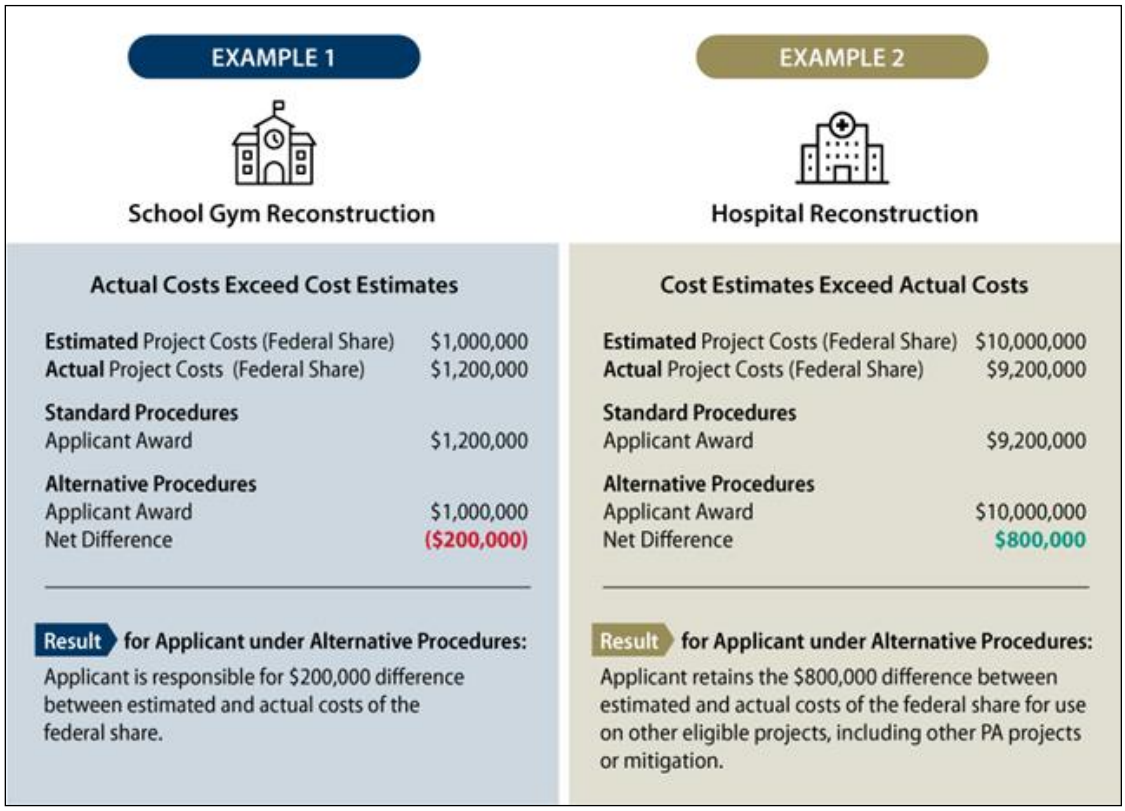
[93] DHS Office of Inspector General (OIG), *Capacity Audit of FEMA Grant Funds Awarded to the Puerto Rico Department of Education*, OIG-20-26, April 9, 2020, p. 8, https://www.oig.dhs.gov/sites/default/files/assets/2020-04/OIG-20-26-Apr20.pdf (hereinafter DHS OIG, *Capacity Audit*).

[94] DHS OIG, *Capacity Audit*.

disbursing funds to Applicants.[95] FEMA reviews this documentation at project closeout, and when otherwise necessary.[96] GAO observed that the instatement of manual reimbursement procedures initially delayed PA project progress in Puerto Rico.[97] The House Committee on Appropriations also attributed delays in contractor payments for Puerto Rico recovery work to manual reimbursement procedures.[98] However, FEMA subsequently increased the number of personnel processing reimbursement requests, after which delays decreased.[99]

Figure 2. Alternative and Standard Public Assistance Procedures

Funding Comparison for Eligible Costs of Large Projects*



Source: CRS analysis of Stafford Act Section 428(e)(1)(A) and (D).

Notes: * Large projects are those that exceed a certain project threshold ($123,100 for FY2017, the year of the declarations for Hurricanes Irma and María in Puerto Rico). FEMA, "Per Capita Impact Indicator and Project Thresholds," https://www.fema.gov/public-assistance-indicator-and-project-thresholds.

[95] 44 C.F.R. §206.205(b)(1) and 44 C.F.R. §206.200. See also FEMA, "Public Assistance Program Management and Grant Closeout Standard Operating Procedure," SOP 9570.14, December 2013, pp. 9-10.

[96] For example, FEMA may review project documentation due to scope of work changes under standard procedures or to address non-compliance issues.

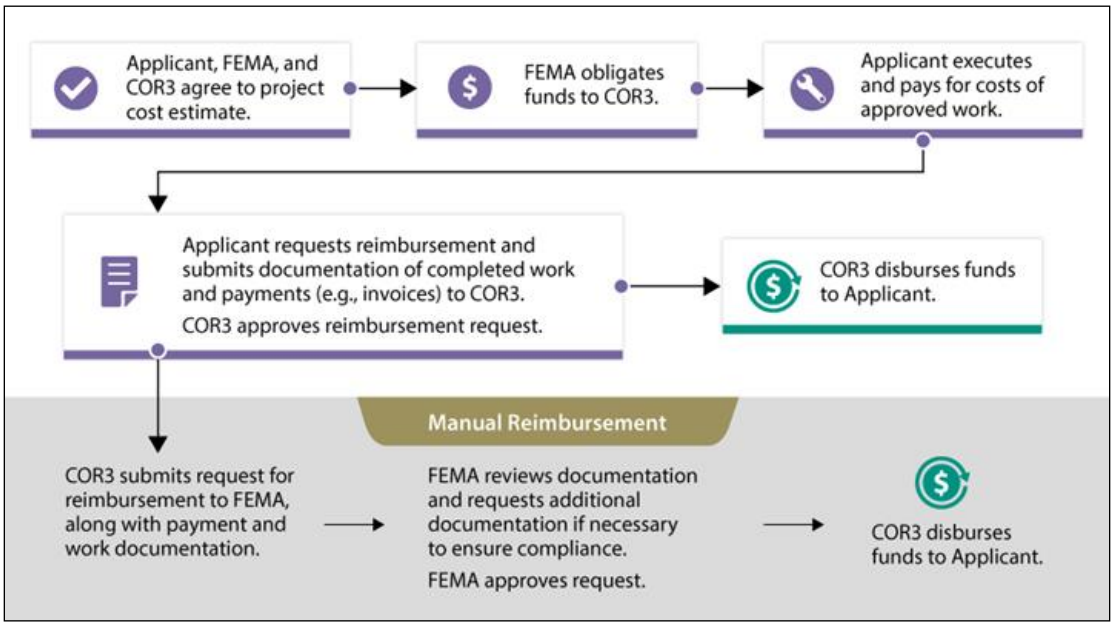
[97] GAO, *Puerto Rico Hurricanes 2019*, p. 23; GAO, *FEMA Actions*, pp. 33-35.

[98] U.S. Congress, House Committee on Appropriations, *Department of Homeland Security Appropriations Bill, 2021*, report to accompany H.R. 7669, 116th Cong., 2nd sess., July 20, 2020, H.Rept. 116-458, p. 70.

[99] GAO, *Puerto Rico Hurricanes 2019*, p. 23; GAO, *FEMA Actions*, pp. 33-35.

Figure 3. Public Assistance Reimbursement Process

for Large Projects under Alternative Procedures in Puerto Rico*



Sources: CRS analysis of description of manual reimbursement process described in GAO, *Puerto Rico Hurricanes: Status of FEMA Funding, Oversight, and Recovery Challenges,* GAO-19-256, March 2019, pp. 19-20; and standard reimbursement described in 44 C.F.R. §206.205(b) and Governor of Puerto Rico to U.S. Congressional Leaders, *Third Congressional Status Report on the Economic and Disaster Recovery Plan,* January 29, 2020, pp. 8-9.

Notes: * Large projects are those that exceed a certain project threshold ($123,100 for FY2017, the year of the declarations for Hurricanes Irma and María in Puerto Rico). FEMA, "Per Capita Impact Indicator and Project Thresholds," https://www.fema.gov/public-assistance-indicator-and-project-thresholds.

Note that Applicants may complete eligible work at different phases in the funding process. FEMA guidance explains "For eligible work that has already been completed, the fixed amount will be based on actual costs, which are always subject to cost reasonableness. If eligible work has already started, but the restoration has not been completed, the fixed cost may be based on actual and/or estimated costs as appropriate." FEMA, "Public Assistance Alternative Procedures (Section 428) Guide for Permanent Work FEMA-4339-DR-PR," February 10, 2020.

Status of Public Assistance Projects for Hurricane Recovery

Federal officials, and officials of the Government of Puerto Rico and the municipios encountered significant challenges implementing the Public Assistance program in Puerto Rico. In reporting on the progress of recovery, this report cites the most comprehensive information on PA projects available from FEMA and COR3—data on project obligations and disbursements. At the time of publication, CRS can neither independently verify the data sets, nor reconcile any differences between them due to several factors, including that PA project documentation is not readily available and the granularity of each dataset differs. However, in 2020, both FEMA and COR3 reported a sizeable increase in the pace, number, and dollar amount of PA project obligations, as detailed below.

While a substantial share of funds to support Puerto Rico's hurricane recovery has yet to be obligated, the pace of obligations has quickened substantially in 2020. According to FEMA and COR3, FEMA obligated an average of 143 projects per month in the 35 months following the

hurricanes; in 2020, the average was 333 projects per month (see **Figure 4**).[100] In August 2020, FEMA and COR3 reported that the agencies aimed to establish agreements for all cost estimates on large reconstruction projects under Alternative Procedures by December 31, 2020.[101] For context, FEMA reported that the estimated value of projects still to be obligated under Alternative Procedures in late August 2020 amounted to $19.1 billion.[102] At that same time, FEMA reported that only $741 million had been obligated under Alternative Procedures in the nearly three years since the 2017 hurricanes made landfall.[103]

FEMA and COR3 have since reported significant progress in obligating PA funds. On September 18, 2020, the President announced that FEMA plans to award $11.6 billion in federal funds to Puerto Rico: $9.6 billion in obligations to the Puerto Rico Power Authority (PREPA) for repair and reconstruction of Puerto Rico's electrical grid, and $2 billion for the Puerto Rico Department of Education (PRDE) for the repair and reconstruction of educational facilities.[104] These obligations eclipsed all funds previously obligated for Puerto Rico's hurricane response and recovery since September 2017, which amounted to $7.4 billion.[105] While these obligations are historically large, they reflect smaller sums than the Government of Puerto Rico in November 2017 estimated for the costs of reconstructing a modernized power grid ($17.8 billion) and school facility system ($8.4 billion).[106]

[100] FEMA Representative Alex Amparo, *Hurricanes Irma, María, & Earthquake Progress and Innovation in Puerto Rico,* briefing slides, p. 6, August 11, 2020.

[101] Briefing presented by Alex Amparo, Federal Disaster Recovery Coordinator, FEMA-4339-DR-PR, and Ottmar J. Chávez Piñero, GAR for the Commonwealth of Puerto Rico, August 11, 2020.

[102] Estimated value of projects as of August 20, 2020. Email from FEMA Congressional Affairs staff, September 10, 2020.

[103] Reported value of obligations as of August 20, 2020. Email from FEMA Congressional Affairs staff, September 10, 2020.

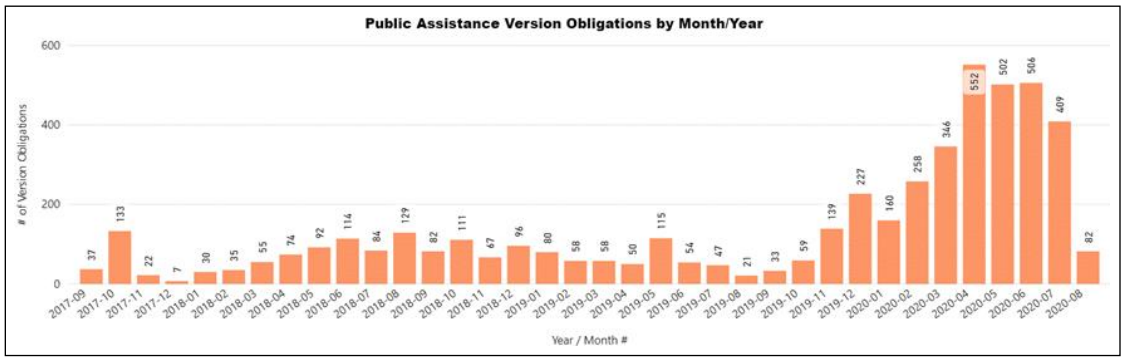
[104] The White House, "President Donald J. Trump Is Supporting the People of Puerto Rico as They Continue to Rebuild Following Natural Disasters," September 18, 2020, https://www.whitehouse.gov/briefings-statements/president-donald-j-trump-supporting-people-puerto-rico-continue-rebuild-following-natural-disasters/#:~:text=PROVIDING%20DISASTER%20RELIEF%3A%20President%20Trump,Rico's%20recovery%20from%20Hurricane%20Maria.

[105] CRS analysis of FEMA, OpenFEMA, "Public Assistance Funded Projects Details" for Emergency 3384 and Disasters 4336 and 4339, as of September 19, 2020 (data indicates the most recent data updates as of September 19, 2020), https://www.fema.gov/openfema-data-page/public-assistance-funded-projects-details. See also FEMA, "Hurricane Maria by the Numbers," https://www.fema.gov/fact-sheet/hurricane-maria-numbers.

[106] [Former] Governor of Puerto Rico Ricardo Rosselló Nevares, *Build Back Better Puerto Rico*, November 2017, pp. 20, 82, https://www.governor.ny.gov/sites/governor.ny.gov/files/atoms/files/Build_Back_Better_PR.pdf.

Figure 4. Public Assistance Obligations Per Month/Year

According to FEMA and COR3



Source: FEMA Representative Alex Amparo, *Hurricanes Irma, María, and Earthquake Progress and Innovation in Puerto Rico,* briefing slides, p. 8, August 11, 2020.

Notes: Data presented on August 11, 2020, and may reflect obligations only through that date. FEMA defines "version obligations" as follows: "Public Assistance Version Obligations: There are various projects are divided into several Versions [sic]. The Obligations are made mainly for one of the Version of the Project and not for the Total of the Project [sic]" (email from FEMA Congressional Affairs staff, August 24, 2020).

Public Assistance Obligations to Date—Hurricane Recovery

According to the COR3, *Economic and Disaster Recovery Plan for Puerto Rico*, FEMA estimated it would obligate $37.4 billion for hurricane reconstruction work through PA (the plan did not include estimated obligations for emergency work).[107] According to publicly available PA data, FEMA had obligated $19.2 billion in PA for hurricane response and recovery efforts by October 6, 2020.[108]

According to FEMA, $13.25 billion (approximately 70%) of obligated PA funds support reconstruction and replacement of physical structures, or permanent work.[109] Notably, almost all of these funds were obligated during September 2020. By September 10, 2020, FEMA reported only $1.5 billion in obligations for permanent work. The September 2020 obligations of $9.6 billion in obligations to the Puerto Rico Power Authority (PREPA) for repair and reconstruction of Puerto Rico's electrical grid, and $2 billion for the Puerto Rico Department of Education (PRDE) for the repair and reconstruction of educational facilities primarily account for the spike in obligated funds.[110] Up until the approval of these obligations, the majority of obligated funds supported PA emergency work.[111] In many cases, funds for emergency protective measures

[107] COR3, *Economic and Disaster Recovery Plan for Puerto Rico*, p. 163.

[108] CRS analysis of FEMA, OpenFEMA, "Public Assistance Funded Projects Details" for Emergency 3384 and Disasters 4336 and 4339, as of October 7, 2020 (data indicates the most recent data updates as of October 6, 2020), https://www.fema.gov/openfema-data-page/public-assistance-funded-projects-details (hereinafter "FEMA, "Public Assistance Funded Projects").

[109] CRS analysis of FEMA, "Public Assistance Funded Projects" for Emergency 3384 and Disasters 4336 and 4339, as of October 7, 2020.

[110] The White House, "President Donald J. Trump Is Supporting the People of Puerto Rico as They Continue to Rebuild Following Natural Disasters," September 18, 2020, https://www.whitehouse.gov/briefings-statements/president-donald-j-trump-supporting-people-puerto-rico-continue-rebuild-following-natural-disasters/#:~:text=PROVIDING%20DISASTER%20relief%3A%20President%20Trump,Rico's%20recovery%20from%20Hurricane%20Maria.

[111] CRS analysis of FEMA, "Public Assistance Funded Projects" for Emergency 3384 and Disasters 4336 and 4339, as of October 7, 2020.

financed the temporary relocation of essential facilities (e.g., hospitals, schools, temporary power restoration) while permanent reconstruction is underway.[112]

The majority of obligated PA funds for permanent reconstruction work ($13.16 billion, or 99%) reflect funding for large projects; the remainder are for small projects (defined as those up to $123,100 in FY2017).[113] While they are a small portion of the total amount of obligated funds, these small projects represent approximately two-thirds of the number of projects obligated for hurricane recovery. The recent increased pace of obligations may reflect, in part, FEMA and COR3's 2019 initiative to prioritize small projects in order to expedite recovery.[114] According to FEMA, only 47 small projects had been obligated prior to the launch of the small project initiative. By August, 2020, 1,900 small projects had been obligated.[115] These obligations may expedite recovery, as COR3 may disburse obligated funds to Applicants as soon as a small project is approved.[116]

Anticipated Public Assistance Obligations—Hurricane Recovery

In early 2020, FEMA and COR3 launched the FEMA Advanced Award Strategy Initiative (FAAST), which is intended to expedite obligations and execution of several large-scale, critical recovery projects. The FAAST program is working with the Puerto Rico Electric Power Authority (PREPA), Puerto Rico Aqueducts and Sewers Authority (PRASA), and the Puerto Rico Department of Education (PRDE) to obligate funds to each Applicant based on a "master recovery budget."[117] This budget aggregates estimates for prototypical projects, rather than individual facilities, to streamline the project approval and obligation process.[118] According to COR3, these Applicants' projects represent 65% of PA permanent work funds.[119] According to FEMA, the FAAST PA awards will provide each Applicant funds for the reconstruction of all hurricane-damaged facilities and infrastructure systems to industry standards, including components that did not suffer damage in the hurricanes but are functionally critical to the

[112] See, for example, discussion of FEMA assistance provided for temporary facilities to operate in Vieques, Puerto Rico while the Vieques permanent reconstruction project formulation is underway. Jeff Stein and Dennis M. Rivera Pichardo, "'The colony within the colony': Puerto Rico fumes as FEMA deliberates over remote hospital," *New York Times,* May 6, 2019, https://www.washingtonpost.com/nation/2019/05/06/colony-within-colony-puerto-rico-fumes-fema-deliberates-over-remote-hospital/. Vieques is a smaller island to the east of the main island. An electrical power cable between the main island and Vieques was severed during Hurricane María.

[113] CRS analysis of FEMA, "Public Assistance Funded Projects" for Emergency 3384 and Disasters 4336 and 4339, as of October 7, 2020.

[114] Government of Puerto Rico, *Fourth Congressional Status Report*, p. 4; and FEMA, "FEMA Approves Funding for 1,624 Small Permanent Projects in Puerto Rico," Aug. 6, 2020, https://www.fema.gov/news-release/20200806/fema-approves-funding-1624-small-permanent-projects-puerto-rico.

[115] FEMA Representative Alex Amparo, *Hurricanes Irma, María, & Earthquake Progress and Innovation in Puerto Rico,* briefing slides, p. 6, August 11, 2020.

[116] 44 C.F.R. §206.205(a). FEMA defines project size based on an annually adjusted cost threshold. In FY2017 (the year Hurricane Irma and María struck), a small project was a project above $3,300 and equal to or less than $123,100. FEMA, "Per Capita Impact Indicator and Thresholds," https://www.fema.gov/assistance/public/applicants/per-capita-impact-indicator. For more details on the management of small projects in Puerto Rico, see Governor of Puerto Rico, *Third Congressional Status Report*, p. 9.

[117] Government of Puerto Rico, *Fourth Congressional Status Report*, p. 5; and FEMA Representative Alex Amparo, *Hurricanes Irma, María, & Earthquake Progress and Innovation in Puerto Rico,* briefing slides, slide 6, August 11, 2020.

[118] Email from FEMA Congressional Affairs staff, August 24, 2020.

[119] Government of Puerto Rico, *Fourth Congressional Status Report*, p. 5.

whole.[120] On August 11, 2020, FEMA reported that these master recovery budgets were 95% complete for PREPA, 95% complete for PRDE, and 50% complete for PRASA.[121]

Public Assistance Issues and Challenges

Numerous challenges have impeded the delivery of PA for Puerto Rico's hurricane recovery. Federal, territorial, and local stakeholders and officials have identified countless challenges that include, but are not limited to:

- the scale of damaged sites and facilities and complexity of restoring territory-wide infrastructure systems (e.g., Puerto Rico's electrical grid);[122]
- inaccessibility of certain worksites;[123]
- a fiscal crisis that created liquidity constraints among Applicants and prompted FEMA to establish fiscal controls;[124]
- the mid-recovery adoption of FEMA's new Public Assistance "national delivery model" to guide project formulation;[125] and
- conflicting or delayed Public Assistance guidance.[126]

A complete discussion of all of these issues exceeds the scope of this report. Several additional notable and persistent challenges are summarized below.

Implementation of Recent Legislation

In the largest supplemental appropriations act in the wake of the 2017 hurricanes—the Bipartisan Budget Act of 2018 (BBA of 2018)[127]—Congress authorized FEMA to provide additional assistance to PA Applicants in Puerto Rico (and the U.S. Virgin Islands) for restoration of "critical services" damaged during the 2017 hurricanes.[128] Section 20601 authorized the reconstruction of

[120] FEMA Representative Alex Amparo, *Hurricanes Irma, María, & Earthquake Progress and Innovation in Puerto Rico,* briefing slides, slide 6, August 11, 2020; and email from FEMA Congressional Affairs staff, August 24, 2020.

[121] FEMA Representative Alex Amparo, *Hurricanes Irma, María, & Earthquake Progress and Innovation in Puerto Rico,* briefing slides, slide 6, August 11, 2020.

[122] U.S. Congress, House Appropriations Subcommittee on Homeland Security, *Hearing on Disaster Recoveries for 2017 and 2018*, hearings, 116th Cong., 1st sess., March 12, 2019 (hereinafter, House Homeland Security Subcommittee, *Disaster Recoveries*), testimony of then-Deputy Administrator Peter Gaynor, pp. 9, 27; U.S. Congress, House Committee on Energy and Commerce, *Puerto Rico's Electric Infrastructure,* hearing, 115th Cong., 2nd sess., April 11, 2018 (hereinafter House Energy and Commerce, *Puerto Rico's Electric Infrastructure*), especially testimony by FEMA Associate Administrator Jeffrey Byard, pp. 15-16.

[123] Opening Statement by Rep. Harper, House Energy and Commerce, *Puerto Rico's Electric Infrastructure,* p. 2.

[124] U.S. Congress, House Committee on Homeland Security, Subcommittee on Emergency Preparedness, Response, and Recovery, *Road to Recovery: Puerto Rico and the U.S. Virgin Islands After Hurricanes Irma And Maria*, 116th Cong., 1st sess., July 11, 2019, https://homeland.house.gov/activities/hearings/road-to-recovery-puerto-rico-and-the-us-virgin-islands-after-hurricanes-irma-and-maria (hereinafter House Homeland Security Committee, *Road to Recovery*). Submitted Testimony, Omar Marrero, House Homeland Security Committee, *Road to Recovery*, p. 9.

[125] See, for example, GAO Representative Chris Currie, House Homeland Security Committee, *Road to Recovery*, p. 30; and GAO, *Emergency Management: FEMA's Disaster Recovery Efforts in Puerto Rico and the U.S. Virgin Islands*, GAO 19-662T, July 11, 2019, pp. 19-20, https://www.gao.gov/assets/710/700215.pdf (hereinafter GAO, *FEMA's Efforts*).

[126] See, for example, GAO Representative Chris Currie, House Homeland Security Committee, *Road to Recovery*, p. 29-30; GAO, *FEMA's Efforts,* p. 20; GAO, *FEMA Actions*, especially pp. 20-22, 27-29.

[127] BBA of 2018 (P.L. 115-123).

[128] Section 20601 of the BBA of 2018 (P.L. 115-123). "Critical services include power, water, sewer, wastewater

critical disaster-damaged facilities to industry standards, regardless of pre-disaster condition, using PA Alternative Procedures.[129] PA was additionally authorized for components or facilities unaffected by the hurricanes that required upgrade or repair so the broader facility or system improvements could comply with industry standards.[130] These provisions addressed contemporaneous Stafford Act limitations on the use of PA to improve—not simply reconstruct—eligible facilities. Subsequently, Congress passed the Disaster Recovery Reform Act of 2018 (DRRA; Division D of P.L. 115-254), which amended some of these limitations, in part by authorizing PA for the costs of reconstructing or replacing eligible disaster-damaged facilities to "the latest published editions of relevant consensus-based codes, specifications, and standards."[131]

According to the GAO, both COR3 and FEMA officials reported challenges in implementing Section 20601 of the BBA of 2018 through early 2019.[132] Disagreements between COR3 and FEMA on the application and scope of the provision has been a source of repeated congressional concern.[133] However, in multiple reports to Congress in 2020, the Governor of Puerto Rico reported that the pace of project implementation was increased by FEMA guidance issued in January 2020 on the application of this and other provisions from the BBA of 2018.[134]

Delayed Project Approval and Initiation

According to federal, territorial, and municipio officials, the initial requirement that Applicants use Alternative Procedures delayed recovery efforts. Alternative Procedures were authorized in part to expedite the delivery of PA.[135] However, according to representatives of FEMA, the Government of Puerto Rico, Applicants, and the GAO, the required use of Alternative Procedures resulted in delayed PA obligations and overall recovery efforts. In the wake of the hurricanes, the GAO stated that it was "unclear whether such flexibilities [of Alternative Procedures] will eliminate other challenges associated with the PA program, such as reducing delays from challenges to eligibility determinations and supporting a timely recovery."[136] The GAO further

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treatment, communications, education, emergency medical care, and emergency services." "Industry standards" can include either (1) voluntary standards which are generally established by consensus and are available for use by any organization, private or government; or (2) proprietary standards which are developed by an organization and placed in the public domain for widespread use. FEMA, *Implementing Section 20601 of the 2018 Bipartisan Budget Act Through the Public Assistance Program*, FEMA Recovery Policy FP-104-009-5 Version 2, Sept. 11, 2019, pp. 2-4, https://www.fema.gov/media-library-data/1569249349814-4e3a5164b53d77fc76f4320c10c2d52b/BBA_Policy_V2_9-11-2019_508.pdf (hereinafter FEMA, *BBA*).

[129] FEMA, *BBA*, p. 1.

[130] Section 20601(2) of the BBA of 2018.

[131] Section 1235(b) of the Disaster Recovery Reform Act of 2018 (DRRA; Division D of P.L. 115-254), as it amends Stafford Act Section 406(e)(1)(A) (42 U.S.C. §5172(e)(1)(A)).

[132] GAO, *Emergency Management: FEMA Has Made Progress, but Challenges and Future Risks Highlight Imperative for Future Improvements*, GAO-19-594T, June 12, 2019, p. 19; Omar J. Marrero, Governor of Puerto Rico's Authorized Representative, Letter to Gene I. Dodaro, Comptroller General of the United States, January 30, 2019, in GAO, *Puerto Rico Hurricanes 2019*, p. 37. GAO, *FEMA Actions*, pp. 38-39; GAO, *FEMA's Efforts*, pp. 21-22.

[133] See, for example, testimony by Rep. Lucille Roybal-Allard, House Homeland Security Subcommittee, *Disaster Recoveries*, pp. 27-28; GAO Representative Chris Currie, House Homeland Security Committee, *Road to Recovery*, pp. 30-31.

[134] Governor of Puerto Rico, *Third Congressional Status Report*, p. 2; Government of Puerto Rico, *Fourth Congressional Status Report*, p. 1.

[135] Section 428(c)(3) of the Stafford Act, P.L. 93-288, as amended; 42 U.S.C. §4189f(c)(3).

[136] GAO, 2017 Hurricanes and Wildfires Initial Observations on the Federal Response and Key Recovery Challenges, GAO-18-472, September 2018, p. 56, https://www.gao.gov/assets/700/694231.pdf (hereinafter GAO, 2017 Hurricanes and Wildfires); see also GAO Representative Chris Currie, House Homeland Security Committee, Road to Recovery,

reported that FEMA officials had acknowledged that the use of Alternative Procedures in Puerto Rico was unlikely to result in a faster recovery, and that capacity limitations among PA and local officials had hampered early recovery efforts.[137]

One requirement of Alternative Procedures that delayed the delivery of PA was the need to determine and establish consensus on estimated costs for PA projects. The GAO referred to the process as a "massive challenge" facing Puerto Rico's recovery,[138] and the Office of the Governor of Puerto Rico reported that the process to agree to an estimate is "onerous and time consuming, which is causing the entire recovery process to be delayed."[139] FEMA and the GAO both attributed delays to the process of determining, validating, and establishing consensus on fixed-cost estimates.[140] Disagreements on project costs, changes to FEMA's cost-estimating formula,[141] and, according to COR3, initial restrictions on the employment of locally licensed engineers to validate cost estimates resulted in stalled projects.[142] Additionally, according to FEMA, Puerto Rico took nearly one year to appoint its representatives to the Center of Excellence, a body created to ensure that cost estimation procedures were agreeable to both FEMA and Puerto Rico.[143] These and other factors resulted in substantial delays: Two years after the hurricanes made landfall, FEMA reported that only 19 projects out of 9,344 identified damaged worksites on the island (0.2% of the total) had finalized fixed cost estimates.[144]

More recently, Puerto Rico and FEMA have both publicly acknowledged progress on several of the challenges posed by the use of Alternative Procedures. For example, FEMA has substantially or fully met nine GAO-recommended improvements to cost-estimating procedures; three remained partially or minimally met by February 2020.[145] The progress made in the use of Alternative Procedures may have contributed to the recent quickened pace of obligations.

Local and Federal Capacity to Implement Public Assistance

FEMA and the GAO have both attributed delays to the lack of federal, territorial, and municipio staff with sufficient expertise to conduct damage estimates, manage projects, and process reimbursement requests.[146] For example, in 2018 congressional testimony, the Puerto Rico Power

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p. 40.

[137] GAO, *2017 Hurricanes and Wildfires*, p. 111.

[138] GAO Representative Chris P. Currie, oral testimony, U.S. Congress, House Homeland Security Subcommittee on Emergency Preparedness, Response and Recovery, *Hearing on Puerto Rico and Virgin Islands Hurricane Recovery*, 116th Cong., 1st sess., July 11, 2019.

[139] Omar J. Marrero, Governor of Puerto Rico's Authorized Representative, Letter to Gene I. Dodaro, Comptroller General of the United States, January 30, 2019, in GAO, *Puerto Rico Hurricanes 2019*, p. 37.

[140] Omar J. Marrero, Governor of Puerto Rico's Authorized Representative, Letter to Gene I. Dodaro, Comptroller General of the United States, January 30, 2019, in GAO, *Puerto Rico Hurricanes 2019*, pp. 37-38.

[141] GAO, *FEMA Actions*, pp. 21-36, 44-48; GAO Representative Chris Currie, House Homeland Security Committee, *Road to Recovery*, pp. 31-32; GAO, *FEMA's Efforts,* pp. 22-24.

[142] Omar J. Marrero, Executive director of Central Office of Recovery, Reconstruction, and Resilience, or COR3, oral testimony, House Homeland Security Committee, *Road to Recovery*; see also Omar J. Marrero, House Homeland Security Committee, *Road to Recovery*, p. 36.

[143] GAO, *FEMA Actions*, pp. 17-18.

[144] GAO, *FEMA Actions*, p. 18.

[145] See Government of Puerto Rico, *Fourth Congressional Status Report*, pp. 1-2; and GAO, *FEMA Actions*, p. 23.

[146] See, for example, the discussions on PREPA and PRDE capacity constraints in GAO, *Puerto Rico Electricity Grid Recovery: Better Information and Enhanced Coordination is Needed to Address Challenges*, GAO-20-141, October 8, 2019, pp. 41-43, https://www.gao.gov/reports/GAO-20-141/; and DHS OIG, *Capacity Audit*, pp. 4-7. On shortfalls in expertise and staffing among FEMA officials, see GAO, *Puerto Rico Hurricanes 2019*, pp. 21-22; Government of

Restoration Coordinator[147] stated that PREPA required additional human resources to restore Puerto Rico's electrical grid.[148] Additionally, the GAO concluded that turnover of on-site FEMA personnel in Puerto Rico had resulted in the erosion of expertise and an overreliance on new employees without adequate training in PA Alternative Procedures.[149] Multiple congressional reports similarly attributed certain funding delays for Puerto Rico's recovery to turnover among FEMA officials.[150]

Public Assistance Reimbursement Process

A lack of capital may have contributed to ongoing PA project delays in Puerto Rico, according to federal and territorial stakeholders.[151] Members of Congress and the Government of Puerto Rico have both found that Applicants' inability to cover costs while waiting for reimbursement have stalled PA-eligible reconstruction projects.[152] One representative of the National Guard Bureau reported to Congress that "[t]he FEMA reimbursement process impacts our operational effectiveness – significantly," which made deployment of Puerto Rico's National Guard infeasible in the wake of the 2017 hurricanes.[153] The lack of working capital may also have contributed to contracting problems. In one case, an Applicant explained that contractor selection had been determined by the lack of a deposit requirement.[154] To address liquidity constraints for Applicants completing large projects, the Government of Puerto Rico announced in 2020 the establishment of a $1 billion Working Capital Fund (Puerto Rico had earlier established the State Recovery Fund, which provided working capital to Applicants completing small projects).[155] According to the Government of Puerto Rico, the fund will be set up in FY2021.[156] The fund may also address reimbursement delays that may impede recovery work or increase reconstruction costs.[157]

Puerto Rico, *Fourth Congressional Status Report*, p. 5; and GAO Representative Chris Currie, House Homeland Security Committee, *Road to Recovery*, p. 37.

[147] The Puerto Rico Power Restoration Coordinator helped manage a concerted effort between the PREPA, FEMA, the U.S. Department of Energy, the U.S. Army Core of Engineers, contractors, and mutual assistance crews.

[148] Testimony of Carols Torres, Puerto Rico Power Restoration Coordinator and consultant for Edison Electric Institute, House Energy and Commerce, *Puerto Rico's Electric Infrastructure,* p. 54.

[149] GAO, *Puerto Rico Hurricanes 2019*, pp. 21-22; and GAO, *2017 Hurricanes and Wildfires*, p. 112.

[150] U.S. Congress, House Committee on Appropriations, *Department of Homeland Security Appropriations Bill, 2021*, report to accompany H.R. 7669, 116th Cong., 2nd sess., July 20, 2020, H.Rept. 116-458, p. 70; and U.S. Congress, House Committee on Oversight and Reform, *Recurring Problems Hinder Federal Disaster Response and Recovery*, 115th Cong., 2nd sess., October 2018, pp. 11-12 (hereinafter, House Oversight Committee, *Recurring Problems*).

[151] Government of Puerto Rico, *2020 Fiscal Plan*, pp. 28-29; FEMA Representative Alex Amparo, *Hurricanes Irma, María, & Earthquake Progress and Innovation in Puerto Rico,* briefing slides, slide 6, August 11, 2020; and email from FEMA Congressional Affairs staff, August 24, 2020. For an overview of Puerto Rico's fiscal challenges, see CRS Report R44532, *The Puerto Rico Oversight, Management, and Economic Stability Act (PROMESA; H.R. 5278, S. 2328)*, coordinated by D. Andrew Austin; CRS Report R44095, *Puerto Rico's Current Fiscal Challenges*, by D. Andrew Austin.

[152] Office of House Majority Leader Steny Hoyer, "Hoyer, Velázquez, Maloney, Ocasio-Cortez Conclude Congressional Delegation Visit to Puerto Rico," news release, February 19, 2020, https://www.majorityleader.gov/content/hoyer-vel%C3%A1zquez-maloney-ocasio-cortez-conclude-congressional-delegation-visit-puerto-rico; Government of Puerto Rico, *2020 Fiscal Plan*, pp. 28-29; House Oversight Committee, *Recurring Problems* pp. 11-12.

[153] House Oversight Committee, *Recurring Problems*, p. 12.

[154] House Oversight Committee, *Recurring Problems*, p. 12.

[155] Government of Puerto Rico, *2020 Fiscal Plan*, pp. 28-29.

[156] Government of Puerto Rico, *2020 Fiscal Plan* p. 29.

[157] Government of Puerto Rico, *2020 Fiscal Plan* p. 29.

Building Code Compliance for Recipients of Public Assistance

Changes introduced in the Disaster Recovery Reform Act of 2018 (DRRA)[158] related to the use of the most current building codes may require that PA projects in Puerto Rico for disasters after November 2019 are required to rebuild in compliance with the building codes for earthquakes as well as wind and flooding. FEMA published an *Interim Policy: Consensus-Based Codes, Specifications and Standards for Public Assistance* on November 9, 2019.[159] Applicants under disasters declared on or after the initial publication date of the interim policy are required to apply the relevant codes to the planning, design, and execution of all permanent work PA projects for applicable facility types for which they are seeking funding. Therefore, all PA projects associated with damaged from the 2019-2020 earthquakes will have to apply all current codes. For any damage associated with the 2017 hurricanes in Puerto Rico, PA Applicants have the option of submitting a written request to FEMA to opt in to apply the revised building code policy to one or more of their projects. Applicants in any of the categories above were originally required to decide whether to opt in by May 4, 2020, but FEMA extended the deadline to opt into this policy until October 31, 2020. As of October 28, 2020, 191 Applicants in Puerto Rico have chosen to opt in, including 22 municipios.[160]

Applicants who fall into any of the categories below are able to submit to FEMA a written request to opt in to apply the policy to one or more of their projects:

(a) incidents declared between August 1, 2017, and the date of the initial publication of this policy;

(b) projects associated with incidents declared before August 1, 2017, but have not been obligated based on a finalized cost estimate as of the date of the initial publication of this policy;

(c) projects that have an Applicant-accepted fixed cost estimate (Section 428) that have not been obligated; or

(d) projects associated with a cost estimate on appeal as of the date of the initial publication of this policy.

Applicants who opt in to the policy for a particular project must evaluate design criteria for other hazards and, depending on that evaluation, may be required to integrate codes, standards, and specifications for other hazards into the project design.[161]

Insurance for FEMA Public Assistance Projects

When FEMA provides funding for permanent work to an Applicant for Public Assistance for repair, restoration, reconstruction, or replacement of a facility, the Applicant must insure that facility against future loss. Based on the ongoing earthquake swarm, insurance requirements

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[158] Section 1235(b) of DRRA (Division D, P.L. 115-254), as it amends Stafford Act Section 406(e)(1)(A) (42 U.S.C. §5172(e)(1)(A)).

[159] FEMA, *Interim Policy: Consensus-Based Codes, Specifications and Standards for Public Assistance Version 2.1*, FP 104-009-11, Washington, DC, December 20, 2019, https://www.fema.gov/media-library-data/1579188158300-159a38c75b6204517ad6c8641819c143/DRRA_1235(b)_V2.1_12-20-2019_508_FINAL.pdf. This interim policy was updated in December 2019 and January 2020.

[160] Email from FEMA Congressional Affairs staff, October 16, 2020.

[161] FEMA, *Consensus-Based Codes, Specifications and Standards for Public Assistance, Frequently Asked Questions*, Washington, DC, February 10, 2020, p. 3, https://www.fema.gov/media-library-data/1581447085154-4f8d1d175472a2fc54866b021ce208c6/DRRA_1235(b)_FAQ_2-7-2020_508.pdf.

associated with Public Assistance projects in Puerto Rico have increased to require earthquake insurance in addition to wind and flood insurance. PA Applicants are required to *obtain and maintain* insurance on damaged insurable facilities (buildings, equipment, contents, and vehicles exceeding $5,000) for the types of hazard that caused the damage in order to receive future PA funding. When multiple hazards cause damage to a property, the Applicant must insure against each hazard in an amount based on the damage caused by each hazard. FEMA requires insurance against the hazard(s) that caused the damage, even if that means the Applicant must purchase additional or broader coverage (for example, if the insurance for a particular peril is only available as part of an all-risks policy). In the future, PA projects in Puerto Rico funded for earthquake damage will need to obtain and maintain earthquake insurance, as well as flood insurance and insurance against wind damage.

If an Applicant does not comply with the requirement to obtain and maintain insurance, FEMA will deny or de-obligate assistance in the current disaster and deny future assistance for that facility, regardless of the hazard(s) that caused the damage.[162] Insurance coverage must be subtracted from all applicable PA grants in order to avoid duplication of financial assistance. If an Applicant has an insurance requirement from a previous event, FEMA is to reduce assistance by the actual or anticipated insurance proceeds or the amount of insurance required in the previous disaster, whichever is greater.

It is possible that insurance premiums in Puerto Rico will increase as a consequence of the 2017 hurricanes and 2019-2020 earthquakes. It may be financially difficult for municipios to meet PA requirements for disaster insurance, particularly those which are required to purchase insurance for multiple perils. However, an Applicant may request that FEMA modify the insurance requirement if the Applicant attempts to comply with the requirement and believes that the required insurance is not reasonably available.[163] FEMA will not require greater types and amounts of insurance than are certified as reasonably available, adequate, or necessary by the appropriate State Insurance Commissioner. The State Insurance Commissioner cannot waive federal insurance requirements, but may certify the types and extent of insurance reasonable to protect against future loss to an insurable facility.[164] FEMA will use the certification by the State Insurance Commissioner to modify the Applicant's insurance requirements.[165]

The Department of Homeland Security (DHS) Office of Inspector General (OIG) has reported on concerns about compliance with these insurance requirements since January 2001.[166] A series of reports identified concerns with Applicant compliance with insurance requirements, insurance reviews, and FEMA and state monitoring of insurance requirements. The OIG carried out a special review to notify FEMA of the challenges it may face managing insurance compliance under the PA program during the recovery from Hurricanes Harvey, Irma, and María. They noted that FEMA's insurance specialists routinely waived the requirement to obtain and maintain insurance for future disasters. The OIG concluded that the procedures used by FEMA to review

[162] 42 U.S.C. §5172(e).

[163] FEMA, *Public Assistance Policy on Insurance*, FP 206-086-1, June 29, 2015, pp. 5-6, https://www.fema.gov/media-library-data/1558538632295-d4165531878c8c8795551d3a7665d03e/Public_Assistance_Insurance_Policy_FP_206-086-1_6-29-2015.pdf.

[164] 42 U.S.C. §5154(a)(2); 44 C.F.R. §206.252(d); and 44 C.F.R. §206.253(c).

[165] FEMA, *Public Assistance Policy on Insurance*, FP 206-086-1, June 29, 2015, pp. 6-7, https://www.fema.gov/media-library-data/1558538632295-d4165531878c8c8795551d3a7665d03e/Public_Assistance_Insurance_Policy_FP_206-086-1_6-29-2015.pdf.

[166] FEMA Office of Inspector General, *Compliance with Public Assistance Program's Insurance Purchase Requirements*, I-01-01, January 2001. Not available online.

PA insurance compliance were inadequate. Because of this, FEMA could not ensure that approved project costs included the required reductions for any insurance paid to the Applicant.[167] The OIG has not reported on the extent to which this has been identified as a problem in Puerto Rico following Hurricanes Irma and María.

To date, FEMA has not reduced funding for any projects in Puerto Rico for lack of compliance with prior obtain and maintain requirements. Congress may wish to monitor compliance with PA insurance requirements in Puerto Rico for future disasters.

FEMA Mitigation and Rebuilding After Natural Disasters[168]

Mitigation Assistance Overview

The majority of funding for both pre- and post-disaster mitigation comes from FEMA, which administers three programs, collectively referred to as Hazard Mitigation Assistance (HMA): (1) the Hazard Mitigation Grant Program (HMGP); (2) the Flood Mitigation Assistance Grant Program (FMA); and (3) the Pre-Disaster Mitigation Grant Program (PDM), which has been reframed in 2020 as Building Resilient Infrastructure and Communities (BRIC).[169] Funding for FMA and PDM/BRIC are awarded competitively. Applicants for all three programs must have hazard mitigation plans that meet the requirements of Stafford Act Section 322—Mitigation Planning[170] and 44 C.F.R. Part 201.

While Puerto Rico has received funding from the HMGP program, it has not applied for other HMA funding (FMA or PDM) since Hurricanes Irma and María,[171] and has not received an FMA award since 2004, nor a PDM award since 2016.[172] Both programs award grants annually; for context, FMA has awarded 1,206 grants for a total of $928.6 million since 2004, and PDM has awarded 657 grants for a total of $250 million since 2016.[173]

Hazard Mitigation Grant Program

The HMGP is authorized by Stafford Act Section 404—Hazard Mitigation[174] and is funded through the Disaster Relief Fund. The key purpose of the HMGP is to ensure that the opportunity to take critical mitigation measures is not lost during the reconstruction process following a disaster. HMGP funding is available to all areas of a state, territory, or tribal lands where it is requested by a governor or tribal chief executive following a major disaster declaration or Fire Management Assistance Grant (FMAG). Eligible applicants include state, territorial, and local

[167] DHS OIG, *Special Report: Lessons Learned from Previous Audit Reports on Insurance Under the Public Assistance Program*. OIG-18-12, November 7, 2017, pp. 6-7, https://www.oig.dhs.gov/sites/default/files/assets/2017-11/OIG-18-12-Nov17.pdf.

[168] For more information on FEMA's Hazard Mitigation Assistance program and the National Flood Insurance Program, contact Diane P. Horn, Analyst in Flood Insurance and Emergency Management.

[169] FEMA, Building Resilient Infrastructure and Communities (BRIC), https://www.fema.gov/bric.

[170] 42 U.S.C. §5165.

[171] Email from FEMA Congressional Affairs staff, August 27, 2020.

[172] CRS analysis of Open FEMA hazard mitigation data at https://www.fema.gov/about/openfema/data-sets#hazard, accessed August 25, 2020.

[173] Calculated by CRS using Hazard Mitigation Assistance Projects V2 at https://www.fema.gov/about/openfema/data-sets#hazard, downloaded September 22, 2020. Note that the PDM data do not include 2019 or 2020, and the FEMA data do not include 2020.

[174] 42 U.S.C. §5170c.

governments; federally-recognized tribes or tribal organizations; and certain nonprofit organizations. A state with an Enhanced State Mitigation Plan approved by FEMA within five years of the disaster declaration is eligible for HMGP funding not to exceed 20% of the total amount of Stafford Act of assistance for that disaster.[175] Puerto Rico does not have an approved Enhanced State Mitigation Plan.

The level of HMGP[176] funding available for a given disaster is based on a percentage of the estimated total federal assistance under the Stafford Act for each presidential major disaster declaration.[177] The HMGP recipient must provide a 25% cost share, which can include a combination of cash and in-kind sources. Funding from other federal sources cannot be used for the 25% nonfederal share, with one exception: funding provided under the Community Development Block Grant (CDBG) program. In order to provide 100% funding to HMGP sub-recipients, the Government of Puerto Rico elected to implement a global match strategy in coordination with the Puerto Rico Department of Housing, the recipient of HUD CDBG-DR and CDBG-MIT funds.[178] This global match strategy will use CDBG-DR funding for the non-federal cost share, so no cost share will be required from HMGP subapplicants.[179] The Government of Puerto Rico will dedicate approximately $1 billion in CDBG-DR funding to provide the required cost share. On October 22, 2018, FEMA approved the Governor's request to use the global match approach to meet the HMGP nonfederal cost share requirement. FEMA also acknowledged the intent to use the value of projects funded with CDGB-DR funds to carry out the global match program.[180]

Hazard Mitigation Grant Program Funding to Puerto Rico

FEMA establishes the maximum amount of HMGP for each disaster at 12 months after the presidential major disaster declaration. This amount, also known as the "lock-in" value for HMGP, is the maximum that FEMA can obligate for eligible HMGP activities. Puerto Rico was notified of the 12-month lock-in level on February 12, 2019.[181] According to FEMA, the total amount of HMGP funding available to Puerto Rico for Hurricane Irma was $4,647,032 with $3,549,536,374 available for Hurricane María (significantly more funding was made available for Hurricane María).[182]

The first HMGP funding obligated for Hurricane Irma in Puerto Rico was for state management costs on April 11, 2018. No funding has yet been disbursed for HMGP for Hurricane Irma.[183] The

[175] 44 C.F.R. §201.5.

[176] For additional information on the Hazard Mitigation Grant Program (HMGP), see the section on "Hazard Mitigation Grant Program Funding to Puerto Rico" in this report.

[177] HMGP funding is based on the estimated aggregate grant amount made under 42 U.S.C. §§5170b, 5172, 5173, 5174, 5177, and 5173. See 44 C.F.R. §206.432(b) for the sliding scale to calculate HMGP assistance.

[178] COR3, *Hazard Mitigation Grant Program (HMGP) Administrative Plan, FEMA-4336-DR-PR (Hurricane Irma) and FEMA-4339-DR-PR (Hurricane María)*, amended April 20, 2020, pp. 49-55, https://recovery.pr/documents/COR3%20HMGP%20Administrative%20Plan%20-Approved-May_13_2020.pdf.

[179] COR3, Amendment No. 1 – Hazard Mitigation Grant Program Notice of Funds Availability FEMA-4339-DR-PR (Hurricane María), p. 3, https://recovery.pr/documents/ENG-HMGP-NoFA-Amendment-No.1-DR-4339.pdf.

[180] COR3 Transparency Portal, *Hazard Mitigation Assistance*, https://recovery.pr/en/recovery-programs/hazard-mitigation-assistance#hazard-mitigation-assistance, accessed August 31, 2020 (hereinafter COR3 Transparency Portal, *Hazard Mitigation Assistance*).

[181] COR3 Transparency Portal, *Hazard Mitigation Assistance*.

[182] Email from FEMA Congressional Affairs staff, September 8, 2020.

[183] Email from FEMA Congressional Affairs staff, September 8, 2020.

first HMGP funding obligated for Hurricane María in Puerto Rico was for a code enforcement project on January 25, 2018. A total of $248,525,973 has been approved for Hurricane María, with $38,433,726 obligated and—possibly—$649,322 disbursed. However, FEMA believes that the $649,322 showing as disbursed may be an accounting error and they do not believe that any disbursements have yet been made. FEMA is working with COR3 to resolve this.[184]

By September 2020, $755,217 was obligated for Puerto Rico for Hurricane Irma[185] and $38,433,726 for Hurricane María.[186] FEMA had obligated approximately 16.25% of available HMGP funding for Hurricane Irma, and had obligated 1.08% of the available funding for Hurricane María.[187] Overall, 1.1% of HMGP funds for Puerto Rico for Irma and María had been obligated three years after the disasters.[188] FEMA indicates that no funds have yet been disbursed for either hurricane (see above).[189]

For comparison, FEMA obligated amounts of the available HMGP funding for other jurisdictions affected by the 2017 hurricanes are as follows:

- 56.41% of the available HMGP funding to the U.S. Virgin Islands for Hurricane Irma;
- 11.69% of the available HMGP funding to the U.S. Virgin Islands for Hurricane María;
- 31.82% of the available HMGP funding to Texas for Hurricane Harvey; and
- 37.53% of the available HMGP funding to Florida for Hurricane Irma.

Mitigation Issues and Challenges

Obligation of HMGP Funding

The post-disaster period may be the best opportunity to incorporate hazard mitigation measures and rebuild in a more resilient manner. Post-disaster reconstruction is possibly the single largest opportunity to bring existing vulnerable structures up to current or new codes,[190] when mitigation can be incorporated into post-disaster modifications to building codes and land development policies.

The lengthened time period over which HMGP funding is being made available to Puerto Rico may make it more difficult to implement long-term recovery plans and to carry out oversight over mitigation activities. This may also mean that communities continue to be subject to the same level of risk from future disasters and may be less resilient to future disasters. Additionally, individual households with financial resources may have been able to pay for their own recovery, while those without resources must wait for federal funds to be available.

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[184] Email from FEMA Congressional Affairs staff, September 8, 2020.

[185] FEMA, "Puerto Rico Hurricane Irma (DR-4336-PR)," accessed October 7, 2020, https://www.fema.gov/disaster/4336.

[186] FEMA, "Puerto Rico Hurricane Maria (DR-4339-PR)," accessed October 7, 2020, https://www.fema.gov/disaster/4339.

[187] Calculated by CRS using data provided by FEMA Congressional Affairs staff, September 14, 2020.

[188] Calculated by CRS using data provided by FEMA Congressional Affairs staff, September 14, 2020.

[189] Email from FEMA Congressional Affairs staff, September 8, 2020.

[190] James C. Schwab et al., *Planning for Post-Disaster Recovery: Next Generation*, American Planning Association, PAS Report 576, Chicago, IL, December 2014, p. 78, https://www.planning.org/publications/report/9026899/.

The data availability issues described in this report[191] make it difficult to determine the rate of obligation of HMGP funding, whether it has changed over time, and how it compares to the rate of obligation for other disasters (see the "Availability of Information on Hazard Mitigation Grant Program and Public Assistance Funding and Projects" section for more information). According to FEMA, no dataset exists from which the rate of obligation can be calculated.[192] However, approximately three years after Hurricanes Irma and María, FEMA has only obligated $39.2 million to Puerto Rico for HMGP, none of which has been disbursed, out of the total $3.54 billion awarded.

Given the disparity in obligated amounts, Congress may wish to determine what constraints have been responsible for sluggish HMGP obligation in Puerto Rico, and how these constraints might be addressed. Congress may also wish to require FEMA to publish data on obligation rates.

Mitigation Against Multiple Hazards

The 2019-2020 earthquakes in Puerto Rico highlighted the challenges of building properties that can resist damage from wind, flood, and earthquakes. Communities that are exposed to multiple hazards may use construction materials that perform well for the most frequent hazard, but that may present an increased risk for less frequent hazards. For example, homes that are elevated on stilts or pilings to reduce flood risk may be more vulnerable to ground shaking during earthquakes if not adequately designed and constructed.[193]

Building to mitigate multiple risks can be done, but is likely to be significantly more expensive.[194] For example, PRDOH stated that construction under CDBG-DR and CDBG-MIT will adhere to the Puerto Rico building codes adopted in November 2018, and specifically noted that the code includes requirements regarding earthquake loads, in addition to wind and flood.[195] HUD's assessment of Puerto Rico's unmet needs estimated that additional costs associated with necessary resilience measures, such as more stringent building codes and the cost of compliance measures may add more than 30% to the cost of repairs and rebuilding.[196] PRDOH estimated that this could increase the total cost of repairs from $4.7 billion to $5.8 billion.[197] This suggests that the available funding may not support as many projects and may need to be supplemented.

Congress may wish to require FEMA to clarify whether comparable building code requirements will apply to work funded by HMGP and Individual Assistance, or funded by a combination of programs. Depending on decisions made in Puerto Rico about opting in to FEMA's policy on

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[191] For more information on the availability of HMGP funding information, see the "Obligation of HMGP Funding" section.

[192] Email from FEMA Congressional Affairs staff, September 8, 2020.

[193] Eduardo Miranda et al., *Puerto Rico M6.4 Earthquake, 7 January 2020*, Structural Extreme Events Reconnaissance, Preliminary Virtual Reconnaissance Report PRJ-2670, January 10, 2020, pp. 6, 66-7, https://www.researchgate.net/publication/338528208_StEER_-_7_JAN_2020_PUERTO_RICO_Mw_64_EARTHQUAKE_PRELIMINARY_VIRTUAL_RECONNAISSANCE_REPORT_PVRR.

[194] National Institute of Building Sciences, Whole Building Design Guide Secure/Safe Committee, *Natural Hazards Mitigation*, September 14, 2017, https://www.wbdg.org/design-objectives/secure-safe/natural-hazards-mitigation.

[195] *Puerto Rico Disaster Recovery Action Plan for the Use of CDBG-DR Funds in Response to 2017 Hurricanes Irma and María*, Amendment Five, Draft for Public Comment, September 10, 2020, p. 18, https://www.cdbg-dr.pr.gov/en/download/action-plan-amendment-5-substantial-amendment/?ind=1599767012369&filename=Action%20Plan%20Amendment%205_Substantial_EN%20(DRAFT%20FOR%20PUBLIC%20COMMENT)_.pdf&wpdmdl=13941&refresh=5f7ca5b0328791602004400 (hereinafter PRDOH, *Action Plan for the use of CDBG-DR Funds* (Amendment 5)).

[196] PRDOH, *Action Plan for the use of CDBG-DR Funds* (Amendment 5), p. 70.

[197] PRDOH, *Action Plan for the use of CDBG-DR Funds* (Amendment 5), p. 95.

Consensus-Based Codes, Specifications and Standards for Public Assistance, FEMA may require PA-funded structures that were damaged by Hurricanes Irma and María to be repaired or rebuilt to current codes for earthquakes, as well as current codes for wind and flood.[198]

Assistance to Individuals and Households[199]

Many federal programs provide assistance to individuals and households, including in the form of grants, direct federal assistance, and loans. These forms of assistance may also be combined to help address the unmet needs of disaster survivors (subject to applicants being authorized to receive such assistance); however, Stafford Act Section 312 prohibits disaster survivors from receiving federal assistance for losses for which they have already been compensated (i.e., a duplication of benefits).[200] This report focuses on assistance provided to individuals and households through FEMA, the SBA, and HUD, including:

- emergency housing assistance provided directly to disaster survivors through the FEMA Public Assistance (PA) program;
- grants of assistance and direct federal assistance for housing needs, and grants of assistance for other needs, as well as other forms of assistance provided directly to disaster survivors to support their recovery efforts, provided through the FEMA Individual Assistance (IA) program;
- low-interest loans for real and personal property provided through the SBA Disaster Loan program (see the "Small Business Administration Disaster Loan Program" section for more information on the SBA Disaster Loan program); and
- assistance provided to disaster survivors with ongoing unmet needs provided through the HUD Community Development Block Grant-Disaster Recovery (CDBG-DR) program (see the "Ongoing Housing Recovery Through HUD's CDBG-DR Program" section for more information on the programs provided to support disaster survivors' recovery efforts, and the "CDBG-DR and Variants" section for more information on the CDBG-DR program).

This section provides an overview of the FEMA IA program, and then focuses specifically on the forms of emergency and interim housing assistance provided to disaster survivors from Puerto Rico through FEMA's PA and IA programs, as well as other forms of assistance provided through the IA program, and ongoing housing assistance being provided through HUD's CDBG-DR program.

FEMA Individual Assistance Overview

In Puerto Rico, IA was authorized following Hurricanes Irma and María. FEMA's IA program may provide aid to affected individuals and households when authorized following a presidential declaration of emergency or major disaster.[201] IA can take the form of assistance for housing and

[198] See the section on "Building Code Compliance for Recipients of Public Assistance" in this report.

[199] For more information on FEMA's Individual Assistance (IA) program, contact Elizabeth M. Webster, Analyst in Emergency Management and Disaster Recovery.

[200] 42 U.S.C. §5155. If an individual receives assistance that constitutes a duplication of benefits, the individual must repay the duplicated assistance. For more information on duplication of benefits issues, see "Section 1210: Duplication of Benefits" of CRS Report R45819, *The Disaster Recovery Reform Act of 2018 (DRRA): A Summary of Selected Statutory Provisions*, coordinated by Elizabeth M. Webster and Bruce R. Lindsay.

[201] For more information on FEMA's Individual Assistance (IA) program, see CRS Report R46014, *FEMA Individual*

for other needs (known as Other Needs Assistance or ONA) through the Individuals and Households Program (IHP), which may be made available following either an emergency or major disaster declaration.[202] FEMA's IA program may also provide assistance through the Crisis Counseling Assistance and Training Program (CCP), Disaster Unemployment Assistance (DUA), Disaster Legal Services (DLS), or Disaster Case Management (DCM); these forms of assistance may only be made available following a major disaster declaration.[203] Mass Care and Emergency Assistance (e.g., emergency sheltering) may also be provided following an emergency or major disaster declaration. **Table 4** includes the statutory authorities and brief descriptions of each IA program.

Table 4. Statutory Authorities for Individual Assistance

Stafford Act Section	Category of Assistance	What It Provides
Section 408	Individuals and Households Program	Housing Assistance and Other Needs Assistance (ONA)
Section 426	Disaster Case Management	Case Management Services
Section 416	Crisis Counseling Assistance and Training Program	Supportive Crisis Counseling, Psycho-education, Development of Coping Skills, and Linkage to Appropriate Resources
Section 415	Disaster Legal Services	Legal Aid to Low-income Disaster Survivors (e.g., assistance with insurance claims and replacing legal documents)
Section 410	Disaster Unemployment Assistance	Unemployment Benefits and Re-employment Assistance Services

Source: FEMA, *Individual Assistance Program and Policy Guide (IAPPG)*, FP 104-009-03, March 2019, pp. 6-9, https://www.fema.gov/media-library-data/1551713430046-1abf12182d2d5e622d16accb37c4d163/IAPPG.pdf.

Different forms of IA include different eligibility requirements and application processes. For example, in order to receive IHP assistance, an applicant must satisfy general conditions of eligibility, as well as additional eligibility requirements related to the type of IHP assistance they are requesting.[204]

Additionally, different types of IA are subject to different cost share requirements. FEMA provides 100% federal funding for costs associated with providing IHP housing assistance,[205]

Assistance Programs: An Overview, by Elizabeth M. Webster.

[202] FEMA, "How a Disaster Gets Declared," last accessed August 21, 2020, https://www.fema.gov/disasters/how-declared (hereinafter FEMA, "How a Disaster Gets Declared").

[203] FEMA, "How a Disaster Gets Declared."

[204] FEMA, *Individual Assistance Program and Policy Guide (IAPPG)*, FP 104-009-03, March 2019, pp. 47-48, https://www.fema.gov/media-library-data/1551713430046-1abf12182d2d5e622d16accb37c4d163/IAPPG.pdf (hereinafter FEMA, *IAPPG*)). General conditions of eligibility include that (1) "[t]he applicant must be a U.S. citizen, noncitizen national, or qualified alien" (or the parent or guardian of a minor child who is one); (2) "FEMA must be able to verify the applicant's identity"; (3) "[t]he applicant's insurance, or other forms of disaster assistance received, cannot meet their disaster-caused needs"; and (4) "[t]he applicant's necessary expenses and serious needs are directly caused by a declared disaster." Additionally, the applicant may need to meet occupancy and ownership eligibility requirements for some types of Housing Assistance and Other Needs Assistance. When Hurricanes Irma and María occurred, the *Individuals and Households Program Unified Guidance (IHPUG)* was the relevant guidance. The program information and general conditions of eligibility noted above are consistent with the *IAPPG* (see FEMA, *IHPUG*, FP 104-009-03, September 2016, p. 11, https://www.fema.gov/media-library-data/1483567080828-1201b6eebf9fbbd7c8a070fddb308971/FEMAIHPUG_CoverEdit_December2016.pdf).

[205] 42 U.S.C. §5174(g)(1). Additionally, some forms of emergency housing assistance are authorized under FEMA's

CCP, DUA, DLS, and DCM.[206] However, IHP ONA is subject to a 75% federal and 25% nonfederal cost share.[207]

Emergency Sheltering and IHP Assistance Provided After the Hurricanes

The hurricanes significantly affected housing in Puerto Rico. According to Puerto Rico's recovery plan,

> [a]pproximately 90 percent of the Island's nearly 1.23 million households applied for immediate relief and housing assistance from FEMA, with 78 percent of these indicating damage to their structure or personal property.[208]

The President's Stafford Act declarations authorized FEMA to provide various types of short- and interim-term housing assistance to meet the needs of disaster survivors.[209] Emergency sheltering was authorized under Stafford Act Section 403 following the major disaster declarations for the hurricanes.[210] This assistance is commonly referred to as Public Assistance (PA) Category B—Emergency Protective Measures. The Individuals and Households Program (IHP) was used to support interim housing needs, and was authorized under Stafford Act Section 408.[211] IHP assistance helped people transition out of emergency sheltering solutions and into longer-term temporary or permanent housing solutions. (The program data for the hurricanes was combined by FEMA in its publicly available program information, which is reflected hereinafter.[212])

PA program (Category B—Emergency Protective Measures), and are subject to the PA cost share, the federal share of which shall not be less than 75%. This applies to the Transitional Sheltering Assistance (TSA) program, authorized under Stafford Act Section 403 or 502 (FEMA, *IAPPG*, p. 40; and 42 U.S.C. §5170b(b) and 42 U.S.C. §5193(a)).

[206] FEMA, *IAPPG*, p. 4.

[207] 42 U.S.C. §5174(g)(2).

[208] COR3, *Economic and Disaster Recovery Plan for Puerto Rico*, p. 113. Additional information on the damage to housing in Puerto Rico following Hurricanes Irma and María can be found in the HUD, Housing Recovery Support Function, *Housing Damage Assessment and Recovery Strategies Report Puerto Rico*, June 29, 2018, https://cdbg-dr.pr.gov/en/download/revised-draft-submitted-to-hud-for-evaluation-and-final-approval/?ind=1594482621623&filename=22-Q_HUD%20Housing%20Damage%20Assessment%20and%20Recovery%20Strategies%20Report.pdf&wpdmdl=12323&refresh=5f4f91a9111711599050153.

[209] A presidential declaration authorizing Individual Assistance also makes Small Business Administration (SBA) Disaster Loans available (SBA, A Reference Guide to the SBA Disaster Loan Program, May 2015, p. 4, https://www.sba.gov/sites/default/files/files/SBA_Disaster_Loan_Program_Reference_Guide.pdf). For more information on SBA Disaster Loans, see CRS Report R41309, *The SBA Disaster Loan Program: Overview and Possible Issues for Congress*.

[210] 42 U.S.C. §5170b.

[211] 42 U.S.C. §5174.

[212] Email from FEMA Congressional Affairs staff, September 10, 2020.

In Puerto Rico, FEMA provided short-term emergency accommodations through:

- congregate shelters (e.g., facilities such as school gymnasiums that provide safe, secure, and sanitary places for displaced disaster survivors to shelter);[213]
- the Transitional Sheltering Assistance (TSA) program, which helped transition people out of congregate shelters and into hotel/motel accommodations. Some disaster survivors sheltered in hotels/motels for nearly a year, in part due to disaster-caused challenges that delayed or prevented them from identifying longer-term solutions (e.g., unavailable affordable housing);[214]
- Sheltering and Temporary Essential Power (STEP) Pilot Program, known as *Tu Hogar Renace* (meaning "Your Home Reborn" in Spanish), which allowed disaster survivors to shelter at home while repairs were made; [215]
- Voluntary Agencies Leading and Organizing Repair (VALOR), a pilot program in which voluntary agencies used FEMA-funded materials to repair homes;[216] and
- Operation Blue Roof and self-help tarps, which were intended to temporarily protect the contents of damaged homes and prevent further property damage until permanent repairs could be made. Operation Blue Roof was a mission assigned by FEMA and managed by the U.S. Army Corps of Engineers (USACE) to provide temporary covering using fiber-reinforced blue plastic sheeting and strips of wood secured to the roof with nails or screws.[217]

Emergency Sheltering Assistance

- **Transitional Sheltering Assistance (TSA)**: "FEMA funded about $101 million for the TSA program for disaster survivors from Puerto Rico." More than 7,000 families were housed in over 1,000 hotels in 41 states, the District of Columbia, and Puerto Rico through the TSA Program, which was authorized in late October 2017, and ended in September 2018.
- **Sheltering and Temporary Essential Power (STEP)**: Under *Tu Hogar Renace*, repairs were completed to 108,484 homes at an average cost of approximately $10,409 per home.
- **Voluntary Agencies Leading and Organizing Repair (VALOR)**: Through the VALOR program, 6,323 homes were repaired at an estimated cost of $25 million.
- **Operation Blue Roof and Self-help Tarps**: In Puerto Rico, 59,469 blue roofs were installed by the U.S. Army Corps of Engineers, and 125,981 FEMA self-help tarps were installed. Some disaster survivors continue to live under temporary roofs, including tarp solutions.

Sources: FEMA, "Hurricane Maria by the Numbers," last accessed October 7, 2020, https://www.fema.gov/fact-sheet/hurricane-Maria-numbers; and email from FEMA Congressional Affairs staff, March 20, 2019.

In addition to emergency sheltering solutions, FEMA's IA program was used to provide temporary housing assistance and ONA through the IHP. The types of housing assistance provided included financial assistance for Rental Assistance, as well as Home Repair Assistance,

[213] Emergency sheltering operations extending beyond 90 days (FEMA, *2017 Hurricane Season FEMA After-Action Report (AAR)*, July 12, 2018, p. 39, https://www.fema.gov/media-library-data/1533643262195-6d1398339449ca85942538a1249d2ae9/2017FEMAHurricaneAARv20180730.pdf).

[214] FEMA, "Transitional Shelter Assistance," last accessed August 21, 2020, https://www.fema.gov/news-release/20200220/transitional-shelter-assistance.

[215] FEMA, "Recovery Program Guidance: Sheltering and Temporary Essential Power (STEP) Pilot Program for FEMA-4336-DR-PR and FEMA-4339-DR-PR," October 25, 2017.

[216] Email from FEMA Congressional Affairs staff, March 20, 2019.

[217] U.S. Army Corps of Engineers, "Temporary Roofing," last accessed August 21, 2020, https://www.usace.army.mil/Missions/Emergency-Operations/National-Response-Framework/Temporary-Roofing/.

Home Replacement Assistance,[218] and Direct Housing Assistance, including Direct Lease, Multifamily Lease and Repair, and Permanent Housing Construction.[219]

FEMA extended the IHP program following Hurricanes Irma and María. The IHP period of assistance does not typically exceed 18 months from the date of declaration unless extended by FEMA when it is determined that "due to extraordinary circumstances an extension would be in the public interest."[220] Thus, without the extensions, the IHP would have ended around March 2019 (18 months from when the disasters occurred in September 2017). Instead, assistance provided through the FEMA IHP concluded for the disaster survivors of Hurricane Irma on November 30, 2019, and for the disaster survivors of Hurricane María on December 6, 2019 (and February 6, 2020, for specific cases—i.e., owners/renters with inspections pending).[221]

Individuals and Households Program (IHP) Assistance

Financial Housing Assistance:

- **Rental Assistance**: $143.3 million
- **Home Repairs**: $566.4 million
- **Home Replacement**: $90.7 million

Direct Temporary Housing Assistance:

- **Permanent Housing Construction—Repair**: $45.4 million in funding was provided to repair 51 properties.
- **Direct Lease**: $12.3 million
- **Multi-Family Lease and Repair**: $1.0 million in funding was provided to assist 367 families.

Financial Assistance for Other Needs:

- **Other Needs Assistance**: $586.9 million

Sources: FEMA, "Hurricane Maria by the Numbers," last accessed October 7, 2020, https://www.fema.gov/fact-sheet/hurricane-Maria-numbers; and emails from FEMA Congressional Affairs staff dated September 21 and 24, 2020, and October 1, 2020. This information details assistance provided.

Other Forms of Individual Assistance Provided

Other forms of IA were also provided, including Disaster Unemployment Assistance, which provided temporary benefits to individuals whose employment or self-employment was "lost or interrupted as a direct result of a major disaster and who are not eligible for regular unemployment insurance (UI),"[222] and Disaster Case Management, which partners disaster case managers with disaster survivors to develop and execute an individual disaster recovery plan.[223] Disaster Legal Services were also provided via a DLS Hotline that was supported by the Louisiana Civil Justice Center (LCJC) and services were also provided at Disaster Recovery Centers.[224]

[218] FEMA, "DR-4336-PR & DR-4339-PR Individual Assistance Public Notice," June 14, 2018, https://www.fema.gov/disaster-federal-register-notice/dr-4336-pr-dr-4339-pr-individual-assistance-public-notice.

[219] FEMA, "Hurricane Maria by the Numbers," https://www.fema.gov/fact-sheet/hurricane-Maria-numbers.

[220] 44 C.F.R. §206.110(e).

[221] FEMA's Office of External Affairs confirmed that the Individuals and Households Program (IHP) concluded for the disaster survivors of the hurricanes in an email from FEMA Congressional Affairs staff dated September 10, 2020.

[222] FEMA, *IAPPG*, p. 222. For more information on Disaster Unemployment Assistance, see CRS Report RS22022, *Disaster Unemployment Assistance (DUA)*, by Julie M. Whittaker.

[223] Government of Puerto Rico, *Fourth Congressional Status Report*, p. 11; and FEMA, *IAPPG*, p. 172.

[224] Email from FEMA Congressional Affairs staff, September 10, 2020. According to FEMA, the Disaster Legal Services (DLS) Hotline services concluded on March 9, 2018, and the DLS at Disaster Recovery Centers concluded October 4, 2018, "when the services were transitioned to pro-bono services by Legal Services of PR through Voluntary Agency Liaisons (VAL)."

Other Individual Assistance

- **Disaster Unemployment Assistance:** $16 million in funding was approved for 11,663 claims.
- **Disaster Case Management:** 29,693 cases were closed (15,542 with a successful outcome), and 1,340 cases were transferred internally. $72.8 million was approved for 9 Nongovernmental Organizations (NGOs) ($69.8 million was approved for an initial 12-month period; and $2.9 million was approved for 6 NGOs for a 6-month extension).
- **Disaster Legal Services:** $23,562.48 in funding was provided for DLS.
- **Crisis Counseling Program:** $6.7 million in funding was provided for the Immediate Services Program, which provided 583,839 services, and $29.2 million in funding was provided for the Regular Services Program, which provided 1,897,513 services. Services included Individual/Family Crisis Counseling, Group Counseling/Public Education, Brief Education/Supportive Contact, and Disaster Recovery Center Visits.

Sources: FEMA, "Hurricane Maria by the Numbers," last accessed October 7, 2020, https://www.fema.gov/fact-sheet/hurricane-Maria-numbers; and Government of Puerto Rico, *Fourth Congressional Status Report on the Economic and Disaster Recovery Plan*, August 3, 2020, p. 11, https://recovery.pr/documents/Congressional%20Report%20073020[2].pdf; and email from FEMA Congressional Affairs staff dated September 10, 2020.

Most of these Individual Assistance programs have concluded for Hurricanes Irma and María; however, the DCM period of performance was extended through November 3, 2020 for one provider due to the COVID-19 pandemic.[225]

Ongoing Housing Recovery Through HUD's CDBG-DR Program

Puerto Rico's recovery goal for housing involves creating resilient communities and safe, affordable housing.[226] This requires transitioning from informal to formal housing (i.e., construction completed with assistance from an architect or engineer, received a permit and conforms to building and land-use codes)[227] and relocating some people, as well as increasing insurance coverage and clarifying homeownership records.[228] Housing assistance provided through FEMA's IHP and programs such as *Tu Hogar Renace* helped with Puerto Rico's housing recovery; however, many disaster survivors from Hurricanes Irma and María continue to live under roofs with blue tarps or in homes that remain damaged or destroyed.[229] In order to meet

[225] The period of performance for Disaster Case Management (DCM) assistance concluded for five providers on August 3, 2020, and a 90-day no-cost extension was approved for one provider due to COVID-19, which extended the period of performance through November 3, 2020. Disaster Unemployment Assistance concluded July 24, 2019. Disaster Legal Services concluded October 4, 2018. Finally, the period of performance for the Crisis Counseling Program—Immediate Services Program was from September 20, 2017, through March 19, 2018, and the period of performance for the Regular Services Program was from March 20, 2018, through December 19, 2019 (email from FEMA Congressional Affairs staff dated September 10, 2020).

[226] The specific courses of action for "Repair and Rebuild Resilient Housing" are detailed in the COR3 *Economic and Disaster Recovery Plan for Puerto Rico* beginning on p. 286. Additional detailed information can be found in the supplemental report developed by the Homeland Security Operational Analysis Center (HSOAC) (see Noreen Clancy, Lloyd Dixon, Dan Elinoff, Kathryn Kuznitsky, and Sean McKenna, *Modernizing Puerto Rico's Housing Sector Following Hurricanes Irma and Maria: Post-Storm Challenges and Potential Courses of Action*, Homeland Security Operational Analysis Center operated by the RAND Corporation, September 30, 2020, p. xi, https://www.rand.org/pubs/research_reports/RR2602.html (hereinafter HSOAC, *Modernizing Puerto Rico's Housing Sector*).

[227] COR3, *Economic and Disaster Recovery Plan for Puerto Rico*, p. 32. The anticipated cost capital improvements for housing are $33,000,000 (COR3, *Economic and Disaster Recovery Plan for Puerto Rico*, p. 160).

[228] COR3, *Economic and Disaster Recovery Plan for Puerto Rico*, p. 115; and PRDOH, *Action Plan for the Use of CDBG-DR Funds* (Amendment 3), p. 51.

[229] PRDOH, *Action Plan for the Use of CDBG-DR Funds* (Amendment 3), p. 124.

Puerto Rico's unmet housing needs—estimated at nearly $34 billion[230]—several housing programs are being funded through the U.S. Department of Housing and Urban Development's (HUD's) Community Development Block Grant-Disaster Recovery (CDBG-DR) program,[231] including the Home Repair, Reconstruction, or Relocation (R3) Program and the Title Clearance Program (described below). Thus, although the FEMA housing assistance programs have officially concluded for Hurricanes Irma and María, federally funded housing recovery work is ongoing.[232]

The Government of Puerto Rico designated the Puerto Rico Department of Housing (PRDOH) as the agency responsible for administering the CDBG-DR funds (in collaboration with COR3).[233] The *Puerto Rico Disaster Recovery Action Plan for the use of CDBG-DR Funds in Response to 2017 Hurricanes Irma and María* details the CDBG-DR-eligible programs that are being provided for Puerto Rico's unmet needs. It aligns with the courses of action detailed in the *Economic and Disaster Recovery Plan for Puerto Rico*.[234]

R3 Program

The R3 Program, launched in July 2019, helps eligible homeowners repair or reconstruct hurricane-damaged single-family homes, and relocates some families to other homes.[235] Applicants with significant property damage, including those still living under blue roofs, are among those being given priority.[236] The R3 program accepted approximately 26,951

[230] PRDOH, *Action Plan for the Use of CDBG-DR Funds* (Amendment 3), p. 69.

[231] See PRDOH, *Action Plan for the Use of CDBG-DR Funds* (Amendment 3), p. 108. The table presented in the *Action Plan for the Use of CDBG-DR Funds* includes the list of housing programs.

[232] As with the FEMA housing assistance programs, the CDBG-DR-funded housing assistance also has a range of eligibility requirements, which are detailed in the *Action Plan for the Use of CDBG-DR Funds*.

[233] PRDOH, *Action Plan for the Use of CDBG-DR Funds* (Amendment 3), p. v.

[234] PRDOH, *Action Plan for the Use of CDBG-DR Funds* (Amendment 3), p. iv.

[235] PRDOH, *Action Plan for the Use of CDBG-DR Funds* (Amendment 3), p. 125. The guidelines for the R3 Program, which include information on the eligible use of funds, the application process and program eligibility, and other administrative information, including related to the decision-making process for whether it is appropriate to repair, reconstruct, or relocate applicants, are available at PRDOH, *CDBG-DR Program Guidelines: Home Repair, Reconstruction, or Relocation Program (R3 Program)*, v. 8, September 17, 2020, https://cdbg-dr.pr.gov/en/download/home-repair-reconstruction-or-relocation-program/?ind=1600370442179&filename=1600370442wpdm_HSN_R3_Guidelines_Program%20Guidelines_v8_EN.pdf&wpdmdl=6679&refresh=5f7dd9fb5866f1602083323 (hereinafter PRDOH, *R3 Program Guidelines*).

[236] PRDOH, *Action Plan for the Use of CDBG-DR Funds* (Amendment 3), p. 124; and PRDOH, DRAFT *Puerto Rico Disaster Recovery Action Plan for the Use of CDBG-DR Funds in Response to 2017 Hurricanes Irma and María*, Amendment 4, July 9, 2020, p. 73, https://cdbg-dr.pr.gov/en/download/revised-draft-submitted-to-hud-for-evaluation-and-final-approval/?ind=1594483059667&filename=Action%20Plan%20Amendment%204%20Substantial%20-%20July%209,%202020.pdf&wpdmdl=12323&refresh=5f4f91a90fcf21599050153 (subject to HUD approval) (hereinafter PRDOH, DRAFT *Action Plan for the Use of CDBG-DR Funds* (Amendment 4)). Puerto Rico Secretary of the Housing Department, Luis C. Fernández Trinchet was quoted by the *AP* as stating that "more than 2,600 of the applicants are still using blue tarps instead of roofs" (Dánica Coto, "Thousands in Puerto Rico Still Without Housing Since María," *AP*, July 24, 2020, last accessed August 20, 2020, https://apnews.com/a2cf35e2f8893592ec4b59d90baae1ac (which states that nearly 1.5 years after federal funding was released to local officials, not a single repair or rebuilding job had been completed) (hereinafter Coto, "Thousands in Puerto Rico Still Without Housing Since María")).

applications,[237] of which 18,500 are priority applicants.[238] Program intake (i.e., the application process) was 46% complete by March 2020, and 24% of the applicants were deemed eligible to receive assistance.[239]

The *Associated Press* and *El Centro de Periodismo Investigativo* (*CPI*—or the Center for Investigative Journalism) have reported on criticism of the R3 program, including by Puerto Rico Governor Wanda Vázquez Garced and program applicants, alleging that the pace of work is slow.[240] Critics are also concerned that actions by homeowners to make repairs on their own are penalized by the R3 program.[241] However, the current Puerto Rico Secretary of the Housing Department, Luis C. Fernández Trinchet, was quoted by *CPI* in August 2020, as saying "[f]orty-four homes have been completed as part of the [R3] program and we're moving ahead with what we had said of having 300 more homes in repair or reconstruction a month."[242]

Title Clearance Program

Lack of formal documentation proving homeownership made it difficult for some disaster survivors from Puerto Rico to access housing recovery resources.[243] According to the guidance for the Title Clearance Program

> Many homeowners in Puerto Rico lack a legal property title, which, for the most part, is a direct consequence of migration flows dating back to the 1930's and 1940's. In addition, there is no legal requirement to register the transfer of title to properties on the Island, so families have lived decades without registering their ownership of land or structures with the government and some have subdivided properties without complying with the applicable rules and regulations. Therefore, such homeowners do not hold clear and marketable titles to their properties.
>
> After ... Hurricanes Irma and María, ... [FEMA] denied financial assistance to individuals who could not prove ownership of their own homes. According to the Housing Damage Assessment and Recovery Strategies Report for Puerto Rico, FEMA estimates that nearly sixty percent (60%) of the 1.1 million applications for FEMA assistance were found ineligible. Although many factors contributed, one of the main reasons was the Applicant's inability to prove that they own the homes and/or the land for which they were claiming damages.[244]

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[237] PRDOH, "PRDOH Reaches Maximum Capacity for R3 Program Applications," May 1, 2020, https://www.cdbg-dr.pr.gov/en/prdoh-reaches-maximum-capacity-for-r3-program-applications/. Former Secretary of the Puerto Rico Department of Housing, Fernando Gil-Enseñat, announced that the R3 program reached its "maximum capacity of applicants" based on the funds assigned in the HUD-approved *Action Plan for the Use of CDBG-DR Funds*.

[238] PRDOH, DRAFT *Action Plan for the Use of CDBG-DR Funds* (Amendment 4), p. 73. Priority applicants include applicants living in homes that still have significant damage remaining from the hurricanes.

[239] PRDOH, DRAFT *Action Plan for the Use of CDBG-DR Funds* (Amendment 4), p. 73; and PRDOH, *R3 Program Guidelines*, p. 11. The intake process refers to the application process, which is described in the PRDOH, *R3 Program Guidelines* (see pp. 11-16).

[240] Coto, "Thousands in Puerto Rico Still Without Housing Since María"; and Jeniffer Wiscovitch, "Housing Options Don't Get Off the Ground After Hurricane María, Earthquakes," *María: The Money Trail*, August 20, 2020, last accessed August 20, 2020, https://periodismoinvestigativo.com/2020/08/housing-options-dont-get-off-the-ground-after-hurricane-María-earthquakes/ (hereinafter Wiscovitch, "Housing Options Don't Get Off the Ground").

[241] Wiscovitch, "Housing Options Don't Get Off the Ground."

[242] Wiscovitch, "Housing Options Don't Get Off the Ground."

[243] PRDOH, *Action Plan for the Use of CDBG-DR Funds* (Amendment 3), p. 130. The lack of documentation proving homeownership prevented or delayed assistance to some disaster survivors from Puerto Rico following the hurricanes.

[244] PRDOH, *CDBG-DR Program Guidelines: Title Clearance Program*, v. 2, May 27, 2020, p. 6, https://www.cdbg-

In addition, lack of documentation also stems from informal building practices.[245] Following Hurricanes Irma and María, FEMA addressed the challenge of insufficient documentation to prove homeownership by accepting a signed form declaring ownership and accompanying documentation proving homeownership (e.g., receipts or invoices proving the person claiming ownership paid to maintain the property), in lieu of title.[246]

To address these challenges moving forward, Puerto Rico's *Action Plan for the Use of CDBG-DR Funds* details the Title Clearance Program, which launched in September 2019. The program's goal is to provide clear title to thousands of homeowners.[247] Additionally, the program will prioritize assistance for homeowners who experienced challenges receiving federal assistance due to lack of clear title.[248] The Title Clearance Program accepted nearly 2,000 applications by March 2020, 64% of which were from priority applicants (including those who had trouble receiving federal assistance due to lack of clear title).[249]

The Title Clearance Program also supports R3 Program applicants who lack clear title because R3 applicants

> can only move forward ... up to the point of Award Coordination. To move forward with an award under the R3 Program, Applicants need to have a clear title due to local permit requirements for construction work in Puerto Rico.[250]

Issues and Challenges Regarding the Future Delivery of Housing Assistance

Emergency Sheltering Assistance

Changes have been made to FEMA's emergency and interim housing assistance programs as a result of policy changes and legislation enacted subsequent to the 2017 hurricane season.[251] These

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dr.pr.gov/en/download/title-clearance-program/?ind=1590610774888&filename=HSN_TC_Guidelines_Program%20Guidelines_EN_v2.pdf&wpdmdl=6692&refresh=5f7ddd42006c31602084162 (hereinafter PRDOH, *Title Clearance Program Guidelines*). The guidelines for the Title Clearance Program, include information on the eligible use of funds, the application process and program eligibility, and other administrative information. See also HSOAC, *Modernizing Puerto Rico's Housing Sector*, pp. 14-15.

[245] Ivis Garcia, "The Lack of Proof of Ownership in Puerto Rico Is Crippling Repairs in the Aftermath of Hurricane María," *American Bar Association Human Rights Magazine*, vol. 44, no. 2, October 2, 2019, https://www.americanbar.org/groups/crsj/publications/human_rights_magazine_home/vol—44—no-2—housing/the-lack-of-proof-of-ownership-in-puerto-rico-is-crippling-repai/; Andres Viglucci, "Half of Puerto Rico's Housing Was Built Illegally, Then Came Hurricane María," *Miami Herald*, February 14, 2018, https://www.miamiherald.com/news/nation-world/world/americas/article199948699.html; and PRDOH, *Action Plan for the Use of CDBG-DR Funds* (Amendment 3), p. 42.

[246] FEMA, "Additional Options Available for Applicants to Verify Home Ownership," release 254, August 17, 2018, https://www.fema.gov/news-release/20200220/additional-options-available-applicants-verify-home-ownership; Ayuda Legal Puerto Rico, "Formulario para Solicitar o Apelar a FEMA sin Título de Propiedad [Form to request or appeal to FEMA without title]," last accessed November 26, 2019, https://ayudalegalpr.org/resource/formulario-para-solicitar-o-apelar-a-fema-sin-titulo-formal?ref=yXD0X. See also Carolina Bolado and Natalie Rodriguez, "'Now Is the Real Crisis': Puerto Ricans Struggle for Disaster Aid," *Law 360*, February 10, 2019, https://www.law360.com/articles/1123340.

[247] PRDOH, *Action Plan for the Use of CDBG-DR Funds* (Amendment 3), p. 131; and PRDOH, DRAFT *Action Plan for the Use of CDBG-DR Funds* (Amendment 4), p. 74.

[248] PRDOH, *Action Plan for the Use of CDBG-DR Funds* (Amendment 3), p. 130.

[249] PRDOH, DRAFT *Action Plan for the Use of CDBG-DR Funds* (Amendment 4), p. 74.

[250] PRDOH, *Title Clearance Program Guidelines*, p. 6.

[251] The Disaster Recovery Reform Act of 2018 was enacted in October 2018, following the 2017 hurricane season. DRRA made changes to the IHP to expand housing assistance options and increase program customization. For more

changes may affect the housing assistance options FEMA may provide to disaster survivors, including disaster survivors in Puerto Rico.

For example, in order to provide temporary sheltering assistance, FEMA used a variety of emergency sheltering programs, including *Tu Hogar Renace* (i.e., the STEP Pilot Program). However, although it was used following several significant disasters,[252] FEMA announced that it was ending the STEP Pilot Program in October 2019, because the program "was not meeting its established objectives" and repairs could not be made quickly enough for the program to effectively serve as an emergency sheltering solution.[253] GAO noted that FEMA had not evaluated its remaining sheltering options when it discontinued the STEP Pilot Program, so the GAO recommended that the FEMA Administrator evaluate the agency's emergency housing solutions.[254] DHS concurred with the GAO's recommendation,[255] and as of August 2020, FEMA fully implemented the GAO's suggestion and the GAO considers the recommendation "closed as implemented."[256] Specifically, FEMA determined that it could provide emergency sheltering to disaster survivors by

> using a combination of existing capabilities and building capacity for specialized teams tasked with coordinating with state, local, tribal, and territorial governments to identify viable sheltering options.[257]

Congress may still wish to monitor FEMA's efforts to implement emergency sheltering assistance programs to meet the short-term emergency housing needs of disaster survivors—particularly those disaster survivors who reside in areas with limited housing stock, such as Puerto Rico.

Confusion Regarding Applying for Assistance

In September 2020, the GAO published a report on actions needed to improve the FEMA IHP, which focused on challenges to obtaining assistance through the program. One challenge the GAO reported related to the requirement to complete an SBA disaster loan application to receive

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information, see the "Individual Assistance" section of the CRS Report R45819, *The Disaster Recovery Reform Act of 2018 (DRRA): A Summary of Selected Statutory Provisions*, coordinated by Elizabeth M. Webster and Bruce R. Lindsay.

[252] GAO, U.S. Virgin Islands Recovery: Additional Actions Could Strengthen FEMA's Key Disaster Recovery Efforts, GAO-20-54, November 2019, pp. 31 and 34, https://www.gao.gov/assets/710/702744.pdf (hereinafter GAO, U.S. Virgin Islands Recovery: Additional Actions). Including being implemented in Puerto Rico following the 2017 hurricanes, the STEP pilot program was authorized following eight declared disasters since 2012.

[253] FEMA, "Bulletin Week of October 21, 2019," https://content.govdelivery.com/accounts/USDHSFEMA/bulletins/2679511.

[254] GAO noted that the Sheltering and Temporary Essential Power (STEP) Pilot Program was used "for the specific purpose of providing necessary additional capacity to supplement these [FEMA housing assistance] and other federal programs. Further, in certain cases, the STEP pilot program was used when implementing these other programs was unfeasible ... where the particular circumstances on the ground made using the Transitional Sheltering Assistance program or deploying temporary housing units impractical.... " GAO, *U.S. Virgin Islands Recovery: Additional Actions*, p. 35.

[255] GAO, *U.S. Virgin Islands Recovery: Additional Actions*, p. 44.

[256] GAO, *U.S. Virgin Islands Recovery: Additional Actions Could Strengthen FEMA's Key Disaster Recovery Efforts*, GAO-20-54, November 2019, "Recommendations for Executive Action," https://www.gao.gov/products/GAO-20-54?mobile_opt_out=1#summary_recommend (hereinafter GAO, *U.S. Virgin Islands Recovery: Additional Actions*, "Recommendations for Executive Action"). See Recommendation 1 "Status" and "Comments." This involved "review[ing] a range of existing documentation, including findings from after action reports conducted following prior disasters and the agency's Continuous Improvement Program."

[257] GAO, *U.S. Virgin Islands Recovery: Additional Actions*, "Recommendations for Executive Action." See Recommendation 1 "Status" and "Comments."

some forms of IHP assistance (e.g., Other Needs Assistance for the repair or replacement of personal property). Officials from Puerto Rico and FEMA told the GAO that disaster survivors "did not understand or were confused by" the requirement.

> FEMA recovery officials in Puerto Rico said that the agency faces challenges with the IHP requirement to apply for an SBA loan in every disaster, and Individual Assistance officials from ... FEMA regional offices ... noted that this requirement has been a long-standing issue with the program.[258]

To address the challenge of confusion in the SBA-IHP application process, the GAO made two recommendations, which DHS concurred with:

1. FEMA should improve the way it communicates the SBA Disaster Loan application requirement that must be completed before an applicant may be considered for the forms of ONA that are "SBA-dependent"; and
2. FEMA should assess the extent to which the SBA-dependent ONA application process limits or prevents disaster survivors from accessing IHP assistance, and FEMA should work with SBA to identify options to simplify and streamline the application process.[259]

Per the GAO's report, by doing this, "FEMA can help ensure that its process does not delay or serve as a barrier to IHP assistance.... "[260] This improvement may be critical to ensuring disaster survivors from Puerto Rico, and elsewhere, receive all of the assistance for which they are eligible following future disasters. Congress may wish to monitor FEMA and the SBA's progress towards clarifying, simplifying, and streamlining the IHP/SBA application process.

Small Business Administration Disaster Loan Program[261]

Through its Office of Disaster Assistance (ODA), the Small Business Administration (SBA) has been a major source of assistance for the restoration of commerce and households in areas stricken by natural and human-caused disasters since the agency's creation in 1953. Through its disaster loan program, the SBA offers low-interest, long-term loans for physical and economic damages to businesses to help repair, rebuild, and recover from economic losses after a declared disaster. The majority of the agency's disaster loans (over 80%), however, are made to individuals and households (renters and property owners) to help repair and replace homes and personal property.[262]

SBA disaster loans for disaster-related losses include SBA Home Disaster Loans and SBA Business Disaster Loans. Both loan categories were made available to Puerto Rico in response to Hurricane María. The following sections describe the loans in more detail.[263]

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[258] GAO, *Disaster Assistance: Additional Actions Needed to Strengthen FEMA's Individuals and Households Program*, GAO-20-503, September 2020, p. 36, https://www.gao.gov/assets/710/709775.pdf (hereinafter GAO, *Actions Needed to Strengthen FEMA's IHP*).

[259] GAO, *Actions Needed to Strengthen FEMA's IHP*, pp. 76-77.

[260] GAO, *Actions Needed to Strengthen FEMA's IHP*, p. 42.

[261] For more information on the SBA's Disaster Loan program, contact Bruce R. Lindsay, Analyst in American National Government.

[262] SBA disaster loans can only be used for uninsured, underinsured, or otherwise uncompensated damages.

[263] For more information on the SBA Disaster Loan Program including its creation, see CRS Report R41309, *The SBA Disaster Loan Program: Overview and Possible Issues for Congress*, by Bruce R. Lindsay.

SBA Home Disaster Loans

The SBA Disaster Loan Program provides two categories of home disaster loans: (1) Real Property Disaster Loans; and (2) Personal Property Disaster Loans. Both loan categories have interest rate ceilings that are statutorily set at 8% per annum, or 4% per annum if the applicant is unable to obtain credit elsewhere, and have loan maturities up to 30 years.[264]

Real Property Disaster Loans

Real Property Disaster Loans provide creditworthy homeowners located in a declared disaster area with up to $200,000 to repair or restore the homeowner's primary residence to its pre-disaster condition. The loans may not be used to upgrade a home or build additions to the home, unless the upgrade or addition is required by city or county building codes. Secondary homes or vacation properties are ineligible for Real Property Loans.

Personal Property Disaster Loans

Personal Property Disaster Loans provide creditworthy homeowners or renters located in a declared disaster area with up to $40,000 to repair or replace personal property owned by the disaster survivor. Personal Property Loans can be used to repair or replace clothing, furniture, cars, or appliances damaged or destroyed in the disaster.

SBA Business Disaster Loans

The SBA Disaster Loan Program provides two categories of business disaster loans to eligible small businesses: (1) Business Physical Disaster Loans; and (2) Economic Injury Disaster Loans (EIDLs). Business Physical Disaster Loans have interest rate ceilings statutorily set at 8% per annum or 4% per annum. EIDLs have interest rate ceilings statutorily set at 4% per annum. Both loans have maturities up to 30 years.[265] Eligible nonprofit organizations may also apply for Business Physical Disaster loans and EIDLs. The loan terms are the same as those offered to businesses.

Business Physical Disaster Loans

Business Physical Disaster Loans provide up to $2 million to repair or replace damaged physical property, including machinery, equipment, fixtures, inventory, and leasehold improvements that are not covered by insurance.

Economic Injury Disaster Loans (EIDLs)

EIDLs provide up to $2 million to help meet financial obligations and operating expenses that could have been met had the disaster not occurred. Loan proceeds can only be used for working capital necessary to enable the business or organization to alleviate the specific economic injury

[264] In certain circumstances individuals and household can use grant assistance and an SBA Home Disaster Loan to recover from a disaster provided they do not use the assistance for losses for which they have already been compensated or may expect to be compensated. For more information see CRS Report R45238, *FEMA and SBA Disaster Assistance for Individuals and Households: Application Processes, Determinations, and Appeals*, by Bruce R. Lindsay and Elizabeth M. Webster.

[265] For information on SBA size standards, see CRS Report R40860, *Small Business Size Standards: A Historical Analysis of Contemporary Issues*, by Robert Jay Dilger.

and to resume normal operations. Loan amounts for EIDLs are based on actual economic injury and financial needs, regardless of whether the business suffered any property damage.

SBA Disaster Loans: 2017 Hurricanes

The SBA approved roughly $261 million in business disaster loans and $1.3 billion for home disaster loans in response to Hurricane María (see **Table 5** and **Table 6**). The number of loans that were issued may be lower than the number of loan applications approved, because not all approved loan applications are accepted by the borrower.

Table 5. SBA Business Disaster Loans

Hurricane María, 2017

Municipio	Approved Application Amount	Municipio	Approved Application Amount	Municipio	Approved Application Amount
Adjuntas	$1,488,500	Fajardo	$1,892,100	Naranjito	$4,299,100
Aguada	$2,122,000	Florida	$73,200	Orocovis	$1,425,900
Aguadilla	$2,578,900	Guánica	$665,300	Pattillas	$1,243,700
Aguas Buenas	$1,051,200	Guayama	$2,069,000	Peñuelas	$412,000
Aibonito	$974,600	Guayanilla	$2,200,500	Ponce	$8,295,100
Añasco	$777,900	Guaynabo	$6,513,100	Quebradillas	$825,400
Arecibo	$4,555,700	Guarabo	$3,665,600	Rincón	$881,200
Arroyo	$261,300	Hatillo	$1,902,000	Río Grande	$3,036,000
Barceloneta	$2,029,400	Hormigueros	$1,757,800	Sabana Grande	$54,600
Barranquitas	$1,653,800	Humacao	$7,746,200	Salinas	$693,800
Bayamón	$10,198,700	Isabela	$1,328,400	San Germán	$2,788,200
Cabo Rojo	$1,229,100	Jayuya	$626,800	San Juan	$61,069,300
Caguas	$21,206,100	Juana Díaz	$1,041,400	San Lorenzo	$1,798,300
Camuy	$755,700	Juncos	$2,139,300	San Sebastien	$976,300
Canóvanas	$6,757,900	Lajas	$136,800	Santa Isabel	$698,100
Carolina	$11,052,200	Lares	$523,600	Toa Alta	$1,657,100
Cataño	$591,100	Las Piedras	$582,300	Toa Baja	$5,417,400
Cayey	$3,751,100	Loíza	$818,100	Trujillo Alto	$2,292,900
Ceiba	$323,900	Luquillo	$3,490,200	Utuado	$5,023,700
Ciales	$597,700	Manatí	$2,538,400	Vega Alta	$1,274,700
Cidra	$4,406,200	Maunabo	$151,200	Vega Baja	$1,274,300
Coama	$1,836,300	Mayagüez	$3,489,800	Vieques	$8,755,300
Comerío	$1,123,400	Moca	$458,400	Villalba	$1,114,900
Corozal	$4,172,900	Morvis	$497,600	Yabucoa	$3,675,100
Culebra	$1,181,500	Naguabo	$3,986,400	Naranjito	$4,299,100
Dorado	$4,247,100	Fajardo	$1,892,100	Yauco	$413,100
				Total	**$260,613,200**

Source: U.S. Small Business Administration, *Open Data Sources*, SBA Disaster Loan Data FY2017, https://www.sba.gov/about-sba/sba-performance/open-government/digital-sba/open-data/open-data-sources.

Notes: Not all applicants accept approved loans. The SBA applies the term "County/Parish" to "municipios" in their data. Puerto Rico's municipios are the functioning equivalent to counties and parishes.

Table 6. SBA Home Disaster Loans

Hurricane María, 2017

Municipio	Approved Application Amount	Municipio	Approved Application Amount	Municipio	Approved Application Amount
Adjuntas	$5,464,100	Fajardo	$14,599,400	Naguabo	$15,443,200
Aguada	$10,569,200	Florida	$4,831,400	Naranjito	$21,035,400
Aguadilla	$10,546,600	Guánica	$3,805,500	Orocovis	$18,538,400
Aguas Buenas	$11,044,900	Guayama	$22,779,800	Patillas	$11,700,900
Aibonito	$17,674,600	Guayanilla	$3,797,800	Peñuelas	$4,572,500
Añasco	$7,730,900	Guaynabo	$31,081,700	Ponce	$36,529,400
Arecibo	$27,146,100	Gurabo	$23,691,100	Quebradillas	$2,604,500
Arroyo	$10,387,900	Hatillo	$6,988,300	Rincón	$1,915,500
Barceloneta	$11,151,700	Hormigueros	$2,228,200	Río Grande	$27,099,000
Barranquitas	$23,800,300	Humacao	$47,954,900	Sabana Grande	$2,231,000
Bayamón	$62,955,700	Isabela	$7,771,600	Salinas	$18,188,200
Cabo Rojo	$5,566,800	Jayuya	$5,763,200	San Germán	$3,287,100
Caguas	$51,730,200	Juana Díaz	$22,709,800	San Juan	$74,461,100
Camuy	$6,462,100	Juncos	$17,279,800	San Lorenzo	$11,231,300
Canóvanas	$27,833,900	Lajas	$2,260,000	San Sebastián	$6,427,800
Carolina	$56,444,000	Lares	$4,141,000	Santa Isabel	$8,896,300
Cataño	$5,726,500	Las Marías	$1,952,900	Toa Alta	$24,678,300
Cayey	$22,093,000	Las Piedras	$24,431,200	Toa Baja	$58,352,300
Ceiba	$7,113,200	Loíza	$8,768,300	Trujillo Alto	$20,491,200
Ciales	$11,342,100	Luquillo	$8,888,700	Utuado	$14,262,700
Cidra	$21,526,100	Manatí	$14,231,200	Vega Alta	$10,505,800
Coamo	$19,056,600	Maricao	$963,600	Vega Baja	$18,822,700
Comerío	$13,870,100	Maunabo	$9,948,400	Vieques	$5,694,300
Corozal	$14,007,700	Mayagüez	$11,240,500	Villalba	$11,570,300
Culebra	$728,800	Moca	$5,469,900	Yabucoa	$21,779,900
Dorado	$16,393,500	Morovis	$17,687,000	Yauco	$6,866,700
				Total	**$1,260,817,600**

Source: U.S. Small Business Administration, *Open Data Sources*, SBA Disaster Loan Data FY2017, https://www.sba.gov/about-sba/sba-performance/open-government/digital-sba/open-data/open-data-sources.

Notes: Not all applicants accept approved loans. The SBA applies the term "County/Parish" to "municipios" in their data. Puerto Rico's municipios are the functioning equivalent to counties and parishes.

SBA Disaster Loan Policy Considerations

Language Translation Services

According to a report issued by the SBA Office of Inspector General (OIG), Hurricane María created an unprecedented demand for Spanish translation services. Prior to the storm, the SBA contracted language translations services from one translation service company for several

years.[266] The SBA, however, changed contractors and the new contract was issued on September 5, 2017. The new contractor began translation services nine days after Hurricane María struck Puerto Rico, on September 29, 2017. The new translation service contractor could not handle the call volume.[267] According to the SBA Office of Disaster Assistance (ODA), managers and staff estimated that some of the disaster loan applicants waited over 45 minutes for an interpreter or experienced dropped calls. Upon reviewing the contracts, the SBA OIG noted they lacked a performance standard for translator wait times and the SBA was unable to provide vendor performance reports to the SBA OIG. In response to the OIG, SBA officials stated that the contractors' system limitations prevented the SBA from monitoring translation wait times. The SBA OIG recommended that the SBA include performance standards for wait times in its agreements.[268]

Congress could require the SBA to develop a performance standard for translation wait times and develop a compatible system to monitor the wait times. Congress could also require the SBA to provide a report to Congress detailing wait times for translations services.

Loan Processing Times

Reports issued by GAO and the SBA OIG on SBA loan processing times found that, despite significant demand for SBA disaster assistance and challenges associated with translation services, the SBA was able to meet its 45-day processing goal (see **Table 7**).[269] With respect to the OIG's findings, the SBA's average disaster loan processing times for loans that were approved, denied, or withdrawn was approximately 30 days. When computer generated declines were included in the calculation, the overall average disaster loan processing time was roughly 27 days.[270]

SBA disaster loan processing times are a perennial concern for Congress. Although Congress wants to provide assistance to disaster survivors as quickly as possible, providing the assistance too quickly can lead to waste, fraud, and abuse. If Congress believes the SBA's 45-day loan processing goal is too long, it could investigate methods that might reduce loan-processing times.

Table 7. Hurricane María Loan Processing Times

As of March 30, 2018

	All	Home	Business	EIDL[a]	Non Profit[b]
Total Number of Applications Processed	86,598	78,266	6,908	1,244	180

[266] SBA OIG, *Inspection of SBA's Initial Disaster Assistance Response to Hurricane María*, Report Number 18-19, July 19, 2018, p. 5, https://www.oversight.gov/sites/default/files/oig-reports/SBA-OIG-Report-18-19.pdf (hereinafter SBA OIG, *SBA's Initial Response to Hurricane María*).

[267] SBA OIG, *SBA's Initial Response to Hurricane María*, p. 5.

[268] SBA OIG, *SBA's Initial Response to Hurricane María*, p. 5. In an email correspondence with the SBA Office of Congressional and Legislative Affairs on October 8, 2020, SBA stated it did not make any changes to the language in the contract in response to the suggestions from the SBA OIG Inspection Report for Hurricane María. The SBA indicated, however, that the contracts expire in February 2021, and that SBA is considering adding a performance standard in the new contract for wait times.

[269] See GAO, Disaster Loan Processing Was Timelier, but Planning Improvements and Pilot Program Evaluation Needed, GAO-20-168, February 7, 2020, pp. 34-35, https://www.gao.gov/products/GAO-20-168 (hereinafter GAO, Disaster Loan Processing Was Timelier); and SBA OIG, Inspection of SBA's Initial Disaster Assistance Response to Hurricane María, Report Number 18-19, July 19, 2018, pp. 8-9.

[270] The SBA application process is programed to decline applicants who do not meet certain criteria such as having a minimum credit score or being a U.S. citizen.

		All	Home	Business	EIDL[a]	Non Profit[b]
Loan Processing With Auto- and Pre-LV Decline[c]	Average Processing Days	27	25	40	40	41
Loan Processing Without Auto- and Pre-LV Decline	Average Processing Days	30	29	44	44	41

Source: U.S. Small Business Administration: Office of Inspector General, *Inspection of SBA's Initial Disaster Assistance Response to Hurricane María*, "Table 1," Report Number 18-19, July 19, 2018, pp. 8-9; recreated by CRS.

Notes:

a. Economic Injury Disaster Loan.

b. Eligible nonprofit organizations may also apply for Business Physical Disaster loans and Economic Injury Disaster Loans. The loan terms are the same as those offered to businesses.

c. Pre-LV = pre-loss verification.

HUD Community Development Block Grant—Disaster Recovery and—Mitigation[271]

The Community Development Block Grant program for disaster recovery (CDBG-DR) refers to the deployment of Community Development Block Grant authorities to fund temporary programs in response to emergency or disaster situations. In Puerto Rico, CDBG-DR funds have been appropriated and allocated for disaster recovery purposes, such as long-term economic recovery needs unmet by other federal resources, and to support long-term disaster mitigation through infrastructure resiliency (which is referred to as CDBG-MIT).

Assistance Overview

CDBG Background

The Community Development Block Grant (CDBG) is the flagship community and economic development program administered by the U.S. Department of Housing and Urban Development (HUD). CDBG was developed primarily to assist urban areas' housing, infrastructure, and community development needs, with a special emphasis on addressing the needs of low- and moderate-income persons.[272]

CDBG is administered as two subprograms: (1) an entitlement cities program for municipalities with populations of 50,000 or greater (or urban counties of 200,000 or greater); and (2) a state program, which allows states to sub-award CDBG funds (usually competitively) to non-entitlement communities.[273] The entitlement cities program receives approximately 70% of CDBG funds.[274]

[271] For more information on HUD's CDBG-DR and CDBG-MIT programs, contact Michael H. Cecire, Analyst in Intergovernmental Relations and Economic Development Policy, and Joseph V. Jaroscak, Analyst in Economic Development Policy.

[272] For more information on CDBG, see CRS Report R43520, *Community Development Block Grants and Related Programs: A Primer*, by Eugene Boyd.

[273] See HUD, *State Community Development Block Grant Program*, accessed January 24, 2020, https://www.hudexchange.info/programs/cdbg-state/.

[274] There are other CDBG components for insular and tribal entities that are beyond the scope of this report.

In Puerto Rico, 27 municipios are considered entitlement communities,[275] which received a combined $33 million in conventional CDBG entitlement funding for FY2020, and $24 million in non-entitlement funding.[276] Puerto Rican entitlement communities received an additional $33 million in CDBG funds through multiple CARES Act programs, and $33 million in non-entitlement funding.[277] Unlike other territories or insular areas, Puerto Rico is treated as a state by HUD for the purposes of the CDBG program.

The flexibility of the CDBG program provides grantees with the ability to use those funds to deal with emergencies and disasters. Existing CDBG funds can be adapted to disaster recovery and mitigation through: (1) planning for and obligating future funds in service of these objectives; or (2) reprogramming existing funds by amending their consolidated plans in coordination with HUD. CDBG funds may be allocated or reprogrammed to meet any eligible need, including post-disaster recovery. However, although this is a feasible use of CDBG funds, CDBG grantees will have often already planned or obligated preexisting CDBG allocations prior to the occurrence of a disaster, limiting the use of those funds in recovery. HUD does allow CDBG grantees to reprogram existing funds for other eligible uses, including disaster recovery, but this may be an insufficient or impractical option for various localities, depending on the circumstances and scale of the disaster.

CDBG-DR and Variants

In extraordinary circumstances, Congress has provided emergency supplemental appropriations specifically for disaster recovery through CDBG authorities. This process has come to be known as CDBG-DR.[278] When appropriating CDBG-DR funds, Congress utilizes CDBG authorities to create one or more temporary programs to flexibly respond to the unique circumstances, geographies, and policy issues of the disaster. By extension, CDBG-DR programs are broadly guided and administered by HUD through CDBG frameworks. A single CDBG-DR appropriation or allocation can sometimes represent significantly greater funding compared to the conventional CDBG program as a whole, which received $3.4 billion for FY2020. This is inclusive of appropriations made as part of the normal budget cycle, and not in response to the Coronavirus Disease 2019 (COVID-19) emergency. In contrast, CDBG-DR appropriations to Puerto Rico under P.L. 115-123, for example, totaled approximately $8.2 billion.[279]

CDBG-DR appropriations are broadly governed by the CDBG program's statutory authority and program administration. However, CDBG-DR activities differ in allocation, design, and implementation based on the statutory direction provided in the supplemental appropriation act,

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[275] HUD, *CDBG Contacts: Puerto Rico*, accessed October 20, 2020, https://www.hud.gov/states/puerto_rico_virgin_islands/community/cdbg.

[276] HUD, *CPD Program Formula Allocations and CARES Act Supplemental Funding for FY2020*, current as of September 25, 2020, https://www.hud.gov/program_offices/comm_planning/budget/fy20.

[277] For more information on CARES Act funding, see CRS Report R46449, *Tallying Federal Funding for COVID-19: In Brief*, by William L. Painter, and for more information on

CDBG and CARES Act funding, see CRS Insight IN11315, *Community Development Block Grants and the CARES Act*, by Joseph V. Jaroscak.

[278] Although CDBG authorities for disaster relief have been used since the early 1990s, the term "CDBG-DR" has only come into common usage over the past decade. Prior to that, CDBG-DR actions were broadly referred to as a variation of the CDBG program, described as being for the purposes of disaster relief or recovery, with no single common term.

[279] See Further Additional Supplemental Appropriations for Disaster Relief Requirements Act, 2018 (Division B of the Bipartisan Budget Act of 2018, P.L. 115-123); see also U.S. Department of Housing and Urban Development, 83 *Federal Register* 40314, August 14, 2018.

as well as the types of the disaster events in question, their severity, the characteristics of the areas affected, and the unmet needs as determined by HUD. While the exact nature of any CDBG-DR appropriation may vary to meet the unique needs of an incident, several common themes have emerged in their purpose and design:

- typically, CDBG-DR provides significant additional funding to communities for long-term disaster recovery needs, as opposed to immediate uses;
- CDBG-DR allocations are often tied to major disaster declarations (although this is not an absolute requirement) and recovery funds for non-declared disasters may be included in a CDBG-DR supplemental;
- CDBG-DR funds are regularly employed to cover grantees' Federal Emergency Management Agency (FEMA) cost share requirements,[280] particularly in cases of severe fiscal strain;[281]
- often, CDBG-DR is meant to cover "unmet needs" not already addressed by FEMA and Small Business Administration (SBA) disbursements; and
- because of these considerations, CDBG-DR funds are usually the last to be appropriated, allocated, and disbursed in response to the disaster.

In recent disaster supplemental appropriations acts, Congress has utilized other terms to describe CDBG-DR-type packages to emphasize unique or special purposes. For example:

- "CDBG-MIT" funds, developed as part of CDBG-DR appropriations for Puerto Rico and the U.S. Virgin Islands, encompasses supplemental funding designated to increase broader infrastructure resiliency and mitigate the risk of future hazards.
- During the COVID-19 pandemic, the CARES Act (P.L. 116-136) provided supplemental CDBG appropriations organized into three tranches as part of the pandemic response. These appropriations are sometimes referred to as "CDBG-CV."

Despite these separate funding designations, all supplemental emergency appropriations that make use of CDBG authorities could be considered CDBG-DR actions.

Assistance Provided

Following Hurricanes Irma and María, Congress passed three supplemental appropriations acts that included a total of $35.4 billion in CDBG-DR assistance pursuant to 42 U.S.C. §§5301 et seq.:

1. Continuing Appropriations Act, 2018 and Supplemental Appropriations for Disaster Relief Requirements Act, 2017 (P.L. 115-56), on September 8, 2017;
2. Bipartisan Budget Act of 2018 (P.L. 115-123 on February 9, 2018; and

[280] FEMA cost shares are based on language in the Robert T. Stafford Disaster Relief and Emergency Assistance Act (Stafford Act; 42 U.S.C. §§5121 et seq.), which defines the federal cost share to be 75%. The remaining 25% must be matched with nonfederal funds. However, depending on the program and allocation, the exact cost share amount may differ. See CRS Report R41101, *FEMA Disaster Cost-Shares: Evolution and Analysis*, by Natalie Keegan and Elizabeth M. Webster.

[281] CDBG-DR funds are being used for the HMGP cost shares in Puerto Rico; see the "Hazard Mitigation Grant Program" section of this report for more information.

3. Additional Supplemental Appropriations for Disaster Relief Act, 2019 (P.L. 116-20, on April 9, 2019.

HUD publishes rulemaking and allocations decisions for CDBG-DR appropriations in the *Federal Register*. HUD has issued several *Federal Register* notices related to the above supplemental appropriations:

- On February 9, 2018, HUD published a notice in the *Federal Register* announcing the allocation of funds, rules, and alternative requirements governing $7.4 billion in CDBG-DR funds appropriated under P.L. 115-56.[282]
- On August 14, 2018, HUD published another *Federal Register* notice allocating funds and announcing rules and alternative arrangements governing $10.03 billion of the $28 billion in funds appropriated under P.L. 115-123. These funds are to be used principally for the restoration of housing, infrastructure, and economic revitalization.[283]
- *Federal Register* notices addressing rules for upgrading the electrical grids of Puerto Rico and the U.S. Virgin Islands had not been released by September 2020, although allocation amounts have been announced.

Table 8 provides a breakdown of the allocation of CDBG-DR directed to Puerto Rico under P.L. 115-56, P.L. 115-123, and P.L. 116-20 to address unmet needs and mitigation activities.[284]

Table 8. Allocation of CDBG-DR Funds Designated to Puerto Rico to Address Unmet Needs and Mitigation Activities Related to Hurricanes Irma and María

	P.L. 115-56	P.L. 115-123	P.L. 116-20	Total
Unmet Needs	$1,507,179,000	$10,153,130,000[a]	$277,853,230	$11,938,162,230
Mitigation	$0	$8,285,284,000	$0	$8,285,284,000
Total	**$1,507,179,000**	**$18,438,414,000**	**$277,853,230**	**$20,223,446,230**

Sources: HUD *Federal Register* Notice of February 9, 2018, and April 10, 2018, HUD Press Release.

a. This amount includes $1.9 billion for upgrades to Puerto Rico's electrical grid.

Of the total amount provided in these three supplemental appropriations acts ($35.4 billion),[285] Puerto Rico's allocation was $20.2 billion.[286] HUD approved Puerto Rico's original action plan in July 2018, and subsequent amendments have been approved. Puerto Rico's planned activities

[282] HUD, "Allocations, Common Application, Waivers, and Alternative Requirements for 2017 Disaster Community Development Block Grant Disaster Recovery Grantees," 83 *Federal Register* 5844, February 9, 2018.

[283] HUD, "Allocations, Common Application, Waivers and Alternative Requirements for Community Development Block Grant Disaster Recovery Grantees," 83 *Federal Register* 40314, August 14, 2018.

[284] HUD defines unmet needs as the financial resources necessary to recover from a disaster that are not likely to be addressed by other public or private sources of funds, including but not limited to private insurance, FEMA's Stafford Act assistance programs, Federal Highway Administration's Emergency Relief Program, and Small Business Administration Disaster Loans.

[285] HUD, 83 *Federal Register* 4836, August 14, 2018; and U.S. Department of Housing and Urban Development, 85 *Federal Register* 4681, January 27, 2020.

[286] For a list of all the *Federal Register* notices that have been issued on CDBG-DR funds for Puerto Rico, see PRDOH, *Federal Register*, https://www.cdbg-dr.pr.gov/en/resources/federal-register.

seek to address needs related to planning, housing, the economy, infrastructure, and multi-sector coordination.[287]

CDBG–DR and –MIT Assistance Committed

According to a CDBG-DR grant report made public on March 1, 2020, Puerto Rico had expended approximately $20.6 million in CDBG-DR funds.[288] According to this report, all spending had come from funds appropriated and allocated under P.L. 115-56, which focused on unmet disaster recovery needs and did not include CDBG-MIT funding. The $20.6 million represents approximately 0.1% of all the CDBG-DR funds appropriated for Puerto Rico (see **Table 8**).

Potential Issues with CDBG–DR and –MIT Assistance

It may take months, or even years in some cases, before CDBG-DR appropriations rules are published, allocations are made, and funds are obligated. To some extent, this is by design, as CDBG-DR is generally utilized to (1) address unmet needs not already addressed by other private, local, state, and federal interventions; and (2) to provide a basis for long-term recovery, as opposed to immediate relief. As such, various CDBG-DR appropriations are often enacted well after the disaster event. For example, the Bipartisan Budget Act of 2018 (P.L. 115-123), enacted in February 2018, provided CDBG-DR funding in response to Hurricane María approximately five months after the storm's September 2017 impact.[289] A *Federal Register* notice with HUD advisories governing those funds was not published until August 2018. The vast majority of CDBG-DR funding connected with Hurricanes Irma and María has yet to be obligated or expended.

At the end of 2019, Puerto Rico's CDBG-DR allocation of approximately $8.3 billion for disaster mitigation activities (CDBG-MIT)[290] was subject to a publicized delay pending risk assessment activities.[291] Prior to the release of funds and publication of rules by HUD in January 2020, HUD officials pointed to concerns about financial irregularities, corruption, and capacity in Puerto Rico.[292] However, some Members of Congress questioned HUD's ability to process allocations

[287] PRDOH, *Action Plan for the Use of CDBG-DR Funds* (Amendment 3).

[288] HUD, *Monthly CDBG-DR Grant Financial Report*, February 28, 2020, https://files.hudexchange.info/resources/documents/CDBG-DR-Financial-Report-2020-03-01.pdf.

[289] Similarly, for example, CDBG-DR funds were appropriated in P.L. 113-2 in late January 2013 in response to Hurricane Sandy's impact, which occurred in October 2012.

[290] HUD, *Community Development Block Grant Mitigation Program*, accessed July 6, 2020, https://www.hudexchange.info/programs/cdbg-mit/.

[291] Jessica Wehrman, "Report: Puerto Rico's Infrastructure Failing as Federal Aid Remains on Hold," *Roll Call*, November 12, 2019, https://www.rollcall.com/2019/11/12/report-puerto-ricos-infrastructure-failing-as-federal-aid-remains-on-hold/.

[292] U.S. Congress, House Committee on Appropriations, Subcommittee on the Departments of Transportation, and Housing and Urban Development, and Related Agencies, *The Department of Housing and Urban Development's Community Development Block Grant-Disaster Recovery Program*, 116th Cong., 1st sess., October 17, 2019, https://appropriations.house.gov/events/hearings/oversight-hearing-the-department-of-housing-and-urban-development-s-community.

and publish rules in a timely manner.[293] On January 27, 2020, HUD published rules governing mitigation funds allocated to Puerto Rico.[294]

In March 2020, HUD's Office of the Inspector General (OIG) released a report of findings from its audit of the Puerto Rico Department of Housing's (PRDOH's) capacity to administer funds under CDBG-DR.[295]

The audit assessed (1) PRDOH's compliance with HUD regulations and requirements in administering CDBG-DR funds, and (2) the existence of financial and procurement policies and procedures consistent with federal requirements. Overall, the OIG report made several recommendations regarding PRDOH's administration of CDBG-DR funds during the audit period of August 2014 through August 2019. The audit called on PRDOH to improve its financial controls and capacity more generally.

Additionally, the OIG recommended that PRDOH be required to submit documentation of compliance with procurement requirements pertaining to a nonstatistical sample of the $416,511 in expended CDBG-DR funds. In light of its findings, the OIG recommended that PRDOH return $55,010 and cancel existing obligations on the remaining $361,501.

As described above, HUD engages in a rulemaking process after a CDBG-DR appropriation is made to create a structure for the allocation and implementation of funds. However, given that each CDBG-DR supplemental appropriation differs in its scope and activities—and at times significantly so—the length and complexity of that process may vary widely. Issues of risk and oversight are considered in the section "Considerations for Improving the Recovery Process."

Insurance

Federal assistance programs that provide housing-related assistance are not intended to serve as substitutes for insurance. For example, the FEMA Individuals and Households Program (IHP) may be used to provide housing assistance to eligible individuals and households who, as a result of a disaster, have uninsured or underinsured necessary expenses and serious needs that cannot be otherwise met.[296] However, the IHP cannot compensate disaster survivors for all losses and it is not intended to make disaster survivors whole again.[297] IHP assistance is intended to meet basic needs—not to return primary residences or property to their pre-disaster condition. Unlike the IHP, which provides assistance in the form of a grant, the SBA Disaster Loan Program may provide loans to creditworthy homeowners located in a declared disaster area. Although the SBA loans may support the repair or restoration of the homeowner's primary residence to its pre-disaster condition, the loans can only be used for uninsured or underinsured loss. Additionally, SBA disaster loans cannot be used to upgrade a home or build additions to the home that are not required by city or county building codes, nor are secondary homes or vacation properties eligible

[293] House Committee on Appropriations, "Lowey, Price Statement on Long Overdue Disaster Funding for Puerto Rico," press release, January 15, 2020, https://appropriations.house.gov/news/press-releases/lowey-price-statement-on-long-overdue-disaster-funding-for-puerto-rico.

[294] HUD, "Allocations, Common Application, Waivers, and Alternative Requirements for Community Development Block Grant Mitigation Grantees; Commonwealth of Puerto Rico Allocation," 85 *Federal Register* 4676, January 27, 2020.

[295] HUD Office of Inspector General, *The Puerto Rico Department of Housing, San Juan, PR, Should Strengthen Its Capacity to Administer Its Disaster Grants*, March 16, 2020, https://www.hudoig.gov/reports-publications/report/puerto-rico-department-housing-san-juan-pr-should-strengthen-its.

[296] 42 U.S.C. §5174; 44 C.F.R. §206.110(a); and FEMA, *IAPPG*, p. 6.

[297] 42 U.S.C. §5174; 44 C.F.R. §§206.110 et seq.; and FEMA, *IAPPG*, p. 6.

for SBA loans. Thus, unlike federal assistance programs, insurance may be more effective at making real and personal property owners whole again.

Homeowners' insurance generally covers losses resulting from a wide array of hazards, including some forms of natural catastrophes. Typically, homeowner insurance satisfies mortgage lender requirements for the property to be covered by insurance for losses resulting from perils such as fire, wind, and hail. Coverage for perils such as flood and earthquake, however, generally requires the purchase of a separate policy for the specific peril, as insurers do not include these perils in standard homeowners' policies. Following the receipt of federal assistance through the IHP or SBA Disaster Loan Program when the peril causing the damage was related to flooding, recipients of assistance are required to insure against floods and must maintain flood insurance as an eligibility requirement for future federal assistance.[298]

National Flood Insurance Program

Policyholders whose property has been mapped into a Special Flood Hazard Area (SFHA)[299] are required to purchase flood insurance as a condition of receiving a federally backed mortgage. Property owners or renters in the United States who wish to have flood coverage, whether or not it is required, must purchase a separate flood insurance policy, either from a private insurance company or through the National Flood Insurance Program (NFIP).

At the time that Hurricane María hit, there were about 40,000 private residential flood insurance policies in Puerto Rico. In total, less than 4% of Puerto Rico's housing units were covered by flood insurance at the time of the 2017 hurricanes.[300] Puerto Rico has participated in the NFIP since 1978; however, when Hurricane María made landfall in September 2017, there were only 5,744 NFIP policies in Puerto Rico, which represented an average penetration rate of 0.47%.[301] This represents a 91% decrease in NFIP policy coverage in Puerto Rico from the maximum of 64,481 policies in 2007, with most policyholders leaving the NFIP between 2012 and 2015.[302] This reduction has been attributed to private insurance companies beginning to offer flood insurance policies bundled with vandalism coverage at lower prices than the NFIP.

The number of NFIP policies increased immediately after Hurricane María but decreased in the following years, with 10,609 policies at the end of July 2018, 9,343 policies at the end of July 2019, and 7,701 policies as of July 31, 2020.

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[298] For example, if an applicant is eligible for IHP Home Repair, Home Replacement, or Personal Property Assistance as a result of a flooding, they are required to purchase and maintain flood insurance as both a condition of the assistance and in order to receive any future federal assistance for flood damage to any insurable property (note that this applies only to real and personal property that is in or will be in a designated Special Flood Hazard Area and that can be insured under the National Flood Insurance Program) (44 C.F.R. §206.110(k)(3) and 44 C.F.R. §206.113(b)(8)).

[299] A Special Flood Hazard Area (SFHA) is defined by FEMA as an area with a 1% or greater risk of flooding every year.

[300] Carolyn Kousky and Brett Lingle, *Residential Flood Insurance in Puerto Rico*, Wharton Risk Management and Decision Processes Center, Issue Brief, Philadelphia, PA, March 2018, https://riskcenter.wharton.upenn.edu/wp-content/uploads/2018/03/WRCib2018_Flood-Insurance-in-Puerto-Rico.pdf.

[301] FEMA describes NFIP penetration rates as the proportion of all properties with NFIP flood insurance. See, for example, U.S. Government Accountability Office, *Flood Insurance*, GAO-14-297R, April 9, 2014, p. 6, https://www.gao.gov/assets/670/662438.pdf. The penetration rate for Puerto Rico was calculated by CRS using data provided by FEMA Congressional Affairs staff, August 13, 2020, by dividing the number of residential policies by the number of residential structures.

[302] Calculated by CRS using data provided by FEMA Congressional Affairs staff, August 13, 2020.

As of September 2020, the NFIP had closed all claims for Hurricane Irma with total net payments of $119,972 to policyholders in Puerto Rico, with an average claim of $29,948.[303] The NFIP has closed 708 claims for María, with four open claims. Total payments for María came to $27,375,634, with an average claim of $51,798.[304] Additionally, 4,556 private flood insurance claims resulted in payments of $25 million over 1,399 payouts,[305] with $737.5 million paid in homeowners' insurance claims.[306]

Insurance Claims in Puerto Rico After the 2017 Hurricanes

Claims from Hurricane María have highlighted the issue of underfunded private insurers, and particularly those with insufficient reserves or reinsurance to pay claims.[307] An estimated $1.6 billion in insurance claims remain unresolved, particularly high-dollar claims filed for repairs of public facilities, with only $6.9 billion of an estimated $8.5 billion in claims paid by February 2020.[308] Two insurers went out of business after Hurricane María, and many of those that did not collapse offered pennies on the dollar, leading to numerous lawsuits.[309] The Office of the Insurance Commissioner of Puerto Rico has issued fines of more than $2.4 million against at least seven companies for delays in resolution and payment of claims.[310] The Department of Consumer Affairs sued 16 insurers on behalf of a putative class of insured consumers whose claims have not been resolved as they had expected,[311] and the Office of the Insurance Commissioner of Puerto Rico sued those same 16 insurers.[312] In November 2018, the Puerto Rican legislature passed six laws intended to expand insurance coverage for the island's policyholders and expedite payments following disasters. Although these laws will not ensure that claims from the 2017 hurricanes are paid, they apply to any claims associated with the 2019-2020 earthquakes.

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[303] Data provided by FEMA Congressional Affairs staff, October 15, 2020.

[304] Data provided by FEMA Congressional Affairs staff, October 15, 2020.

[305] PRDOH, *Action Plan for the Use of CDBG-DR Funds* (Amendment 5), p. 55.

[306] PRDOH, *Puerto Rico Disaster Recovery Action Plan for the Use of CDBG-DR Funds in Response to 2017 Hurricanes Irma and María*, Amendment 2, August 16, 2019, p. 72, https://www.cdbg-dr.pr.gov/en/download/action-plan-amendment-2-non-substantial-amendment-effective-on-august-23-2019/?ind=1567102634209&filename=PRDOH_AmendmentTwo_Non-SubstantialAmendment_EFFECTIVE082319.pdf&wpdmdl=4994&refresh=5f5135e02b0f61599157728, https://www.cdbg-dr.pr.gov/en/action-plan/ (hereinafter PRDOH, *Action Plan for the Use of CDBG-DR Funds* (Amendment 2)).

[307] "The Hidden Reason for the Lack of Insurance Payments After Hurricane María," *Centro de Periodismo Investigativo*, June 10, 2019, http://periodismoinvestigativo.com/2019/06/the-hidden-reason-for-the-lack-of-insurance-payments-after-hurricane-Maria/.

[308] Frances Robles and Patricia Mazzei, "After Disasters, Puerto Ricans Are Left with $1.6 Billion in Unpaid Insurance Claims," *New York Times*, February 6, 2020, https://www.nytimes.com/2020/02/06/us/puerto-rico-insurance-tsunami.html (hereinafter Robles and Mazzei, "Puerto Ricans Are Left with $1.6 Billion in Unpaid Insurance Claims").

[309] Robles and Mazzei, "Puerto Ricans Are Left with $1.6 Billion in Unpaid Insurance Claims."

[310] Danica Coto, "Insurers Under Scrutiny in Puerto Rico with 13,600 Hurricane María Claims Still Open," *Insurance Journal*, October 25, 2018, https://www.insurancejournal.com/news/national/2018/10/25/505580.htm.

[311] See Michael Pierluisi, as Secretary of the Department of Consumer Affairs et al. v. MAPFRE PRAICO Ins. Co. et al., SJ2018CV07570, before the Court of First Instance, San Juan Judicial Region, Higher Court, at para. 38, p. 13. Cited by Thais Passerieu, "Not Off the Hook... Trouble in Paradise for Puerto Rico Insurers," *JD Supra*, February 22, 2019, https://www.jdsupra.com/legalnews/not-off-the-hook-trouble-in-paradise-72007/.

[312] Case SJ2018CV0016, before the Court of First Instance, San Juan Judicial Region, Higher Court. Cited by Thais Passerieu, "Not Off the Hook... Trouble in Paradise for Puerto Rico Insurers," *JD Supra*, February 22, 2019, https://www.jdsupra.com/legalnews/not-off-the-hook-trouble-in-paradise-72007/.

Insurance Issues and Challenges

Take-up of Disaster Insurance

Although the number of NFIP policies in Puerto Rico increased immediately after the 2017 hurricanes, it has decreased in the years since, and Puerto Rico is still significantly underinsured against floods.[313] FEMA carried out an outreach campaign to increase the penetration rate of flood insurance in Puerto Rico,[314] but as of July 2020, there are only 7,701 NFIP policies. Congress may wish to investigate the role that affordability has played in the low take-up rate of NFIP insurance in Puerto Rico and the extent to which the migration to private flood insurance could be attributed to pricing.

An insured flood victim is likely to recover more quickly and will generally receive more from NFIP flood insurance than from FEMA Individual Assistance (IA). Homeowners can get up to $350,000 for buildings and contents together, and renters are able to get up to $100,000 from an NFIP policy,[315] compared to a maximum of $36,000 (FY2021) per household from IA for repairs and replacement of housing.[316] In addition, most disaster victims do not receive the maximum amount available under FEMA disaster assistance. For example, the average NFIP residential claim in Puerto Rico for Hurricane María was $61,581,[317] whereas the average IA payment was $2,812.[318]

Information on private flood insurance take-up rates is not readily available. No up-to-date information is available on the total amount of claims paid by private flood insurance companies, nor is there any information about private flood insurance coverage amounts or whether the coverage is as broad as that of the NFIP. Any requirements by lenders for homeowners to have wind or earthquake insurance as a condition of a mortgage are not likely to have a significant impact on insurance take-up, as there are only slightly more than 500,000 active mortgages in Puerto Rico.[319] Private insurers may choose to withdraw from the residential flood market due to losses from the 2017 hurricanes, or to increase premiums for flood coverage. However,

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[313] PRDOH, *Action Plan for the Use of CDBG-DR Funds* (Amendment 5), pp. 54-55.

[314] FloodSmart, *Puerto Rico Outreach Campaign*, https://agents.floodsmart.gov/marketing/participate-in-campaigns/puerto-rico-outreach.

[315] FEMA, *National Flood Insurance Program: Flood Insurance Manual, 3. How to Write*, October 2020, p. 3-34, https://www.fema.gov/sites/default/files/2020-11/fema_fim-3-how-to-write_04-2020-10-2020.pdf.

[316] FEMA, "Notice of Maximum Amount of Assistance Under the Individuals and Households Program," 85 *Federal Register* 69340, November 2, 2020. Prior to the enactment of the Disaster Recovery Reform Act of 2018 (DRRA; Division D of P.L. 115-254), there was a cap on the maximum amount of financial assistance an individual or household could receive. Financial assistance provided for both housing assistance and Other Needs Assistance (ONA) combined to count towards the cap. DRRA Section 1212 both separated the cap on the maximum amount of financial assistance eligible individuals and households may receive for housing assistance and ONA, and also made changes to the types of assistance that count towards the new caps. Thus, post-DRRA, financial assistance for housing-related needs may not exceed $36,000 (FY2021; adjusted annually), and separate from that, financial assistance for ONA may not exceed $36,000 (FY2021; adjusted annually). Additionally, DRRA Section 1212 removed financial assistance to rent alternate housing accommodations from the financial housing assistance cap, and created an exception for accessibility-related costs so they do not count towards either the financial housing assistance cap or the ONA cap. Thus, households can receive a total of $72,000 from FEMA Individual Assistance through the Individuals and Households Program.

[317] Data provided by FEMA Congressional Affairs staff, September 10, 2020.

[318] Calculated by CRS from FEMA data at https://www.fema.gov/disaster/4339, accessed September 2, 2020.

[319] Property Casualty Insurers Association of America, *Puerto Rico Without Insurance: An Island in Turmoil*, 2018, http://www.pciaa.net/docs/default-source/industry-issues/7_puertorico.pdf.

households and businesses are able to buy flood insurance from the NFIP, and commercial flood insurance is still available.[320] According to the National Association of Insurance Commissioners, private companies wrote $21.66 million in premiums in 2018, compared to $7.64 million written by the NFIP. Private flood insurance coverage increased 11% in Puerto Rico between 2016 and 2018, with $19.44 million in premiums in 2016 and $19.55 million in 2017. These figures do not distinguish between residential and commercial insurance.[321]

Enforcement of Insurance Requirements

The low take-up rate for flood insurance in Puerto Rico has implications for future federal disaster assistance. Properties in Special Flood Hazard Areas (SFHA) are required to obtain and maintain flood insurance as a condition of receiving future disaster assistance for a flood event.[322] Compliance is required in order to receive support from FEMA Public Assistance and Individual Assistance, the SBA Disaster Loan Program, and HUD CDBG-DR.[323]

Some evidence indicates that enforcement of these requirements could be improved. For example, the GAO reviewed the SBA's response to Hurricanes Harvey, Irma, and María. They found that applicants for SBA disaster loans experienced difficulty in producing required documentation, such as insurance policies, because of extensive physical damage and power issues, with particular problems associated with flood insurance.[324] In addition, as discussed earlier in this report,[325] the DHS Office of the Inspector General has expressed repeated concerns about FEMA's enforcement of the disaster insurance requirements for Public Assistance. Congress may wish to have the GAO report specifically on enforcement of disaster assistance requirements in Puerto Rico in order to identify their particular challenges.

The Future of Recovery in Puerto Rico and Considerations for Congress

Puerto Rico is entering its fourth year of recovery from Hurricanes Irma and María, as it concurrently deals with ongoing earthquakes and a global pandemic. Puerto Rico's recovery has faced considerable challenges and delays. For example, as noted above, two years after the hurricanes made landfall, FEMA reported that only 19 out of 9,344 identified damaged worksites (0.2% of the total) eligible for FEMA's Public Assistance (PA) program had finalized cost estimates required for restoration (see section on "FEMA Public Assistance").[326] Additionally, the Government of Puerto Rico and U.S. congressional staff have found that PA Applicants have sometimes lacked capital needed to begin or advance PA projects before receiving

[320] See, for example, Mapfre Puerto Rico, *Flood Insurance*, https://www.mapfre.pr/insurance-pr/business-insurance/property-contingency/flood/.

[321] National Association of Insurance Commissioners, *Actions for State Regulators in Building the Private Flood Insurance Market*, December 9, 2019, pp. 7-11, https://content.naic.org/sites/default/files/inline-files/ConsiderationsofPrivateFlood_Final%20%28reduced%29.pdf.

[322] For Individual Assistance, see 44 C.F.R. §206.110(k)(3), and 13 C.F.R. §120.170 for SBA Disaster Loans.

[323] See, for example, CRS Report R44808, *Federal Disaster Assistance: The National Flood Insurance Program and Other Federal Disaster Assistance Programs Available to Individuals and Households After a Flood*.

[324] GAO, *Disaster Loan Processing Was Timelier*, pp. 44-46.

[325] For more information on insurance and the FEMA Public Assistance program, see the "Insurance for FEMA Public Assistance Projects" section.

[326] GAO, *Puerto Rico Hurricanes 2019*, p. 22.

reimbursement, resulting in substantial response and recovery delays.[327] Congress has expressed significant interest in these challenges and delays, and committees in both chambers have conducted hearings on different aspects of Puerto Rico's recovery.[328] GAO has additionally authored multiple reports focused exclusively or substantially on Puerto Rico's recovery.[329] The following sections address select issues that may challenge or delay Puerto Rico's disaster recovery efforts, and include considerations for Congress.

(**Appendix A** to this report provides specific information on the earthquakes that began in 2019 and the assistance that has been provided through FEMA and the SBA. Considerations related to the future of recovery, including as related to the earthquakes, are included in this section.)

In addition to the considerations described below, Puerto Rico's recovery from future incidents may also be affected by

- Puerto Rico's political status (more information on this topic may be found in CRS Report R44721, *Political Status of Puerto Rico: Brief Background and Recent Developments for Congress*, by R. Sam Garrett) and the potential effects of the 2020 vote by Puerto Ricans in favor of U.S. statehood via a nonbinding referendum;[330]
- changes in Puerto Rico's leadership (there have been several changes in leadership since the 2017 hurricane season. Former-Governor Ricardo Rosselló Nevares resigned in 2019, and in 2020, current-Governor Wanda Vázquez Garced lost her party's primary and Governor-elect Pedro Rafael Pierluisi Urrutia won the majority of votes to become the next Governor of Puerto Rico.[331] There have also been changes in Cabinet-level positions. For example, the current Puerto Rico Secretary of the Housing Department, Luis C. Fernández Trinchet, replaced former-Secretary Fernando Gil-Enseñat[332]);

[327] Government of Puerto Rico, *2020 Fiscal Plan*, pp. 28-29; and House Oversight Committee, *Recurring Problems*, pp. 28-29.

[328] See, for example, House Homeland Security Committee, *Road to Recovery*; U.S. Congress, House Committee on Transportation and Infrastructure, *Emergency Response and Recovery: Central Takeaways from the Unprecedented Hurricane Season*, hearing, 115th Cong., 1st sess., Nov. 2, 2017, H.Hrg. 115-29 (Washington, DC: GPO, 2017); House Homeland Security Subcommittee, *Disaster Recoveries*; and House Energy and Commerce, *Puerto Rico's Electric Infrastructure*; U.S. Congress, House Homeland Security Subcommittee on Emergency Preparedness, Response and Recovery, *Hearing on Puerto Rico and Virgin Islands Hurricane Recovery*, 116th Cong., 1st sess., July 11, 2019.

[329] See, for example, GAO, *FEMA Actions*, p. 18; GAO, *2017 Hurricanes and Wildfires*; GAO, *FEMA's Efforts*, pp. 19-20; and GAO, *2017 Hurricane Season: Federal Support for Electricity Grid Restoration in the U.S. Virgin Islands and Puerto Rico*, GAO-19-296, https://www.gao.gov/assets/700/698626.pdf.

[330] See Abdiel Santiago, Alexander Kustov and Ali A. Valenzuela, "Puerto Ricans Voted to Become the 51st U.S. State—Again," *Washington Post*, November 13, 2020, https://www.washingtonpost.com/politics/2020/11/13/puerto-ricans-voted-become-51st-us-state-again/; and Zack Budryk, "Puerto Rico Votes in Favor of US Statehood," *The Hill*, November 5, 2020, https://thehill.com/homenews/state-watch/524590-puerto-rico-votes-in-favor-of-us-statehood.

[331] Patricia Mazzei and Frances Robles, "Ricardo Rosselló, Puerto Rico's Governor, Resigns After Protests," *New York Times*, July 24, 2019, https://www.nytimes.com/2019/07/24/us/rossello-puerto-rico-governor-resigns.html; Dánica Coto, "Puerto Rico Governor Loses Primary of Pro-statehood Party," *Associated Press*, August 16, 2020, https://apnews.com/article/virus-outbreak-election-2020-caribbean-ap-top-news-puerto-rico-ed440d53d3d565f9320305dc0739803c; and Dánica Coto, "Pedro Pierluisi Wins Gubernatorial Race in Puerto Rico," *Associated Press*, November 7, 2020, https://apnews.com/article/puerto-rico-general-elections-elections-latin-america-pedro-pierluisi-12defbcc08b4e5dbd53940c18ba87ff7.

[332] Governor Wanda Vázquez Garced removed Fernando Gil-Enseñat and replaced him with Luis C. Fernández Trinchet (Rafael Romo and Christina Maxouris, "Puerto Rico Governor Fires 2 More Cabinet Members After the

- changes in the Financial Oversight and Management Board for Puerto Rico's membership (some Board Members have stepped down, and new Board Members have been appointed by President Donald J. Trump);[333] and
- the ongoing debt restructuring proceedings under Title III of the Puerto Rico Oversight, Management, and Economic Stability Act (PROMESA; P.L. 114-187) (more information on this topic may be found in CRS Report R44532, *The Puerto Rico Oversight, Management, and Economic Stability Act (PROMESA; H.R. 5278, S. 2328)*, coordinated by D. Andrew Austin).

Challenges to Delivering Disaster Assistance in Puerto Rico

The following sections describe major challenges to delivering disaster assistance in Puerto Rico, including the condition of Puerto Rico's critical infrastructure prior to the 2017 hurricanes, Puerto Rico's vulnerability to multiple hazards (including hurricanes and earthquakes), insufficient insurance coverage, the consecutive disasters that compounded the challenges of recovering from the 2017 hurricanes, design standards and building codes, and its location outside the continental United States.

Pre-Disaster Condition of Critical Infrastructure

Prior to the arrival of the 2017 hurricanes, critical components of Puerto Rico's infrastructure had deteriorated due to insufficient investment.[334] Damage to the island's vulnerable electrical grid resulted in power outages that persisted for eleven months in some areas, limiting the functionality of communications, healthcare, water, and transportation systems.[335] FEMA has attributed response delays and challenges to the persistent inoperability of critical infrastructure,

Discovery of Hurricane Maria Supplies Stacked in a Warehouse," *CNN*, January 19, 2020, https://www.cnn.com/2020/01/19/us/puerto-rico-governor-fires-secretaries-housing-and-family-services/index.html; and La Fortaleza, Oficina De La Gobernadora, "Governor announces appointment of Secretary of Housing," press release, January 28, 2020, https://www.fortaleza.pr.gov/content/gobernadora-anuncia-nombramiento-del-secretario-de-la-vivienda).

[333] For example, in October 2020, Judge Arthur J. González announced that he was stepping down (Financial Oversight and Management Board for Puerto Rico, "Oversight Board Member Arthur J. González Steps Down: Judge González Served on the Board for More Than Four Years," press release, October 8, 2020, https://drive.google.com/file/d/1Rom659PB0wV5-l4upbCkDW67-830VakO/view), and Justin Peterson was appointed by President Donald J. Trump (Financial Oversight and Management Board for Puerto Rico, "Peterson Ready to Work Alongside Fellow Members of the Oversight Board," press release, October 9, 2020, https://drive.google.com/file/d/1nKA3iHxktz1v30hNzDgP_vYcI0e-SOUX/view). Links to the Financial Oversight and Management Board for Puerto Rico's press releases and statements can be found at https://oversightboard.pr.gov/press/. The Financial Oversight and Management Board for Puerto Rico was established under Title 1 of the Puerto Rico Oversight, Management, and Economic Stability Act (PROMESA; P.L. 114-187), and is "tasked with working with the people and Government of Puerto Rico to create the necessary foundation for economic growth and to restore opportunity to the people of Puerto Rico" (Financial Oversight and Management Board for Puerto Rico, "About Us," https://oversightboard.pr.gov/about-us/).

[334] See American Society of Civil Engineers, "2019 Report Card for Puerto Rico's Infrastructure," pp. 8-11, https://www.infrastructurereportcard.org/wp-content/uploads/2019/11/2019-Puerto-Rico-Report-Card-Final.pdf; GAO, *Federal Support for Electricity Grid Restoration* pp. 4-5, 19; Thaddeus R. Miller et al., "Rethinking Infrastructure in an Era of Unprecedented Weather Events, *Issues in Science and Technology*, vol. 34, no. 2 (Winter 2018), pp. 46-58.

[335] GAO, *Federal Support for Electricity Grid Restoration*, p. 1. For a background and overview of the issues facing electrical power reconstruction in Puerto Rico, see CRS Report R45023, *Repair or Rebuild: Options for Electric Power in Puerto Rico*, by Richard J. Campbell, Corrie E. Clark, and D. Andrew Austin.

including the need for the longest sustained air mission of food and water in FEMA history, and the inability to determine whether damage resulted from disaster or disrepair.[336]

Puerto Rico's Vulnerability to Multiple Hazards

Puerto Rico's geographical location and topography put it at risk of multiple natural hazards, including hurricanes, floods, landslides, earthquakes, and tsunami. Puerto Rico is located at the intersection of the North American and Caribbean tectonic plates. Two fault systems cross the island in a roughly east-west direction, with the southwest tip of the island most commonly affected.[337]

Settlement patterns have increased Puerto Rico's vulnerability to hazards. Evidence of informal construction,[338] or construction without a permit, is common throughout Puerto Rico. The prevalence of informal housing may be attributed to economic considerations, lack of code enforcement, or tolerance for unregulated construction of smaller structures.[339] Although there is no reliable public record of informally constructed housing units, a housing study commissioned by the Puerto Rico Home Builders Association estimated that 55% of the existing housing units in Puerto Rico were built informally,[340] without the use of an architect or engineer, or proper permits, and often in non-conformance with land-use codes.

In general, informally constructed homes often perform poorly in a disaster.[341] The FEMA Mitigation Assessment Team (MAT), which reported on building performance in Puerto Rico after Hurricanes Irma and María, observed a high count of damaged residences that were not compliant with the current building code.

Puerto Rico adopted the most recent international building code standards in November 2018.[342] However, the implementation of building code depends on local enforcement during the permitting and inspection processes.[343] While the federal government cannot enforce this, Congress may wish to require oversight of local enforcement.

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[336] FEMA, *2017 Hurricane Season FEMA After-Action Report*, July 12, 2018, pp. ii; v; 7-8, https://www.fema.gov/sites/default/files/2020-08/fema_hurricane-season-after-action-report_2017.pdf.

[337] USGS, "M 6.4 - 13km S of Indios, Puerto Rico: Tectonic Summary," https://earthquake.usgs.gov/earthquakes/eventpage/us70006vll/executive.

[338] Informal settlements are defined as areas where groups of housing units have been constructed on land that the occupants have no legal claim to or occupy illegally, or unplanned settlements and areas where housing is not in compliance with current planning and building regulations. See HUD, *Housing Damage Assessment and Recovery Strategies Report for Puerto Rico*, June 29, 2018, p. 37, http://spp-pr.org/wp-content/uploads/downloads/2018/07/HUD-Housing-Damage-Assessment-Recovery-Strategies-6-29-18.pdf (hereinafter HUD, *Housing Damage Assessment and Recovery Strategies*).

[339] Eduardo Miranda et al., *Puerto Rico M6.4 Earthquake, 7 January 2020*, Structural Extreme Events Reconnaissance, Preliminary Virtual Reconnaissance Report PRJ-2670, January 10, 2020, p. 6, https://www.researchgate.net/publication/338528208_StEER_-_7_JAN_2020_PUERTO_RICO_Mw_64_EARTHQUAKE_PRELIMINARY_VIRTUAL_RECONNAISSANCE_REPORT_PVRR.

[340] HUD, *Housing Damage Assessment and Recovery Strategies*, p. 37.

[341] FEMA, *Mitigation Assessment Team Report. Hurricanes Irma and Maria in Puerto Rico. Building Performance Observations, Recommendations, and Technical Guidance*, FEMA P-2020, October 31, 2018, pp. 1-7, https://www.fema.gov/sites/default/files/2020-07/mat-report_hurricane-irma-maria-puerto-rico_2.pdf (hereinafter FEMA, *Mitigation Assessment Team Report. Building Performance Observations, Recommendations, and Technical Guidance*).

[342] See **Appendix C** for more information on building codes.

[343] Ellen Vaughan and Jim Turner, *The Value and Impact of Building Codes*, 2014, pp. 1-27, http://www.coalition4safety.org/ccsc-toolkit/.

Insufficient Insurance Coverage

Insurance against natural disasters can serve as a financial incentive for safer construction and encouraging businesses and homes to build in safer locations. There is evidence that insurance can increase resilience to natural hazards more effectively than disaster aid after the event, and insured disaster victims are likely to recover more quickly.[344] FEMA disaster assistance is intended to supplement, but not substitute for, insurance coverage. Insured households and businesses are less likely to rely on federal disaster assistance to help finance repairs and rebuilding, which has the potential to reduce the amount of federal assistance required after a disaster. For example, according to FEMA, the National Flood Insurance Program (NFIP) saves the nation an estimated $1.87 billion annually in avoided flood losses.[345]

Low-probability, high-cost events, such as floods and earthquakes, can cause substantial financial loss but are difficult to predict reliably. As such, they are generally excluded from standard insurance policies, which cover standard perils, such as fire, windstorms, hail, and theft. Property owners must purchase a separate earthquake insurance policy and a flood insurance policy. The latter can be obtained from either a private insurance company or through the NFIP.

When Hurricane María made landfall in September 2017, less than 4% of Puerto Rico's housing units were covered by NFIP and private flood insurance.[346] Wind damage, including hurricane winds, is generally covered in standard homeowners' policies. However, it is estimated that only about half of homeowners in Puerto Rico have homeowners' insurance (for more information, see the "Insurance" section).[347]

Consecutive Disasters Complicate Response and Recovery Efforts

The consecutive nature of the 2017 hurricanes, ongoing 2019-2020 earthquakes, and the COVID-19 pandemic have complicated response and recovery for each incident. For example, FEMA's PA program is generally designed to assist with response and recovery for a single, discrete incident. Post-disaster damage assessments attribute damage to a specific incident, and grants are awarded based on these assessments. However, in some cases, the damage caused by an earlier event, combined with incomplete restoration, can significantly affect the performance of a structure or infrastructural system under subsequent hazards. Damaged facilities and open construction sites may also be more vulnerable to subsequent hazards, compounding losses from subsequent disasters.[348] For example, Puerto Rico's hurricane-damaged electrical grid was further

[344] Swenja Surminski et al., "Reflections on the Current Debate on How to Link Flood Insurance and Disaster Risk Reduction in the European Union," *Natural Hazards*, vol. 79, no. 3 (December 2015), pp. 1451-1479.

[345] Email from FEMA Congressional Affairs staff, August 2, 2019.

[346] Carolyn Kousky and Brett Lingle, *Residential Flood Insurance in Puerto Rico*, Wharton Risk Management and Decision Processes Center, Issue Brief, Philadelphia, PA, March 2018, https://riskcenter.wharton.upenn.edu/wp-content/uploads/2018/03/WRCib2018_Flood-Insurance-in-Puerto-Rico.pdf.

[347] Property Casualty Insurers Association of America, *Puerto Rico Without Insurance: An Island in Turmoil*, 2018, http://www.pciaa.net/docs/default-source/industry-issues/7_puertorico.pdf. Individuals and households applying for assistance through the Individuals and Households Program were required to inform FEMA of insurance coverage available to meet their disaster-caused needs, and "applicants who live in a designated SFHA [Special Flood Hazard Area] and receive disaster assistance for Home Repair, Replacement, PHC, or Personal Property [are required] to obtain and maintain flood insurance coverage for at least the amount of disaster assistance they receive from FEMA for flood-insurable items" (FEMA, *Individuals and Households Program Unified Guidance (IHPUG)*, FP 104-009-03, September 2016, pp. 14 and 23, https://www.fema.gov/media-library-data/1483567080828-1201b6eebf9fbbd7c8a070fddb308971/FEMAIHPUG_CoverEdit_December2016.pdf).

[348] Ehsan Fereshtehnehjad and Abdollah Shafieezadeh, "A Multi-Type Multi-Occurrence Hazard Lifecycle Cost Analysis Framework for Infrastructure Management Decision Making," *Engineering Structures*, vol. 167 (July 15,

impacted by the earthquake swarm, which debilitated a critical power plant[349] and significantly expanded the scope of work required to construct a resilient system.[350]

The 2019-2020 earthquakes highlighted the challenges of building structures that can resist damage from wind, flood, and seismic activity. Construction activities that address flood risk, such as elevating a property, typically do not account for seismic activity and may increase vulnerability during an earthquake. Such problems are exacerbated by the informal construction process, which may not conform to building codes. It is unclear if informally-constructed buildings are treated differently by FEMA with respect to eligibility for funding, or whether FEMA has established guidelines for repair and reconstruction of informally-constructed buildings.

Some scholarly and industry reports have also found that the hurricanes increased the vulnerability of Puerto Rico's population to health hazards.[351] For example, physical damages to Puerto Rico's health care infrastructure hampered access to and delivery of healthcare in some cases.[352] The diminished capacity of Puerto Rico's healthcare system may have exacerbated the impact of the COVID-19 pandemic.[353]

Design Standards and Building Codes

FEMA's current strategic plan states that disaster resilience starts with building codes.[354] The adoption and enforcement of stronger building codes can be effective in reducing losses, protecting lives and property, and increasing the resiliency of communities after a disaster. The Multihazard Mitigation Council (MMC) of the National Institute of Building Sciences (NIBS)[355] produced a series of reports to assess future savings from mitigation activities. They found that,

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2018), pp. 504-517. Marleen C. de Ruiter et al., "Why We Can No Longer Ignore Consecutive Disasters," *Earth's Future,* vol. 8, no. 3 (January 6, 2020), pp. 9-10.

[349] U.S. Energy Information Administration, "Puerto Rico's Electricity Generation Mix Changed Following early 2020 Earthquakes," June 24, 2020, https://www.eia.gov/todayinenergy/detail.php?id=44216.

[350] Patricia Mazzei, Ivan Penn, and Frances Robles "With Earthquakes and Storms, Puerto Rico's Power Grid Can't Catch a Break," *New York Times,* January 10, 2020; Peter Maloney, "How PREPA Brought Earthquake-Damaged Plant Online Ahead of Isaias," *American Public Power Association,* August 24, 2020.

[351] Deborah S.K. Thomas, Sojin Jang, and Jean Scandlyn, "The CHASMS Conceptual Model of Cascading Disasters and Social Vulnerability: The COVID-19 Case Example," *International Journal of Disaster Risk Reduction,* vol. 51, December 2020, https://www.ncbi.nlm.nih.gov/pmc/articles/PMC7467012/ (hereinafter Thomas, Jang, and Scandlyn, "The CHASMS Conceptual Model"); Cornelia Hall et al., "One Year After the Storms: Recovery and Health Care in Puerto Rico and the U.S. Virgin Islands," September 19, 2018, https://www.kff.org/medicaid/issue-brief/one-year-after-the-storms-recovery-and-health-care-in-puerto-rico-and-the-u-s-virgin-islands/ (hereinafter Cornelia Hall et al. "One Year after the Storms").

[352] Thomas, Jang, and Scandlyn, "The CHASMS Conceptual Model"; Cornelia Hall et al. "One Year After the Storms"; and EA Irvin-Barnwell et al., "Evaluating Disaster Damages and Operational Status of Health Care Facilities during the Emergency Response Phase of Hurricane Maria in Puerto Rico," *Disaster Med Public Health Prep,* vol. 14, no. 1, August 2020, pp. 80-88.

[353] Thomas, Jang, and Scandlyn, "The CHASMS Conceptual Model."

[354] FEMA, *2018-2022 Strategic Plan,* p. 14, https://www.fema.gov/sites/default/files/2020-03/fema-strategic-plan_2018-2022.pdf.

[355] The National Institute of Building Sciences (NIBS) is a non-profit, non-governmental organization that brings government and the private sector to focus on problems and potential problems that hamper the construction of safe and affordable structures and support advances in building science and technology to improve the built environment. See https://www.nibs.org/ for further information.

on average, society saves $6 for every dollar spent through major federal mitigation grants, and saves $4 for every dollar spent on investments to exceed building code requirements.[356]

Overall compliance with the most recent building codes (i.e., the 2018 edition of the I-Codes) must be enforced by Puerto Rico (local jurisdictions are responsible for building code adoption and enforcement and local building officials are responsible for enforcing the latest building codes within their jurisdiction).[357] Several bodies govern building and development in Puerto Rico. The Puerto Rico Planning Board (PRPB) guides development. The Permits Management Office (OGPe) administers building permits and enforces regulations on licensing, inspections, certification, and land use planning. Autonomous municipios across Puerto Rico also may be granted degrees of fiscal autonomy and self-government if they meet certain requirements.[358] At the time of the 2017 hurricanes, the PRPB employed 11 code compliance officers, who were responsible for compliance inspections throughout Puerto Rico.[359] At that time, OGPe had 13 inspectors assigned to construction permits and 12 to uses permits, and the International Code

Defining Design Standards and Building Codes

Design standards and building codes are technical guidelines that promote the design, construction, alteration, and maintenance of structures. They specify the minimum requirements to safeguard the health, safety, and general welfare of the occupants of new and existing buildings, and are generally developed by organizations, such as professional engineering societies, or committees or councils consisting of recognized trade professionals.

A **design standard** is a specified criterion or standard that dictates that a provision, practice, requirement, or limit be met (e.g., the use of the 1% annual-chance-flood or the degree of protection of a structural project).

Building codes are officially adopted comprehensive specifications regulating building construction, materials, and performance to protect the public health, safety, and welfare. Building codes may reference more than one design standard.

Sources: James M. Wright, Regulatory and Design Standards for Reducing Losses, Federal Emergency Management Agency, Floodplain Management: Principles and Current Practices, 2007, p. 13-1, https://training.fema.gov/hiedu/docs/fmc/chapter%2013%20-%20regulatory%20and%20design%20standards%20for%20reducing%20lo.pdf; and FEMA, Glossary, Building Codes Toolkit, February 7, 2013, p. 1, https://www.fema.gov/media-library-data/20130726-1903-25045-7477/building_codes_toolkit_glossary.pdf.

[356] Multihazard Mitigation Council, National Institute of Building Sciences, *Natural Hazard Mitigation Saves: 2019 Report*, Washington, DC, https://www.nibs.org/page/reports.

[357] The most commonly used building codes are developed by the International Code Council (ICC), a non-profit organization that was formed to develop national model construction codes (for further information, see https://www.iccsafe.org/). These are known as International Codes or I-Codes, which are updated every three years. They are referred to as model codes (GAO, *Climate Change: Improved Federal Coordination Could Facilitate Forward-Looking Climate Information in Design Standards, Building Codes, and Certifications*, GAO-17-3, November 2016, p. 2, https://www.gao.gov/products/GAO-17-3). The ICC's family of I-Codes includes the International Building Code (IBC), which applies to almost all types of new buildings and some existing buildings. For more information on building codes, see **Appendix C**.

[358] FEMA, Mitigation Assessment Team Compendium Report. 2017 Hurricane Season: Building Performance Observations, Recommendations, and Technical Guidance., FEMA P-2054, September 30, 2019, pp. 2-7 to 2-9, https://www.fema.gov/sites/default/files/2020-07/mat-report_2017-hurricane-season.pdf.

[359] FEMA, *New Building Codes Support Puerto Rico in Building Back Stronger*, News Release 316, January 2, 2019.

Council (ICC) listed three ICC-certified individuals in Puerto Rico.[360] According to FEMA, 39 staff have been hired, with more hires planned.[361]

The 2011 Puerto Rico Building Code (PRBC) was the building code in force for residential and commercial structures at the time of the 2017 hurricanes. In November 2018, Puerto Rico adopted the 2018 ICC family of I-Codes, and enacted legislation that directed the Construction Codes Review Committee[362] to revise Puerto Rico building codes on a three-year cycle.[363]

FEMA's guidelines require that damage assessment associated with the 2019-2020 earthquakes in Puerto Rico must use the latest published earthquake building codes for projects funded by Public Assistance. Puerto Rico may choose whether or not to require use of the most recent standards for repairs of damage from the 2017 hurricanes.[364] However, these requirements only apply to Public Assistance; Congress may wish to require comparable requirements for repair and rebuilding funded by other federal programs.

Puerto Rico's Location Outside of the Continental United States

The location of Puerto Rico—separated from the response and recovery resources available in the continental United States—was cited by FEMA and the GAO as a logistical challenge with regard to deploying federal resources and personnel to Puerto Rico.[365] Following Hurricanes Irma and María, FEMA identified the need to build its capability to stage and expedite delivery of critical commodities to disaster survivors.[366] FEMA has taken steps to increase its logistics capabilities in the Caribbean, including by increasing its commodities supplies of meals and water, emergency generators, and other critical supplies.[367] FEMA also updated priority national-level contracts, including the National Evacuation Contract, Caribbean Transportation Contract, and National Ambulance Contract.[368]

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[360] FEMA, Mitigation Assessment Team Compendium Report. 2017 Hurricane Season: Building Performance Observations, Recommendations, and Technical Guidance, FEMA P-2054, September 30, 2019, p. 2-7, https://www.fema.gov/sites/default/files/2020-07/mat-report_2017-hurricane-season.pdf.

[361] Email from FEMA Congressional Affairs staff, September 14, 2020.

[362] The Construction Codes Committee was established in 2017, and is comprised of representatives from the Construction Council of Puerto Rico, regulatory government agencies, and FEMA. The committee was responsible for the review and transition from the 2011 to 2018 building codes. See Juan Nieves, *Puerto Rico's New Building Codes Are Creating a More Resilient Island*, https://www.dewberry.com/news/blog/post/blog/2019/06/27/puerto-ricos-new-building-codes-are-creating-a-more-resilient-island.

[363] Law 2018-109. This refers to Puerto Rico law number 109, which passed in 2018.

[364] See the section on "Building Code Compliance for Recipients of Public Assistance" in this report.

[365] GAO, *2017 Hurricanes and Wildfires*, p. 29.

[366] FEMA, *2017 Hurricane Season FEMA After-Action Report*, July 12, 2018, pp. 31-32, https://www.fema.gov/media-library-data/1533643262195-6d1398339449ca85942538a1249d2ae9/2017FEMAHurricaneAARv20180730.pdf (hereinafter FEMA, *2017 Hurricane Season AAR*). In a hearing before the House Committee on Transportation and Infrastructure, FEMA described actions taken by the agency to facilitate the movement of resources, including via airlifts (U.S. Congress, House Committee on Transportation and Infrastructure, *Emergency Response and Recovery: Central Takeaways from the Unprecedented 2017 Hurricane Season*, 115th Cong., 1st sess., November 2, 2017, H.Rept. 115-29, p. 136).

[367] FEMA includes information on its inventory of commodities in Puerto Rico and states that the information is updated monthly. See FEMA, "Hurricane Maria by the Numbers," accessed September 3, 2020, https://www.fema.gov/fact-sheet/hurricane-maria-numbers.

[368] FEMA, *2017 Hurricane Season AAR*, p. 49. The shipping limitations imposed by the Jones Act presented additional challenges. For further information, see CRS Insight IN10790, *Waivers of Jones Act Shipping Requirements*, by John Frittelli.

With regard to deploying personnel, future disasters may continue to challenge the ability of federal agencies to deploy staff to Puerto Rico because of the reliance on commercial travel options and roadways. For example, the GAO noted that the deployment of personnel to Puerto Rico was challenged by limits on commercial air travel caused by power outages. Destruction of major transportation routes and infrastructure, such as bridges, further limited intra-island travel, which meant commodities and personnel had to be brought in by helicopter.[369]

Causes for Delays in the Provision of Federal Assistance to Puerto Rico

Members of Congress have raised concerns related to delays and impediments in the delivery of federal assistance in Puerto Rico. Many of these concerns are discussed previously, and include but are not limited to:

- inequities in the deployment of federal personnel to Puerto Rico and the delivery of Public Assistance, including the initial requirement to use Public Assistance Alternative Procedures for all large permanent work projects;[370]
- delayed, partial, or improper federal payments and reimbursements;[371]
- cancelled, disputed, improper, or noncompliant federal and local contracts for disaster recovery work;[372] and
- pre-disaster issues with Applicants' management of facilities and infrastructure systems;[373]

The following sections discuss some of the delays in providing disaster assistance to Puerto Rico, including those related to the capacity of Puerto Rico's government to manage and perform the disaster recovery work following the hurricanes, the reimbursement process for Public Assistance, and the delivery of HMGP funding assistance.

Strained Local and Federal Capacity

Most Stafford Act assistance is designed to support, not supplant, state, tribal, territorial, and local response and recovery efforts. For this reason, insufficient staffing and resources at the "subfederal" level may challenge disaster response and recovery. In the case of Puerto Rico, both

[369] GAO, *2017 Hurricanes and Wildfires*, p. 30.

[370] See, for example, testimony by Rep. Lucille Roybal-Allard and FEMA then-Deputy Administrator Peter Gaynor, House Homeland Security Subcommittee, *Disaster Recoveries* pp. 28-29; Rep. Bennie Thompson, U.S. Congress, House Committee on Homeland Security, *Preparedness, Response, and Rebuilding: Lessons from the 2017 Disasters*, hearing, 115th Cong., 2nd sess., March 15, 2018 (hereinafter House Homeland Security Committee, *Lessons from the 2017 Disasters*); Senators Robert Menendez, Sherrod Brown, Elizabeth Warren, and Catherine Cortez-Masto, Letter to Program Associate Director Kathy Kranginer, Office of Management and Budget, July 10, 2019; Rep José E. Serrano et al., Letter to President Donald J. Trump, January 23, 2019; Reps. Peter DeFazio, Bennie Thompson, and Frank Pallone, Letter to FEMA Administrator William B. "Brock" Long, March 20, 2018.

[371] See, for example, testimony of Rep. Gonzalez-Colon, U.S. Congress, House Committee on Transportation and Infrastructure, Subcommittee on Economic Development, Public Buildings and Emergency Management, *FEMA's Priorities for 2020 and Beyond*, 116th Cong., 2nd sess., March 11, 2020, pp. 20-21.

[372] See, for example, testimony of Rep. Debbie Wasserman Schultz, House Homeland Security Subcommittee, *Disaster Recoveries*, pp. 22-23; testimony of Rep. Diane Degette, House Energy and Commerce, *Puerto Rico's Electric Infrastructure*, pp. 3-4; testimony of Rep. Bennie Thompson, House Homeland Security Committee, *Lessons from the 2017 Disasters*; testimony of Rep. Peter King, House Homeland Security Committee, *Road to Recovery*, pp. 37-38.

[373] Testimony of Rep. Frank Pallone, House Energy and Commerce, *Puerto Rico's Electric Infrastructure,* pp. 4-5;

federal officials and officials of the Government of Puerto Rico concluded that both territory and local government agencies lacked the capacity to swiftly carry out critical recovery work due to the sheer magnitude of the 2017 hurricane damage.[374] Additionally, in 2019, the GAO found that some FEMA and local officials attributed certain challenges to excessive turnover and lack of necessary expertise of some of FEMA's on-site workforce.[375] FEMA acknowledged the issue of staffing shortages in its after-action report on the 2017 hurricane response efforts.[376] GAO noted that FEMA's "dedicated" workforce in Puerto Rico has itself been challenged by the use of the Public Assistance Alternative Procedures pilot program at an unprecedented scale,[377] as it required new policy expertise.

Public Assistance Funding and Reimbursement Process

Public Assistance generally provides assistance on a reimbursement basis for large projects (see the "Public Assistance Obligation and Disbursement" section for more information). Media and congressional reports indicate that this reimbursement process has significantly challenged PA Applicants with liquidity constraints.[378] For example, in 2018, the House Committee on Oversight and Reform found that Puerto Rico's hurricane response had been hindered due to the fact that the government "had no independent capacity to begin taking those initial steps [of procuring goods and services] toward recovery."[379]

Puerto Rico attributed additional delays to FEMA's instatement of a manual reimbursement process during two different intervals of hurricane recovery.[380] Officials from the federal government and Puerto Rico have separately attributed delays to the widespread use of awards based on fixed-cost estimates under Alternative Procedures rather than actual costs (see the "Section 428 Alternative Procedures" section for further information).[381]

Delivery of Hazard Mitigation Grant Program Funding

State agencies and federally-recognized tribes applying for HMGP funding must have a FEMA-approved state or tribal hazard mitigation plan by the application deadline and at the time of obligation of the award.[382] As of August 26, 2020, only 35 of the 78 municipios in Puerto Rico had a currently approved hazard mitigation plan and 43 municipios had a lapsed hazard

[374] See, for example, the discussions on PREPA and capacity constraints in GAO, *Puerto Rico Electricity Grid Recovery: Better Information and Enhanced Coordination is Needed to Address Challenges*, GAO-20-141, October 8, 2019, pp. 41-43, https://www.gao.gov/reports/GAO-20-141/; and DHS OIG, *Capacity Audit*, pp. 4-7.

[375] GAO, *Puerto Rico Hurricanes 2019*, pp. 21-22.

[376] FEMA, *2017 Hurricane Season FEMA After-Action Report (AAR)*, July 12, 2018, p. vii, https://www.fema.gov/media-library-data/1533643262195-6d1398339449ca85942538a1249d2ae9/2017FEMAHurricaneAARv20180730.pdf.

[377] Testimony of GAO Representative Chris Currie, House Homeland Security Committee, *Road to Recovery*, pp. 17-18.

[378] See, for example, Mark Walker and Zolan Kanno-Youngs, "FEMA's Hurricane Aid to Puerto Rico and the Virgin Islands Has Stalled," *New York Times*, Nov. 27, 2019, https://www.nytimes.com/2019/11/27/us/politics/fema-hurricane-aid-puerto-rico-virgin-islands.html; and GAO, *Puerto Rico Hurricanes 2019*, p. 23.

[379] House Oversight Committee, *Recurring Problems*, p. 28.

[380] Omar J. Marrero, Governor of Puerto Rico's Authorized Representative, Letter to Gene I. Dodaro, Comptroller General of the United States, January 30, 2019, in GAO, *Puerto Rico Hurricanes 2019*, p. 37; GAO, *FEMA Actions*, pp. 17-18.

[381] GAO, *FEMA Actions*, pp. 17-18, 35.

[382] 44 C.F.R. §201.4.

mitigation plan. This could put them at risk of being denied HMGP for a future disaster.[383] Puerto Rico announced it is updating the State Hazard Mitigation Plan, which expires in August 2021.[384]

The timing at which states receive obligations from HMGP varies widely based on a number of factors, including eligible project determinations and the FEMA-State Agreement. In the case of Puerto Rico's recovery from the 2017 hurricanes, HMGP funding was deferred in order to leverage other funding sources before using HMGP funding. For example, FEMA and COR3 chose to begin mitigation activities with Public Assistance funding, with HMGP funding introduced later in the process.[385] This means that many HMGP project applications are contingent on the coordination of HMGP and Public Assistance projects. The view of COR3 is that HMGP projects cannot logically be submitted until supported PA projects are identified and scoped.[386] Congress may wish to consider whether this approach has led to unnecessary delays in obligation of HMGP funding to Puerto Rico, particularly since only 1% of HMGP funding has been obligated. This is significantly lower than for the other 2017 hurricanes, including the obligations for the U.S. Virgin Islands for Hurricanes Irma and María, Texas for Hurricane Harvey, and Florida for Hurricane Irma.[387]

HMGP funding may be obligated in phases, with obligation of the second phase of work delayed until the first phase is completed. Another cause of deferred HMGP funding may be attributed to the fact that the majority of obligated Public Assistance in Puerto Rico to date has been for emergency work,[388] whereas HMGP is intended to follow PA permanent work.[389]

The Government of Puerto Rico submitted requests for time extensions for HMGP associated with Hurricane María on October 10, 2019[390] and August 4, 2020. The latter request cited changes in circumstances due to the earthquakes and COVID-19.[391]

Considerations for Improving the Recovery Process

The following sections relate to some potential congressional considerations that may improve disaster recovery processes in Puerto Rico and nationally, including developing regulations for PA Alternative Procedures, codifying CDBG-DR, providing additional program information and technical assistance, integrating mitigation funding, and increasing access to program data.

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[383] Email from FEMA Congressional Affairs staff, August 26, 2020.

[384] Government of Puerto Rico, *Fourth Congressional Status Report*.

[385] Briefing from FEMA Mitigation staff, August 31, 2020.

[386] Letter from Ottmar J. Chavez Piñero, Governor's Authorized Representative, COR3, to Michael Moriarty, FEMA Region II Mitigation Division Director, "RE: FEMA 4339-DR-PR Hazard Mitigation Grant Program (HMGP) Request for Time Extension," October 10, 2019, https://recovery.pr/documents/COR3%20Request%20to%20Extend%20the%20Application%20Submission%20Period%20for%20the%20HMGP-Oct_10_2019.pdf (hereinafter Letter from Ottmar J. Chavez Piñero to Michael Moriarty, "RE: HMGP Request for Time Extension").

[387] See the "Hazard Mitigation Grant Program Funding to Puerto Rico" section in this report.

[388] For more information on Public Assistance emergency work, see the "FEMA Public Assistance" section.

[389] Briefing from FEMA Mitigation staff, August 31, 2020.

[390] Letter from Ottmar J. Chavez Piñero to Michael Moriarty, "RE: HMGP Request for Time Extension."

[391] Letter from Ottmar J. Chavez Piñero, Governor's Authorized Representative, COR3, to Michael Moriarty, FEMA Region II Mitigation Division Director, "RE: FEMA 4339-DR-PR Hazard Mitigation Grant Program (HMGP) Request for Time Extension," August 4, 2020, https://recovery.pr/documents/FEMA%204339%20DR-PR%20Hazard%20Mitigation%20Grant%20Program%20(HMGP)%20Request%20for%20Time%20Extension-Aug_4_2020.pdf.

Promulgating Regulations for Public Assistance Alternative Procedures

The majority of Public Assistance reconstruction projects for Puerto Rico's hurricane recovery utilized Alternative Procedures (see the "Section 428 Alternative Procedures" section for further information). The Stafford Act was amended after Hurricane Sandy to allow FEMA to use Alternative Procedures as a pilot program in an effort to accelerate the provision of Public Assistance and encourage efficiency in project execution.[392] Since it is a pilot program, Alternative Procedures are not subject to federal regulations. For Puerto Rico's recovery, FEMA instead issued three distinct iterations of guidance, as well as separate policy amendments, which may have generated confusion and contributed to recovery delays.[393] Promulgating Alternative Procedures in regulations may increase clarity and facilitate recovery.

Codifying CDBG-DR

The variability of CDBG-DR allocation, rulemaking, and process is partially attributable to the necessity to reconstitute the "program" anew following a major disaster. Congress may seek to permanently authorize CDBG-DR in statute and prescribe certain principles and policy features to inform its programmatic contours. This would likely provide the greatest degree of consistency in the delivery of CDBG-DR funds in the future, though it may also potentially come at some expense to programmatic flexibility. Several bills have been introduced in the 116th Congress that would permanently authorize CDBG-DR, with varying degrees of detail and policy scope.

One such bill, H.R. 3702, the Reforming Disaster Recovery Act of 2019, includes a number of provisions to codify and define the CDBG-DR program. These features include:

- requiring that CDBG-DR funds are spent on both infrastructure and housing rehabilitation, and that federal funds be used to replace damaged or destroyed public or federally subsidized affordable housing;
- emphasizing housing, and particularly affordable housing and housing for low-income persons, by requiring broader terms of relief for renters and the homeless in addition to homeowners;
- requiring that HUD allocate funds within 60 days of appropriation, and that the public is provided opportunities for comment;
- expanding data-sharing provisions to coordinate with other agencies, and to make HUD and state processes more defined and publicly available; and
- encouraging infrastructure rebuilt with CDBG-DR funds to include minimum resiliency and disaster mitigation standards.

The House, under suspension of the rules, passed H.R. 3702 by a vote of 290-118 on November 18, 2019. A companion bill was introduced in the Senate (S. 2301). The Senate bill included the reforms in the House version, along with some additional provisions, including:

- creating an office at HUD to coordinate CDBG-DR administration;
- requiring a common disaster assistance application between FEMA, the SBA, and HUD; and
- broadening homelessness assistance.

[392] Section 428(f)(2) of the Stafford Act, P.L. 93-288, as amended; 42 U.S.C. §4189f(f)(2).

[393] See GAO, *Puerto Rico Hurricanes 2019*, p. 22; and GAO, *FEMA Actions*, pp. 33-35.

S. 2301 was referred to the Committee on Banking, Housing, and Urban Affairs, and has seen no further action.

Another bill, S. 2796, The Ensuring Disaster Recovery for Local Communities Act, was introduced in the Senate and also has seen no further action. It takes a significantly different approach compared to H.R. 3702/S. 2301. S. 2796 would:

- direct HUD to set spending goal thresholds for state grantees to facilitate a more rapid disbursement of CDBG-DR relief funds;[394]
- provide local communities with the ability to receive CDBG-DR funds as subgrantees, and provide technical assistance to localities with limited capacity to administer CDBG-DR funds; and
- require FEMA to adjudicate property acquisition ("buyout") applications within 60 days, and require that GAO undertake a review of property acquisition programs.

Additional Technical and Direct Assistance

News reports indicate that the catastrophic 2017 hurricanes and subsequent 2019-2020 earthquakes overwhelmed territorial and municipio officials, including those applying for Public Assistance. In response, COR3 has provided supplemental technical assistance for damage assessments and project formulation to PA Applicants.[395] Applicants in Puerto Rico may benefit from additional technical assistance and/or direct assistance to navigate the complex PA program and execute PA projects.

Additionally, local officials from Puerto Rico informed the GAO that they needed a better understanding of the FEMA IHP, including the types of available assistance and applicant eligibility and application requirements. This could be accomplished through providing additional training, support, or guidance.[396] To that end, the GAO recommended, and DHS agreed, that FEMA should

> identify and implement strategies to provide readily accessible information and resources, such as guidance and training, about the Individuals and Households Program to state, local, tribal, and territorial officials.[397]

Delivery of Assistance for Compound Disasters

Stafford Act emergency and major disaster assistance revolves around declarations for discrete incidents. This design may complicate response and recovery for consecutive disasters, as in Puerto Rico. Given the increasing frequency and severity of extreme weather events due to climate change,[398] Congress may consider opportunities to streamline the delivery of assistance in cases of multiple disasters. For instance, Congress could consider providing an option to consolidate awards and track requirements for a given facility or Applicant across active disasters, and across FEMA and HUD programs.

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[394] HUD treats Puerto Rico as a state for the purposes of CDBG allocations.

[395] GAO, *Puerto Rico Disaster Recovery: FEMA Actions*, pp. 30-32.

[396] GAO, *Actions Needed to Strengthen FEMA's IHP*, p. 60.

[397] GAO, *Actions Needed to Strengthen FEMA's IHP*, p. 78.

[398] D.J. Wuebbles et al., *Executive Summary, Climate Science Special Report: Fourth National Climate Assessment*, vol. 1, pp. 12-34, https://science2017.globalchange.gov/chapter/executive-summary/.

HMGP funding is awarded following a major disaster declaration, but states can use HMGP funds for any eligible activity and the funds do not have to be used to mitigate risk associated with the particular disaster for which it was awarded. It is unclear, however, how mitigation funding would be awarded should a HMGP project be damaged by a concurrent disaster before work is completed. FEMA's current guidance says that activities initiated or completed prior to the date of the grant award are generally ineligible. In addition, projects for which actual physical work, as in groundbreaking or demolition, has occurred prior to award or final approval are ineligible.[399] Congress may wish to require FEMA to clarify the guidelines for HMGP funding in the case of successive disasters.

Integration of Mitigation Funding

Mitigation activities can be funded by

- any one of three FEMA Hazard Mitigation Assistance programs (described in the "Mitigation Assistance Overview" section);[400]
- Public Assistance funding under Stafford Act Section 406; and
- HUD Community Development Block Grant funding, particularly CDBG-DR or its CDBG-MIT variant.[401]

The above-listed programs can all fund similar activities. Recent guidance directs FEMA and applicants to consider the use of Stafford Act Sections 404 (hazard mitigation) and 406 (Public Assistance repair, restoration, and replacement of damaged facilities) mitigation opportunities holistically.[402] However, HMGP, PA, and CDBG-MIT have different standards for rebuilding after a disaster, which could potentially preclude consistency of mitigation activities across the programs. For instance, the requirements for building code compliance introduced in Section 1235(b) of the Disaster Recovery Reform Act of 2018 (DRRA; Division D of P.L. 115-254) only apply to repair or rebuilding with Public Assistance funding under Section 406 of the Stafford Act.[403] HMGP guidance encourages the use of building codes and standards, but the only firm requirement for the adoption of disaster-resistant building codes is in a special set-aside for projects, which are difficult to evaluate using FEMA-approved cost-effectiveness measures.[404] The HUD guidance for CDBG-MIT grantees encourages, but does not require, the adoption of the latest edition of published disaster-resilient building codes and standards.[405] Congress may wish to consider requiring all post-disaster rebuilding to incorporate the latest version of building codes, and standardizing requirements across all mitigation programs.

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[399] FEMA, *Hazard Mitigation Assistance Guidance*, pp. 42 and 55, February 27, 2015, https://www.fema.gov/media-library-data/1424983165449-38f5dfc69c0bd4ea8a161e8bb7b79553/HMA_Guidance_022715_508.pdf.

[400] For further information on FEMA hazard mitigation programs, see the "Hazard Mitigation Grant Program" section.

[401] For further information on CDBG-MIT, see the "HUD Community Development Block Grant—Disaster Recovery and—Mitigation" section.

[402] FEMA, *BBA*, p. 7.

[403] For further discussion of building code compliance for Public Assistance, see the "Building Code Compliance for Recipients of Public Assistance" section.

[404] This is known as the 5% Initiative. Communities are only eligible to participate in the 5% Initiative if they can demonstrate that disaster-resilient building codes have been adopted. See FEMA, *Clarifying the Additional 5 Percent Initiative*, https://www.fema.gov/media-library-data/1471961428254-698793a6376496d84044426321f010ac/FactSheet_Clarifying-Building-Code-Elements_081716.pdf.

[405] HUD, "Allocations, Common Application, Waivers, and Alternative Requirements for Community Development Block Grant Mitigation Grantees," 84 *Federal Register* 45838-45871, August 30, 2019.

Availability of Information on Hazard Mitigation Grant Program and Public Assistance Funding and Projects

There are no publicly available datasets that provide the dates at which HMGP funding is approved or obligated,[406] which makes it difficult to compare the obligation of HMGP across disasters or to compare state responses. In addition, FEMA does not provide a simple visualization of the amount of HMGP funding obligated for a particular disaster as it does, for example, for Public Assistance and disaster housing assistance,[407] which makes it more difficult to determine the amount of funding for a particular disaster. FEMA has added information on HMGP dollars obligated to disaster relief pages,[408] but Congress may wish to require FEMA to provide additional publicly available information on hazard mitigation funding.

Additionally, Congress may wish to require FEMA to report PA project status information for catastrophic events like Puerto Rico's hurricane recovery. Currently, FEMA requires Recipients to provide quarterly progress reports on open PA projects, though this information is not publicly available.[409] FEMA does provide publicly available data on PA obligations, pursuant to DRRA.[410] However, PA obligations may not clearly reflect the status of recovery. For example, project funding may be fully obligated long before the completion of the on-the-ground reconstruction work. Congress may wish to consider requesting other recovery information not publicly or readily available during the writing of this report (e.g., project progress reports, project appeals documents, facility operability metrics). However, Congress may also wish to consider the administrative burden more comprehensive reporting requirements may put on FEMA, Puerto Rico, or local officials, and how to utilize data of such volume and complexity to conduct oversight.

Increasing Access to Program Data and Project Status Information

No single authoritative source of current funding data for all federal disaster response and recovery assistance exists. Various data sources do not provide publicly available data, provide differing levels of detail, or use different descriptive terminology. This inhibits straightforward assessments of how much federal assistance has been committed and provided to Puerto Rico. (Detailed information on recovery program data and associated caveats for the use of data, as well as links to program data, can be found in **Appendix B**.)

Given the challenges regarding the usefulness of available program data and the absence of a unified source for federal recovery assistance information, Congress may wish to require federal agencies to evaluate whether the publicly available data is sufficient to address congressional questions regarding the cost of recovery (including funding that has been committed and funding that has been disbursed). Additionally, Congress may wish to consider whether federal agencies should provide information to help contextualize the funding data and support performance evaluations, such as information on the status of project work. This could include information that reflects the performance measurements included in the quarterly reports that are submitted by federal grant recipients, which may increase congressional and public understanding of the status

[406] Briefing from FEMA Mitigation staff, August 31, 2020.

[407] See FEMA, "Data Visualizations," https://www.fema.gov/about/reports-and-data/data-visualizations.

[408] This information was available as of late September 2020. See, for example, FEMA, "Puerto Rico Hurricane Maria (DR-4339-PR)," https://www.fema.gov/disaster/4339.

[409] 44 C.F.R. §206.204(f).

[410] §1224 of DRRA, P.L. 115-254, adding a new §430 of the Stafford Act, P.L. 93-288, as amended; 42 U.S.C. §5189h.

of recovery (for more information on this, see the above section "Availability of Information on Hazard Mitigation Grant Program and Public Assistance Funding and Projects").

Further, it may be useful to consider the need for coordinated information reporting. For example, in the case of Puerto Rico, COR3 aggregates federal assistance information in the context of Puerto Rico's recovery from Hurricanes Irma and María. However, there is not a similar federally managed source of detailed information for multiple federal programs. Congress may wish to consider the need for institutionalizing the coordination of federal recovery program data reporting following catastrophic disasters. To that end, Congress may wish to consider the need for a federal-level coordinating agency, such as FEMA, to provide a single source for detailed, publicly available recovery program data.

Additionally, as different disasters may involve different federal agencies or federal programs, Congress may consider institutionalizing a requirement for public progress reporting by federal agencies providing assistance following catastrophic disasters. This reporting requirement could be modeled on what has been required of the recipients of assistance following some disasters, such as the Government of Puerto Rico. For example, Section 21210(c) of the BBA of 2018 (P.L. 115-123) requires the Governor of Puerto Rico, in coordination with the FEMA Administrator, to "make public a report on progress achieving the goals set forth in such report [meaning the *Economic and Disaster Recovery Plan for Puerto Rico*]."[411]

Having detailed information on the status of work (e.g., the percentage of work completed), as well as a more complete picture of federal recovery assistance, may help to better answer questions regarding the work that remains to be done and the factors that are impeding recovery work than can financial data alone.

Agency Oversight[412]

There continue to be oversight concerns by agencies and Congress regarding federal disaster assistance to Puerto Rico for disaster recovery. Improper payments that may be provided to Puerto Rico under the authority of Stafford Act programs present a risk of waste, fraud, and abuse. FEMA is the federal administering agency for the Stafford Act disaster assistance programs. As such, FEMA is required to conduct appropriate oversight of funding provided under those programs as set forth in statutory language addressing auditing of federal funding and reducing the risk of improper payments.[413] However, FEMA has not established a formal process to identify either high-risk programs or high-risk grantees, as discussed above. As a result, the main indicator of a high-risk program is one in which there is an anticipated or actual high rate of improper payments. The Improper Payments Information Act of 2002 (IPIA), as amended by the Improper Payments Elimination and Recovery Act of 2010 (IPERA) and the Improper Payments Elimination and Recovery Improvement Act of 2012 (IPERIA), requires federal agencies to assess programs and program activities on an annual basis to determine whether there is a risk for significant improper payments.[414] The program assessment includes estimating the annual amount

[411] See, for example, Government of Puerto Rico, *Fourth Congressional Status Report*. Status reports are submitted every 180 days, as required by Section 21210(c) of the BBA of 2018 (P.L. 115-123).

[412] For more information on agency oversight and grants management, contact Natalie Keegan, Analyst in American Federalism and Emergency Management Policy.

[413] Federal agency grant administration requirements may include those contained in the Single Audit Act, P.L. 98-502, as amended by P.L. 104-156, and the Improper Payments Elimination and Recovery Improvement Act, P.L. 112-248, among others.

[414] The Improper Payments Information Act of 2002, P.L. 107-300, as amended by the Improper Payments Elimination

of improper payments and submitting the estimates to Congress. FEMA submits the improper payment estimates to Congress in its annual financial reports (AFR). According to the Office of Management and Budget (OMB), high-risk programs are programs that have a significant risk of improper payments:

> For the purposes of this guidance, "significant improper payments" are defined as gross annual improper payments (i.e. the total amount of overpayments and underpayments) in the program exceeding (1) both 1.5 percent of program outlays and $10,000,000 of all program or activity payments made during the fiscal year or (2) $100,000,000 (regardless of the improper payment percentage of total program outlays).[415]

For FEMA disaster assistance programs providing funding to Puerto Rico for hurricane recovery, additional oversight mechanisms are generally determined based on program risk assessments rather than risk assessments of Puerto Rico as a grantee. Using the OMB guidance for determining which programs are high-risk, and implementing requirements set forth in IPIA, as amended, federal agencies annually evaluate programs and designate which programs may require additional oversight and monitoring. Through this annual program risk assessment process, the Department of Homeland Security provides program-wide estimated improper payment rates for each fiscal year that are not specific to any single state receiving Public Assistance funding in any given year. They estimated the FY2018 improper payment rate at 0.90% for the FEMA Public Assistance program, and reported overpayments for Public Assistance of $32.9 million.[416] Approximately $22 million in the FY2018 improper payments for FEMA Public Assistance were overpayments as a result of errors made by state and local agencies.[417] For FY2019, the FEMA Public Assistance program was estimated to have an improper payment rate of 0.71%, approximately $26.72 million, the entirety of which was attributed to administrative or process errors made by state and local agencies.[418] Notably, however, a substantial portion of the Public Assistance program expenditures in Puerto Rico for the 2017 hurricanes will have occurred in FY2020, and the improper payment rate for FY2020 has not yet been published.

An April 2018 fiscal plan for Puerto Rico's recovery from Hurricane María estimates FEMA Public Assistance needs at $35.3 billion.[419] Approval of public assistance projects is ongoing and Public Assistance obligations will likely significantly increase for Puerto Rico (and the U.S. Virgin Islands). Based on the FY2018 improper payment rate of 0.90% estimated by DHS, should Public Assistance spending projections reach the estimated need identified by Puerto Rico, the improper payment amount for Puerto Rico Public Assistance for the Hurricane María disaster declaration could be at least $318 million (i.e., 0.90% of $35.3 billion). Under OMB guidance, this would qualify the Public Assistance program for a high-risk program designation. DHS indicated that the risk assessment to determine susceptibility to improper payments includes factors such as recent major changes in program funding, authorities, or procedures. According to

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and Recovery Act of 2010, P.L. 111-204, and the Improper Payments Elimination and Recovery Improvement Act of 2012, P.L. 112-248. For additional information on improper payments legislation see CRS Report R44702, *Improper Payments Legislation: Key Provisions, Implementation, and Selected Proposals in the 114th Congress*, by Garrett Hatch.

[415] Office of Management and Budget, *Transmittal of Appendix C to OMB Circular A-123, Requirements for Payments Integrity Improvement*, Memorandum for the Heads of Executive Departments and Agencies, June 26, 2018, p. 10.

[416] Department of Homeland Security, *FY2018 Agency Financial Report*, pp. 176-179.

[417] Department of Homeland Security, *FY2018 Agency Financial Report*, p. 179.

[418] Department of Homeland Security, *FY2019 Agency Financial Report*, p. 166.

[419] Government of Puerto Rico, *New Fiscal Plan for Puerto Rico*, April 5, 2018, p. 24.

GAO, although FEMA has approved use of the Section 428 Alternative Procedures program on a project-by-project basis in previous disasters, Puerto Rico is the first Recipient to use the Section 428 program for all large permanent work.[420] Additionally, as discussed in previous sections of this report, changing program guidance and changing financial situations of grantees also creates a higher risk for waste, fraud, and abuse. Consequently, such a change in procedure, guidance, and grantee financial status may be a factor in assessing the improper payment risk of the Public Assistance program and requiring FEMA to implement additional oversight and accountability measures.

Conclusion

Puerto Rico has entered its fourth year of recovery from the 2017 hurricanes and is concurrently dealing with ongoing earthquakes and a global pandemic. Puerto Rico faces challenges in its ongoing recovery, including related to the severity of the disasters that affected Puerto Rico, the state of Puerto Rico's infrastructure and resiliency when each of these disasters struck, and program-related administrative challenges. Given their breadth, some of these challenges are likely to persist in the future, although actions could be taken by the federal government and Government of Puerto Rico to improve the recovery process. To help inform such actions, Congress may wish to direct federal agencies to provide more comprehensive information regarding the status of recovery, and may also engage in oversight activities, including on the basis of such enhanced data.

[420] GAO, *Puerto Rico Hurricanes 2019*, p. 9.

Appendix A. Overview of the Earthquakes Affecting Puerto Rico Beginning in 2019

Since 2017, Puerto Rico has received several presidential declarations of emergency and major disaster under the Stafford Act, including for earthquakes.[421] This appendix describes the earthquakes that began in 2019 and are continuing. This has been a period of the most, and highest intensity and magnitude earthquakes since the establishment of the Puerto Rico Seismic Network in 1974.[422] The appendix also describes the federal assistance provided to support Puerto Rico's ongoing earthquake-related recovery efforts.

Earthquakes—2019 and Continuing

On December 28, 2019, an earthquake of magnitude[423] 5.8 occurred, followed by a magnitude 6.4 earthquake within 24 hours.[424] Additionally, a magnitude 6.4 earthquake occurred on January 7, 2020.[425] Earthquakes continue to affect Puerto Rico almost daily.[426] Earthquakes differ from other natural hazards, such as floods, hurricanes, or wildfires, in that earthquake swarms can last for weeks, years, or decades, rather than occurring as just one event or season.[427] The U.S. Geological Survey

Defining "Magnitude"

An earthquake's magnitude is "a number that characterizes the relative size of an earthquake. Magnitude is based on measurement of the maximum motion recorded by a seismograph.... Several scales have been defined.... All magnitude scales should yield approximately the same value for any given earthquake."

Source: U.S. Geological Survey (USGS), Earthquake Hazards Program, "Earthquake Glossary," https://earthquake.usgs.gov/learn/glossary/?term=magnitude.

[421] For additional information regarding earthquakes, including what earthquakes are and how they are measured, see the U.S. Geological Survey's website on "The Science of Earthquakes," available at https://www.usgs.gov/natural-hazards/earthquake-hazards/science/science-earthquakes?qt-science_center_objects=0#qt-science_center_objects.

[422] Kimberly M. S. Cartier, "Rare Earthquake Swarm Strikes Puerto Rico," Eos, accessed August 11, 2020, https://eos.org/articles/rare-earthquake-swarm-strikes-puerto-rico (hereinafter Cartier, "Rare Earthquake Swarm"). The website for the Puerto Rico Seismic Network is available at http://redsismica.uprm.edu/English/. Scientific models "suggest that aftershocks of the magnitude 6.4 southwestern Puerto Rico earthquake will decrease in frequency as time goes on but will persist for a long time.... [T]he probabilities of magnitude 5 or greater aftershocks remain sufficiently high to warrant concern and will for some time into the future." (Nicholas J. van der Elst, Jeanne L. Hardebeck, and Andrew J. Michael, *Potential Duration of the Aftershocks of the 2020 Southwestern Puerto Rico Earthquake*, USGS, Open-File Report 2020-1009, p. 4, https://pubs.usgs.gov/of/2020/1009/ofr20201009.pdf.)

[423] The Moment Magnitude, M_W, is an indicator of the amount of energy released during an earthquake. The M_W scale is logarithmic, with an increase of one step corresponding to a tenfold increase in the measured amplitude of the ground motion of the earthquake, and 32 times more energy release. In other words, an M_W 7.0 earthquake releases 32 time more energy than an M_W 6.0 earthquake. For more information on how earthquakes are measured, see CRS Report RL33861, *Earthquakes: Risk, Detection, Warning, and Research*, by Peter Folger.

[424] Cartier, "Rare Earthquake Swarm."

[425] USGS, "Aftershock Forecast," August 10, 2020, accessed September 2, 2020, https://earthquake.usgs.gov/earthquakes/eventpage/us70006vll/oaf/commentary.

[426] Puerto Rico Seismic Network, "Recent Significant Earthquakes," accessed September 1, 2020, http://redsismica.uprm.edu/English/php/CatalogS/Mseismicity.php.

[427] Nicholas J. van der Elst, Jeanne L. Hardebeck, and Andrew J. Michael, *Potential Duration of Aftershocks of the 2020 Southwestern Puerto Rico Earthquake*, United States Geological Survey, Open-File Report 2020-1009, Reston, VA, January 29, 2020, pp. 1-3, https://doi.org/10.3133/ofr20201009.

(USGS) expects aftershocks to continue for years.[428]

The earthquakes and associated aftershocks resulted in damage in the southwestern portion of Puerto Rico, including:

- losses of electricity and water;
- damage to homes (more than 2,000 homes were damaged, and more than 10,000 people were displaced);[429]
- damage to structures, including schools and government buildings;[430]
- damage to infrastructure, including roads and bridges, power plants, and public buildings; and
- one reported direct death and multiple injuries.[431]

The President declared an emergency under the Stafford Act on January 7, 2020, which initially authorized Public Assistance Category B (assistance for emergency protective measures).[432] Subsequently, the President declared a major disaster on January 16, 2020.[433] The major disaster authorized Individual Assistance and Public Assistance in the designated areas, and Hazard Mitigation throughout Puerto Rico.[434] Additionally, the major disaster declaration authorized SBA

[428] United States Geological Survey, "USGS Scientists Find Seafloor Faults Near Puerto Rico Quakes' Epicenters," May 26, 2020, accessed September 2, 2020, https://www.usgs.gov/news/usgs-scientists-find-seafloor-faults-near-puerto-rico-quakes-epicenters.

[429] Government of Puerto Rico, *Fourth Congressional Status Report*, p. 2; FEMA, *Preliminary Damage Assessment Report: Puerto Rico—Earthquakes*, FEMA-4473-DR, January 16, 2020, https://www.fema.gov/disaster/4473; and Center for Disaster Philanthropy, *Puerto Rico Earthquakes*, January 28, 2020, https://disasterphilanthropy.org/disaster/puerto-rico-earthquakes/. The FEMA Mitigation Assessment Team (MAT), which reported on building performance in Puerto Rico after Hurricanes Irma and María, observed a high count of damaged residences that were not compliant with the current building code. In particular, informally constructed homes often performed poorly (FEMA, *Mitigation Assessment Team Report. Hurricanes Irma and María in Puerto Rico. Building Performance Observations, Recommendations, and Technical Guidance*, pp. 1-7), with at least 200,000 homes not built to code (Danica Coto, "Experts: Earthquake Showed Puerto Rico Unprepared for Catastrophe," Claims Journal, January 14, 2020, https://www.claimsjournal.com/news/southeast/2020/01/14/294999.htm (hereinafter Coto, "Earthquake Showed Puerto Rico Unprepared").

[430] FEMA, *FEMA and the Federal Family Continue Puerto Rico Earthquake Response Support*, FEMA Congressional Advisory #8, Washington, DC, January 14, 2020. Approximately 95% of public school buildings were built before seismic building codes were introduced, leaving these structures vulnerable to shaking from earthquakes (Alberto M. Lopez, K. Stephen Huges, and Elizabeth Vanacore, "Puerto Rico's Winter 2019-2020 Seismic Sequence Leaves the Island on Edge," *Tremblor*, January 7, 2020, https://temblor.net/earthquake-insights/puerto-ricos-winter-2019-2020-seismic-sequence-leaves-the-island-on-edge-10321/). The Puerto Rican government estimates that repairs could cost between $1 million and $5 million per school (Coto, "Earthquake Showed Puerto Rico Unprepared").

[431] Cartier, "Rare Earthquake Swarm."

[432] FEMA, "Puerto Rico Earthquakes (EM-3426-PR)," https://www.fema.gov/disaster/3426 (hereinafter FEMA, "Puerto Rico Earthquakes (EM-3426-PR)"); and FEMA, "Puerto Rico; Emergency and Related Determinations," 85 *Federal Register* 6965-6966, February 6, 2020.

[433] FEMA, "Puerto Rico Earthquakes (DR-4473-PR)," https://www.fema.gov/disaster/4473; FEMA, "Puerto Rico; Major Disaster and Related Determinations," 85 *Federal Register* 6964, February 6, 2020; and FEMA, "Preliminary Damage Assessment Report: Puerto Rico—Earthquakes," FEMA-4473-DR, January 16, 2020, https://www.fema.gov/sites/default/files/2020-03/FEMA4473DRPR.pdf.

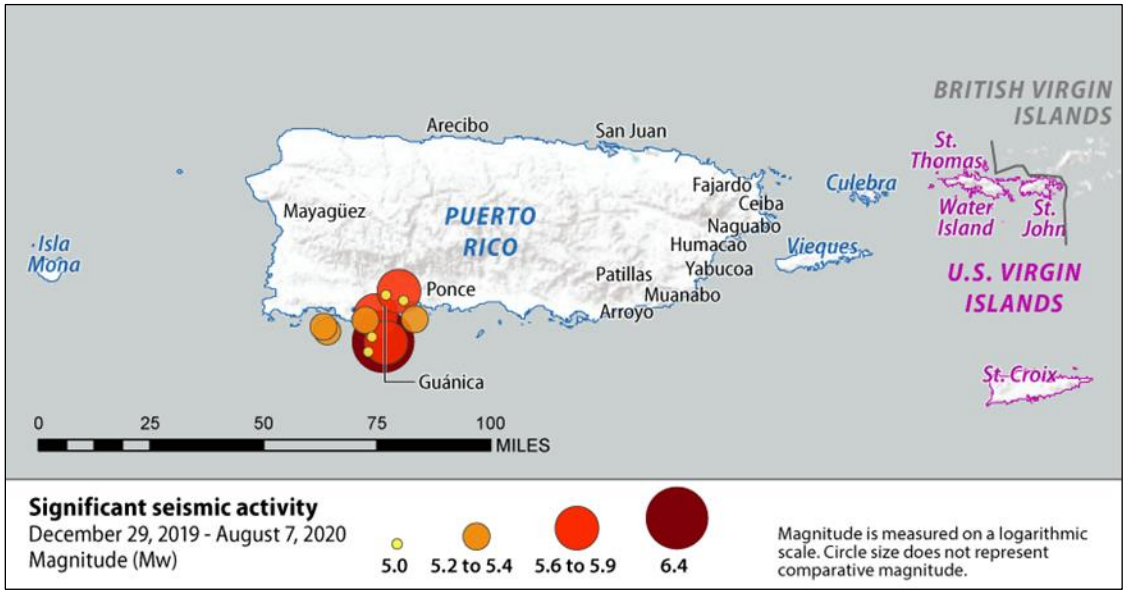
[434] Public Assistance Categories A and B (assistance for debris removal and emergency protective measures) were authorized for Adjuntas, Guánica, Guayanilla, Jayuya, Juana Díaz, Lajas, Las Marías, Mayagüez, Peñuelas, Ponce, Sabana Grande, San Germán, Utuado, and Yauco. Public Assistance Categories C-G (permanent work) were later authorized for the municipios of Adjuntas, Guánica, Guayanilla, Jayuya, Juana Díaz, Lajas, Las Marías, Mayagüez, Peñuelas, Ponce, Sabana Grande, San Germán, Utuado, and Yauco. Individual Assistance was authorized for the municipios of Adjuntas, Aguada, Añasco, Arecibo, Barceloneta, Cabo Rojo, Ciales, Coamo, Corozal, Guánica,

Disaster Loans, including Physical Loans for homeowners, businesses, and nonprofit organizations, and EIDLs for businesses and nonprofit organizations.[435] FEMA listed the incident period as continuing in September 2020.[436]

Many earthquakes have occurred in Puerto Rico since December 28, 2019. **Figure A-1** represents select significant seismic events in Puerto Rico between December 29, 2019, and August 7, 2020, and **Figure A-2** depicts some of the ongoing seismic activity occurring in August 2020.

Figure A-1. Significant Seismic Events in Puerto Rico

December 29, 2019-August 7, 2020



Source: Created by CRS using data from the U.S. Geological Survey (USGS) Earthquake Hazards Program, https://earthquake.usgs.gov/earthquakes/browse/significant.php?year=2020 & 2019.

Notes: This figure represents "significant events" in Puerto Rico since December 2020, as determined by the USGS "by a combination of magnitude, number of Did You Feel It responses, and PAGER alert level." The equation is as follows:

Guayanilla, Hormigueros, Jayuya, Juana Díaz, Lajas, Lares, Las Marías, Maricao, Mayagüez, Moca, Morovis, Naranjito, Orocovis, Peñuelas, Ponce, Sabana Grande, Salinas, San Sebastián, Santa Isabel, Utuado, Villalba, and Yauco. The Hazard Mitigation Grant Program was authorized throughout Puerto Rico. (FEMA, "Puerto Rico; Major Disaster and Related Determinations," 85 *Federal Register* 6964-6965, February 6, 2020; FEMA, "Puerto Rico; Amendment No. 1 to Notice of a Major Disaster Declaration," 85 *Federal Register* 6966, February 6, 2020; FEMA, "Puerto Rico; Amendment No. 2 to Notice of a Major Disaster Declaration," 85 *Federal Register* 13175, March 6, 2020; FEMA, "Puerto Rico; Amendment No. 3 to Notice of a Major Disaster Declaration," 85 *Federal Register* 13175, March 6, 2020; FEMA, "Puerto Rico; Amendment No. 5 to Notice of a Major Disaster Declaration," 85 *Federal Register* 18582, April 2, 2020; and FEMA, "Puerto Rico; Amendment No. 6 to Notice of a Major Disaster Declaration," 85 *Federal Register* 18583, April 2, 2020).

[435] SBA, Disaster Declaration PR-00034: Earthquakes, https://disasterloan.sba.gov/ela/Declarations/DeclarationDetails?declNumber=6045344&direct=false; SBA, "Presidential Declaration of a Major Disaster for the Commonwealth of Puerto Rico," 85 *Federal Register* 4346, January 24, 2020.

[436] The incident period was closed effective February 4, 2020, for both the emergency and major disaster declarations associated with the earthquakes (FEMA, "Puerto Rico; Amendment No. 1 to Notice of an Emergency Declaration," 85 *Federal Register* 18585, April 2, 2020; and FEMA, "Puerto Rico; Amendment No. 4 to Notice of a Major Disaster Declaration," 85 *Federal Register* 18582, April 2, 2020), but it was later reopened, and was listed as "continuing" on August 12, 2020 (FEMA, "Puerto Rico; Amendment No. 7 to Notice of a Major Disaster Declaration," 85 *Federal Register* 31199, May 22, 2020; see also FEMA, "Puerto Rico Earthquakes (EM-3426-PR)").

mag_significance = magnitude * 100 * (magnitude / 6.5);

pager_significance = red is 2000 : orange is 1000 : yellow is 500 : green is 0;

dyfi_significance = min(num_responses, 1000) * max_cdi / 10;

significance = max(mag_significance, pager_significance) + dyfi_significance.

Any event with a significance > 600 is considered a significant event."

(USGS, "Significant Earthquakes—2019 & 2020," https://earthquake.usgs.gov/earthquakes/browse/significant.php?year=2020 & 2019.)

The circles in shades of yellow, orange, and red indicate the locations of significant events, as determined by the equation, above. These earthquake depictions (i.e., circles) are not to scale and circle size does not represent a comparative magnitude. These incidents range in magnitude from 4.8 to 6.4 M_W. The USGS reports magnitude as "M_W," which represents the "Moment Magnitude." M_W provides the most reliable estimate for very large earthquakes, and is

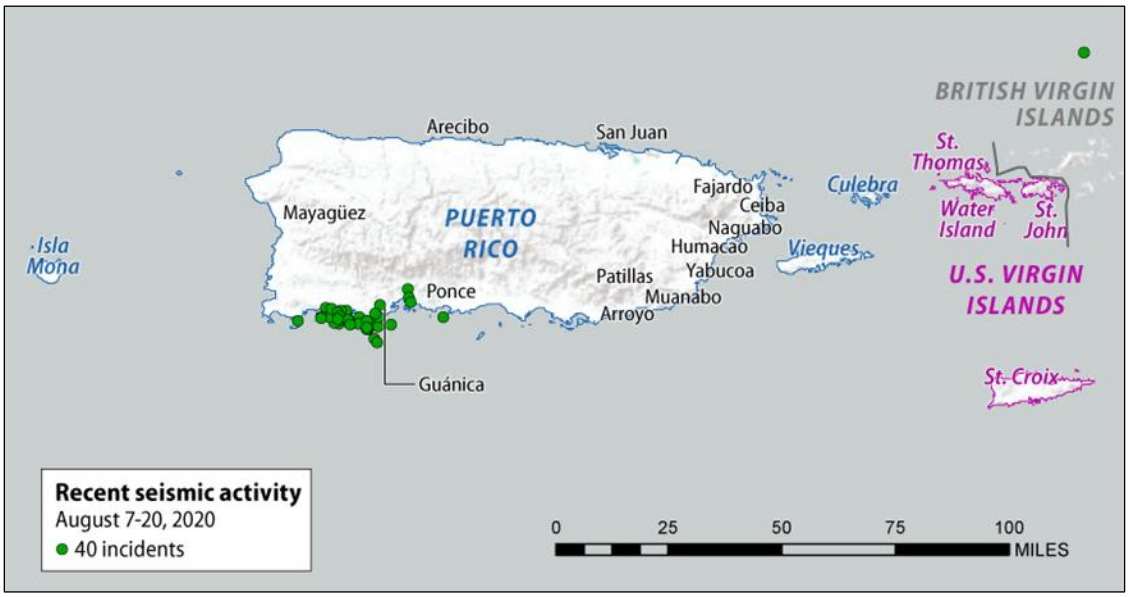
> "based on physical properties of the earthquake derived from an analysis of all the waveforms recorded from the shaking. First the seismic moment is computed, and then it is converted to a magnitude designed to be roughly equal to the Richter Scale in the magnitude range where they overlap.
>
> Moment (M_O) = rigidity x area x slip
>
> where rigidity is the strength of the rock along the fault, area is the area of the fault that slipped, and slip is the distance the fault moved. Thus, stronger rock material, or a larger area, or more movement in an earthquake will all contribute to produce a larger magnitude. Then,
>
> Moment Magnitude (M_W) = $2/3 \log_{10}(M_O) - 10.7$."

(USGS, "Earthquake Magnitude, Energy Release, and Shaking Intensity," https://www.usgs.gov/natural-hazards/earthquake-hazards/science/earthquake-magnitude-energy-release-and-shaking-intensity?qt-science_center_objects=0#qt-science_center_objects.)

For more information on how magnitude is defined, see the USGS "Earthquake Glossary," available at https://earthquake.usgs.gov/learn/glossary/. For more information on the different magnitude scales, see USGS, "Moment Magnitude, Richter Scale—What Are the Different Magnitude Scales, and Why Are There So Many?" available at https://www.usgs.gov/faqs/moment-magnitude-richter-scale-what-are-different-magnitude-scales-and-why-are-there-so-many?qt-news_science_products=0#qt-news_science_products.

Figure A-2. Seismic Activity in Puerto Rico

August 7-20, 2020



Source: Created by CRS using data from the Puerto Rico Seismic Network (PRSN), "Recent Significant Earthquakes," accessed August 24, 2020, http://redsismica.uprm.edu/English/php/CatalogS/Felts.php.

Notes: This figure represents ongoing seismic activity in Puerto Rico (and nearby area). These earthquake depictions (i.e., circles) are not to scale and circle size does not represent a comparative magnitude. These incidents range in magnitude from 1.91 to 3.85 Md. The PRSN often reports magnitude as "Md," which represents the "Duration Magnitude." According to the PRSN's website, "The duration magnitude is computed by searching for the time at which the amplitude of the signal returns to the pre-earthquake level as well as the maximum amplitude of the signal. These two data points are then input into the local empirical equation to determine the magnitude of the event." PRSN, "Education, the Size of an Earthquake, Duration Magnitude," accessed August 28, 2020, http://redsismica.uprm.edu/English/education/earthquakes/size.php.

Federal Assistance Provided to Puerto Rico Following the Earthquakes That Began in 2019

The following sections describe select forms of federal assistance that were authorized to support Puerto Rico's disaster recovery efforts following the earthquakes that began in 2019 and are continuing. First, they detail the FEMA programs, including Public Assistance (PA), Hazard Mitigation Assistance (HMA), the National Flood Insurance Program (NFIP), and Individual Assistance (IA), then they describe the SBA Disaster Loan program. At the time of publication, HUD's Community Development Block Grant–Disaster Recovery (CDBG-DR) and Community Development Block Grant–Mitigation (CDBG-MIT) programs had not received appropriations in response to the 2019-2020 earthquakes.[437]

Detailed program overviews can be found in the program-specific sections in the "Federal Assistance Provided to Puerto Rico Following Hurricanes Irma and María" section of this report.

[437] Efforts to reprogram existing CDBG-DR or CDBG-MIT funds would likely require approval at the discretion of HUD.

What follows are brief overviews of the work that has been completed and the work that remains to be completed, and a few program-specific considerations for Congress related to the earthquakes.

FEMA Public Assistance[438]

The President's major disaster declaration for the 2019-2020 earthquakes and subsequent amendments authorized all categories of Public Assistance in 14 affected municipios.[439] Applicants may choose to complete individual projects according to either alternative or standard procedures under this declaration. As with previous disasters, Puerto Rico is the PA Recipient, which helps FEMA administer PA awards authorized under the declarations for the 2019-2020 earthquakes.[440] Responsibility for PA administration was delegated to the Central Office of Recovery, Reconstruction, and Resiliency (COR3).[441]

Status of PA Projects for Earthquake Recovery

By August 10, 2020, FEMA reported that it had obligated funds for nine projects for earthquake recovery in Puerto Rico, for a total of $833,325.[442] FEMA estimated that damages eligible for Public Assistance totaled more than $32 million.[443] All obligated earthquake projects support emergency work or management costs, with no reported obligations for permanent facility reconstruction.[444]

PA Considerations Related to Earthquake Recovery

For any damage associated with the 2019-2020 earthquakes in Puerto Rico, because the disaster declaration was after the initial publication date of FEMA's Interim Policy on consensus-based codes, use of the latest published earthquake codes is mandatory.

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[438] For more information on FEMA's Public Assistance program, contact Erica A. Lee, Analyst in Emergency Management and Disaster Recovery.

[439] FEMA, DHS, "Initial Notice: Puerto Rico; Emergency and Related Determinations," 85 *Federal Register* 6965-6966, January 7, 2020, https://www.federalregister.gov/documents/2020/02/06/2020-02300/puerto-rico-emergency-and-related-determinations; FEMA, "Puerto Rico; Amendment No. 6 to Notice of a Major Disaster Declaration," March 11, 2020, https://www.fema.gov/disaster/notices/amendment-no-6-17. Permanent work was authorized in 14 municipios: Adjuntas, Guánica, Guayanilla, Jayuya, Juana Díaz, Lajas, Las Marías, Mayagüez, Peñuelas, Ponce, Sabana Grande, San Germán, Utuado, and Yauco.

[440] 2 C.F.R. §200.86.

[441] Government of Puerto Rico, Executive Order of the Governor of Puerto Rico, Hon. Ricardo A. Rosselló Nevares, To Create the Central Recovery and Reconstruction Office of Puerto Rico, Administrative Bulletin No. OE-2017-65, October 23, 2017 (to access the Executive Order, visit the website of the Gobierno de Puerto Rico, Departamento de Estado, available at https://www.estado.pr.gov/en/executive-orders/).

[442] FEMA Representative Alex Amparo, *Hurricanes Irma, María, & Earthquake Progress and Innovation in Puerto Rico*, briefing slides, August 11, 2020.

[443] FEMA, "Preliminary Damage Assessment Report: Puerto Rico—Earthquakes FEMA-4473-DR," https://www.fema.gov/sites/default/files/2020-03/FEMA4473DRPR.pdf.

[444] FEMA Representative Alex Amparo, *Hurricanes Irma, María, & Earthquake Progress and Innovation in Puerto Rico*, briefing slides, August 11, 2020.

Mitigation and Rebuilding After Natural Disasters[445]

Territorial and local governments in Puerto Rico, and certain nonprofit organizations, are eligible applicants for assistance through the Hazard Mitigation Grant Program (HMGP).

Status of HMGP for Earthquake Recovery

$90,988,238 in HMGP funding is available to Puerto Rico for the earthquakes. However, none of the earthquake HMGP funding had been obligated by October 2020.[446]

Mitigation and Insurance Considerations Related to Earthquake Recovery

Multiple Hazards

The 2019-2020 earthquakes in Puerto Rico highlighted the challenges of building properties that can resist damage from wind, flood, and earthquakes. Communities that are exposed to multiple hazards may use construction materials that perform well for the most frequent hazard, but that may present an increased risk for less frequent hazards. For example, homes that are elevated on stilts or pilings to reduce flood risk may be more vulnerable to ground shaking during earthquakes if not adequately designed and constructed.[447] There are approximately 100,000 housing structures built on stilts in Puerto Rico.[448]

Building to mitigate multiple risks can be done, but is significantly more expensive.[449]

It is unclear if structures damaged by Hurricanes Irma and María will be repaired or rebuilt to current codes for earthquakes, as well as current codes for wind and flood. If rebuilt for multiple hazards, it is likely that the available funding will not go as far and may need to be supplemented. In addition, FEMA and HUD should clarify whether comparable building code requirements will apply to work funded by HMGP and CDBG-DR, or by a combination of funding.

Earthquake Insurance

Earthquake coverage, like flood coverage, is generally excluded from regular homeowners' insurance and only offered as an endorsement or stand-alone policy. Earthquake insurance typically covers losses caused by an earthquake and aftershocks that occur within 72 hours of the earthquake.[450] Despite the prospect of catastrophic losses, the take-up rate for earthquake

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[445] For more information on FEMA's Hazard Mitigation Assistance program and the National Flood Insurance Program, contact Diane P. Horn, Analyst in Flood Insurance and Emergency Management.

[446] Email from FEMA Congressional Affairs staff, August 27, 2020.

[447] Eduardo Miranda et al., *Puerto Rico M6.4 Earthquake, 7 January 2020*, Structural Extreme Events Reconnaissance, Preliminary Virtual Reconnaissance Report PRJ-2670, January 10, 2020, pp. 6, 66-7, https://www.researchgate.net/publication/338528208_StEER_-_7_JAN_2020_PUERTO_RICO_Mw_64_EARTHQUAKE_PRELIMINARY_VIRTUAL_RECONNAISSANCE_REPORT_PVRR.

[448] Alberto M. Lopez, K. Stephen Huges, and Elizabeth Vanacore, "Puerto Rico's Winter 2019-2020 Seismic Sequence Leaves the Island on Edge," *Tremblor*, January 7, 2020, https://temblor.net/earthquake-insights/puerto-ricos-winter-2019-2020-seismic-sequence-leaves-the-island-on-edge-10321/.

[449] National Institute of Building Sciences, *Natural Hazards Mitigation*, Whole Building Design Guide Secure/Safe Committee, September 14, 2017, https://www.wbdg.org/design-objectives/secure-safe/natural-hazards-mitigation.

[450] National Association of Insurance Commissioners, *A Consumer's Guide to Earthquake Insurance*, Washington, DC, 2011, p. 7, https://www.naic.org/documents/cipr_events_150814_naic_earthquake_consumer_guide.pdf.

insurance is extremely low across the country.[451] Mortgage lenders do not generally require earthquake insurance as a loan condition.[452] Relatively few U.S. homeowners have purchased earthquake insurance; only 8% of homeowners who responded to a May 2016 poll by the Insurance Information Institute said that they have earthquake insurance.[453] The low take-up rate may be explained by the cost and coverage limitations for earthquake insurance, homeowners' perception of earthquake risk, and, unlike flood insurance, the voluntary nature of this coverage.[454]

There is some indication that the take-up rate for earthquake insurance may be higher in Puerto Rico than in the rest of the United States. This may be because, in contrast to the rest of the U.S., lenders in Puerto Rico require earthquake insurance as a condition of granting a residential mortgage loan.[455] For example, Puerto Rico ranked fifth highest among U.S. states and territories in terms of earthquake insurance direct premiums written in 2018. Puerto Rico's $93.4 million in premium volume accounted for 2.9% of the total earthquake business reported in 2018 by U.S. property and casualty insurers, whereas Puerto Rico contributed only 0.3% of the 2018 direct premiums across all other property and casualty lines.[456]

Assistance to Individuals and Households[457]

The FEMA Individual Assistance (IA) program may provide aid to affected individuals and households when authorized following a presidential declaration of emergency or major disaster.[458] In Puerto Rico, IA was authorized following the earthquakes that began in 2019.

Status of IA Projects for Earthquake Recovery

Disaster survivors from the earthquakes continued to receive assistance through the IHP in 2020—and more than $65.8 million in housing assistance had been disbursed by September 2020 according to FEMA.[459]

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[451] Federal Insurance Office, U.S. Department of the Treasury, *Report Providing an Assessment of the Current State of the Market for Natural Catastrophe Insurance in the United States*, Washington, DC, September 2015, p. 4, https://www.treasury.gov/initiatives/fio/reports-and-notices/Documents/Natural%20Catastrophe%20Report.pdf (hereinafter Federal Insurance Office, *Current State of the Market for Natural Catastrophe Insurance*).

[452] Federal Insurance Office, *Current State of the Market for Natural Catastrophe Insurance*, p. 38.

[453] Insurance Information Institute, *Background on Earthquake Insurance and Risk*, January 14, 2020, https://www.iii.org/article/background-on-earthquake-insurance-and-risk.

[454] Federal Insurance Office, *Current State of the Market for Natural Catastrophe Insurance*, p. 38.

[455] Federal National Mortgage Association, *Selling Guide: Additional Insurance Coverage*, B7-3-05, October 7, 2020, https://selling-guide.fanniemae.com/Selling-Guide/Origination-thru-Closing/Subpart-B7-Insurance/Chapter-B7-3-Property-and-Flood-Insurance/1032998971/B7-3-05-Additional-Insurance-Coverage-07-29-2014.htm.

[456] Tim Zawacki, "Puerto Rico's Earthquake Insurance Market," *S&P Global Market Intelligence*, January 9, 2020, https://www.spglobal.com/marketintelligence/en/news-insights/trending/xzlxg8rx5wojwj0b_idlhw2.

[457] For more information on FEMA's Individual Assistance program, contact Elizabeth M. Webster, Analyst in Emergency Management and Disaster Recovery.

[458] For more information on FEMA's IA program, see CRS Report R46014, *FEMA Individual Assistance Programs: An Overview*, by Elizabeth M. Webster.

[459] According to an email from FEMA Congressional Affairs staff dated September 24, 2020, the FEMA IHP period of performance will run through July 16, 2021. FEMA-funded Disaster Legal Services concluded on June 30, 2020. However, according to FEMA, as of September 24, 2020, "PR Legal Services continues to provide pro bono services to the survivors of 4473 PR under their own budget." Further, the Government of Puerto Rico has submitted a grant application to provide Disaster Case Management (DCM), which, according to FEMA, is in the process of approval, to include Congressional Notification. DCM will begin once the Notice of Grant Award is issued. Per FEMA, DCM "is

The earthquakes are having a significant housing impact. According to COR3, the "earthquakes resulted in the intermittent displacement of over 10,000 people, [and] over 2,000 homes with structural damage.... "[460]

The delivery of assistance to disaster survivors from the earthquakes has concluded for most forms of IA.[461] Following the earthquakes, emergency sheltering assistance was provided through the Transitional Sheltering Assistance (TSA) program (authorized under FEMA PA).[462] Additional forms of IA included Disaster Unemployment Assistance,[463] assistance through the Crisis Counseling Assistance and Training Program—Immediate Services Program[464] and Disaster Legal Services.[465]

Some forms of IA, however, are still being provided, including assistance through the FEMA IHP, including funding for Rental Assistance, Home Repair, and ONA (e.g., to repair or replace personal property),[466] and the Crisis Counseling Assistance and Training Program—Regular Services Program, which began on August 31, 2020, and is set to conclude in May 2021.[467]

Earthquake Assistance Provided

Transitional Sheltering Assistance (TSA): more than $3.0 million was paid to contract 198 hotel rooms for 255 households.

Disaster Unemployment Assistance: $775,734 awarded in benefits to 432 applicants.

Disaster Legal Services: $5,000 in funding supported the provision of assistance to 317 disaster survivors.

Individuals and Households Program (IHP): $65.4 million was approved for Housing Assistance, and $2.2 million was approved for ONA (assistance is ongoing).

Sources: FEMA, "Federal Disaster Assistance for Puerto Rico Earthquakes Tops $104 Million," DR-4473-PR NR, July 14, 2020, https://www.fema.gov/news-release/20200716/federal-disaster-assistance-puerto-rico-earthquakes-tops-104-million; and email from FEMA Congressional Affairs staff dated September 24, 2020.

currently under Congressional review for approval." See also FEMA, "Federal Disaster Assistance for Puerto Rico Earthquakes Tops $104 Million," DR-4473-PR NR, July 14, 2020, https://www.fema.gov/news-release/20200716/federal-disaster-assistance-puerto-rico-earthquakes-tops-104-million (hereinafter FEMA, "Federal Disaster Assistance for Puerto Rico Earthquakes").

[460] Government of Puerto Rico, *Fourth Congressional Status Report*, p. 2.

[461] FEMA, "Federal Disaster Assistance for Puerto Rico Earthquakes."

[462] FEMA, "Earthquake Survivors Helped by FEMA's Transitional Sheltering Assistance," NR 39, July 21, 2020, https://www.fema.gov/news-release/20200722/earthquake-survivors-helped-femas-transitional-sheltering-assistance. TSA assistance for disaster survivors following the earthquakes concluded on July 20, 2020. According to FEMA, checkout was July 21, 2020 (email from FEMA Congressional Affairs staff dated September 24, 2020).

[463] FEMA, "Deadline for Disaster Unemployment Assistance Extended to June 30," DR-4473-PR MA006, April 6, 2020, https://www.fema.gov/news-release/20200514/deadline-disaster-unemployment-assistance-extended-june-30.

[464] FEMA, "Crisis Counseling Approved for Six Municipalities in Southwest Puerto Rico," DR-4473-PR NR 17, February 13, 2020, https://www.fema.gov/news-release/20200220/crisis-counseling-approved-six-municipalities-southwest-puerto-rico. According to FEMA, "the Immediate Services Program under Crisis Counseling concluded on August 30, 2020" (email from FEMA Congressional Affairs staff dated September 24, 2020).

[465] FEMA, "Free Legal Information Available for Those Affected by the Earthquakes," DR-4473-PR NR 15, February 12, 2020, https://www.fema.gov/news-release/20200220/free-legal-information-available-those-affected-earthquakes. FEMA-funded Disaster Legal Services concluded on June 30, 2020. However, according to FEMA, as of September 24, 2020, "PR Legal Services continues to provide pro bono services to the survivors of 4473 PR under their own budget" (email from FEMA Congressional Affairs staff dated September 24, 2020).

[466] FEMA, "Federal Disaster Assistance for Puerto Rico Earthquakes"; FEMA, "Earthquake Survivors Have Until July 2 to Apply for FEMA Disaster," DR-4473-PR MA 08, May 29, 2020, https://www.fema.gov/news-release/20200716/earthquake-survivors-have-until-july-2-apply-fema-disaster.

[467] Email from FEMA Congressional Affairs staff dated September 24, 2020.

SBA Disaster Loans[468]

The SBA Disaster Loan Program provides low-interest disaster loans to homeowners, renters, and businesses, as well as to private and nonprofit organizations to repair or replace real estate, personal property, machinery and equipment, inventory, and business assets that have been damaged or destroyed in a declared disaster.[469]

SBA Disaster Loans: 2019-2020 Earthquakes

SBA approved $250 million in business disaster loans and $39 million for home disaster loans in response to the earthquakes that began in 2019 (see **Table A-1** and **Table A-2**). The number of loans that were issued by SBA may be lower than the number of loan applications approved, because not all approved loan applications are accepted by the borrower.

Table A-1. SBA Business Disaster Loans

2019 Earthquake

Municipio	Approved Application Amount	Municipio	Approved Application Amount	Municipio	Approved Application Amount
Guánica	$145,500	Lajas	$17,100	Unidentified[a]	$25,000
Guayanilla	$594,200	Ponce	$682,600	Utuado	$38,000
Juana Díaz	$1,200	Sabana Grande	$109,800	Villalba	$14,700
Jayuya	$36,600	San Germán	$18,500	Yauco	$703,500
		San Sebastián	$78,600	**Total**	**$2,465,300**

Source: CRS analysis of data provided by U.S. Small Business Administration, Office of Congressional and Legislative Affairs on August 8, 2020. The amounts are subject to change because the assistance for the 2019 earthquake is ongoing.

Notes: Not all applicants accept approved loans. The SBA applies the term "County/Parish" to "municipios" in their data. Puerto Rico's municipios are the functioning equivalent to counties and parishes.

a. The municipio was not identified by SBA.

Table A-2. SBA Home Disaster Loans

2019 Earthquake

Municipio	Approved Application Amount	Municipio	Approved Application Amount	Municipio	Approved Application Amount
Adjuntas	$622,500	Juana Díaz	$1,109,400	Ponce	$8,569,900
Aguada	$55,000	Jayuya	$633,600	Sabana Grande	$598,100
Añasco	$55,000	Lajas	$888,500	Salinas	$85,800
Arecibo	$251,200	Lares	$536,900	San Germán	$318,100
Barceloneta	$86,600	Las Marías	$109,400	San Sebastián	$480,900

[468] For more information on the SBA's Disaster Loan program, contact Bruce R. Lindsay, Analyst in American National Government.

[469] SBA disaster loans can only be used for uninsured, underinsured, or otherwise uncompensated damages.

Municipio	Approved Application Amount	Municipio	Approved Application Amount	Municipio	Approved Application Amount
Cabo Rojo	$174,600	Manatí	$12,100	Santa Isabel	$256,000
Ciales	$262,100	Mayagüez	$259,900	Seminole	$5,200
Coamo	$103,600	Maricao	$90,500	Unidentified[a]	$32,900
Corozal	$253,500	Morovis	$70,100	Utuado	$1,060,300
Guánica	$6,050,100	Naranjito	$24,800	Villalba	$633,700
Guayanilla	$4,464,100	Orocovis	$25,000	Yauco	$8,934,300
Hormigueros	$36,500	Peñuelas	$2,166,200	**Total**	**$39,316,400**

Source: CRS analysis of data provided by U.S. Small Business Administration, Office of Congressional and Legislative Affairs on August 8, 2020. The amounts are subject to change because the assistance for the 2019 earthquake is ongoing.

Notes: Not all applicants accept approved loans. The SBA applies the term "County/Parish" to "municipios" in their data. Puerto Rico's municipios are the functioning equivalent to counties and parishes.

a. The municipio was not identified by SBA.

Considerations Regarding the Future of Recovery

Congressional considerations related to the earthquakes are included in the "The Future of Recovery in Puerto Rico and Considerations for Congress" section of this report.

Appendix B. Tracking Recovery Program Funding and the Status of Work

The status of Puerto Rico's recovery efforts following the disasters occurring between 2017 and 2020 remains the subject of congressional interest and activity. The following sections discuss the sources of data that may be used to evaluate the cost and status of Puerto Rico's recovery work following Hurricanes Irma and María, and the ongoing earthquakes that began in 2019.

Recovery Program Data Limitations

Members of Congress have maintained a high level of interest in the funding that has been committed to Puerto Rico's disaster recovery efforts, as well as how it has been received and expended. However, there is no single authoritative source of current funding data for all federal assistance. Additionally, some programmatic data are not publicly available. Existing data sources are not easily reconcilable and require discrete analysis, for reasons including the following:

- data accuracy cannot be easily verified, as federal agencies (e.g., FEMA) may be the sole source of information;
- detail varies among different data sources (e.g., the FEMA Recovery Support Function Leadership Group (RSFLG) "State Profiles" website provides data at the appropriation level for the DRF, rather than at the program level);
- data available through different public-facing sources are updated at different times;[470]
- terms are not defined in a standard way across data sources and agencies (e.g., the term "obligated"[471] has different meanings depending on the data source); and
- some federal recovery programs have largely been completed, while the work associated with other programs is in the initial stages of project development.

These distinctions inhibit straightforward assessments of how much federal assistance has been committed and provided to Puerto Rico. Additionally, the insights that can be gleaned from the available recovery program data depend on the status of the particular federal program.[472] To that

[470] For example, per the OpenFEMA Data description of the "OpenFEMA Dataset: Individuals and Households Program - Valid Registrations - v1" dataset, available at https://www.fema.gov/openfema-data-page/individuals-and-households-program-valid-registrations-v1, "[t]his is raw, unedited data from FEMA's National Emergency Management Information System (NEMIS) and as such is subject to a small percentage of human error. Any financial information is derived from NEMIS and not FEMA's official financial systems. Due to differences in reporting periods, status of obligations and how business rules are applied, this financial information may differ slightly from official publication on public websites such as usaspending.gov; this dataset is not intended to be used for any official federal financial reporting."

[471] For example, per the FEMA website, "obligation" is defined as "[a]n entry made by a member of a discretionary grant team in the federal agency's automated accounting system authorizing payments of federal grant funds to a grantee." (FEMA, "Glossary," https://www.fema.gov/about/glossary). Whereas, per the glossary on the FEMA Recovery Support Function Leadership Group (RSFLG) "State Profiles" website, an "obligation" is "a binding agreement" that the U.S. government enters when awarding funding. "The government promises to spend the money, either immediately or in the future.... " FEMA, RSFLG, "State Profiles, Glossary," https://recovery.fema.gov/glossary/o (hereinafter FEMA RSFLG, "State Profiles, Glossary").

[472] For example, the unique characteristics of both disasters and grantees may result in federal agencies' issuance of disaster-specific guidance to tailor programs to best meet the needs of disaster survivors, businesses, nonprofit organizations, and government entities. However, this practice of issuing disaster-specific guidance may also lead to confusion related to program implementation.

end, caution should be exercised when relying solely on numerical program data as an oversight tool, and contextual information may be needed to adequately interpret the available data. Additional considerations are further discussed in the "Increasing Access to Program Data and Project Status Information" section of this report.

Recovery Program Data Resources

To establish a picture of the status of recovery in Puerto Rico following the disasters occurring between 2017 and 2020, publicly available sources of federal funding data should be referenced with the above-listed data limitations in mind. Sources of discrete recovery program funding data for FEMA's PA, IA, HMGP, and NFIP programs, SBA's Disaster Loan Program, and HUD's CDBG-DR and CDBG-MIT programs, as well as caveats related to relying on such data sources, are included in **Table B-1** and described below. Federal assistance was also provided by other federal agencies, however data and information related to these sources of assistance are not included herein.

Table B-1. Sources of Discrete Disaster Recovery Program Data

Applies to Assistance for Puerto Rico Associated with the 2017 Hurricanes and 2019-2020 Earthquakes

Data Resource	Agency	Programs	Resource Available at
OpenFEMA Data	FEMA	PA, IA, HMGP, NFIP	https://www.fema.gov/about/openfema/data-sets (search by major disaster number: Irma = 4336; María = 4339; and Earthquakes = 4473)
DRF Monthly Report	FEMA		https://www.fema.gov/about/reports-and-data/disaster-relief-fund-monthly-reports
FEMA Disasters	FEMA	PA, IA—IHP, HMGP	• Hurricane Irma: https://www.fema.gov/disaster/4336 • Hurricane María: https://www.fema.gov/disaster/4339 • 2019-2020 Earthquakes: https://www.fema.gov/disaster/4473
Hurricane Maria by the Numbers	FEMA	PA, IA, SBA, Other	https://www.fema.gov/fact-sheet/hurricane-Maria-numbers
FEMA Office of External Affairs	FEMA	HMGP	HMGP data provided by FEMA Congressional Liaisons; all HMA data available at https://www.fema.gov/openfema-data-page/hazard-mitigation-assistance-projects-v2
NFIP Bureau and Statistical Agent (BSA)	FEMA	NFIP	https://nfipservices.floodsmart.gov/home/reports
SBA Open Data Sources	SBA	Disaster Loans	https://www.sba.gov/about-sba/sba-performance/open-government/digital-sba/open-data/open-data-sources
HUD Exchange	HUD	CDBG-DR CDBG-MIT	https://www.hudexchange.info/programs/cdbg-dr/reports/

Sources: Compiled by CRS from publicly available federal agency data sources.

FEMA Data Sources

FEMA websites, such as OpenFEMA, include several sources of program data.[473] OpenFEMA Data is detailed, but has its limitations. Using the Individual Assistance datasets as an example, two of the datasets provide applicant-level information that is extremely detailed, but one includes data dating back to 2002, and the other dates back to 2013.[474] There are other separate IA datasets for homeowners and renters that aggregate all applicant data at the zip code level.[475] These datasets all include information on the grants of financial assistance approved for housing assistance and other needs assistance. However, some datasets aggregate the assistance provided for some distinct IHP programs (e.g., the homeowner dataset aggregates the financial assistance provided for the Home Repair and Home Replacement assistance programs, and the datasets aggregate the financial assistance provided for Other Needs Assistance). Additionally, some forms of IHP assistance are not documented in the publicly available data and instead must be requested directly from FEMA, including data on direct housing assistance.[476] Data on other forms of IA (other than the IHP) is publicly unavailable and must be requested from FEMA (e.g., information on crisis counseling). Additionally, information posted to public-facing websites, such as FEMA's disaster-specific webpages or other websites (e.g., usaspending.gov) may differ from the OpenFEMA Data. This may be due to a lag in when the data is imported from OpenFEMA Data, as well as "differences in reporting periods, status of obligations and how business rules are applied.... "[477]

In addition to OpenFEMA Data, program data for IA—IHP, PA, and HMGP is also usually available through the FEMA Disasters webpages. Such webpages are created for presidentially declared emergencies and disasters and include a "Financial Assistance" section.[478] However, again using the IA data as an example, the assistance listed for IA is limited to the IHP (because that is the only program that provides financial assistance to individuals). Further, the PA financial assistance listed aggregates the categories of emergency work (i.e., Categories A and B) and permanent work (i.e., Categories C-G). In some cases, FEMA may provide more detailed information on the assistance provided, which was done in the case of Hurricane María. FEMA produced a "By the Numbers" report for this disaster with more detailed information on the types

[473] The FEMA OpenFEMA Data Sets, and descriptions of the data provided, are available at https://www.fema.gov/about/openfema/data-sets. FEMA's OpenFEMA Data Sets provides publicly available program data sets for some elements of PA, IA (limited to assistance provided through the Individuals and Households Program), HMGP, and the NFIP.

[474] See FEMA, "OpenFEMA Dataset: Individuals and Households Program - Valid Registrations - v1," last accessed October 28, 2020, https://www.fema.gov/openfema-data-page/individuals-and-households-program-valid-registrations-v1; and FEMA, "OpenFEMA Dataset: Registration Intake and Individuals Household Program (RI-IHP) - v2," last accessed October 28, 2020, https://www.fema.gov/openfema-data-page/registration-intake-and-individuals-household-program-ri-ihp-v2.

[475] See FEMA, "OpenFEMA Dataset: Housing Assistance Program Data - Owners - v2," last accessed October 28, 2020, https://www.fema.gov/openfema-data-page/housing-assistance-program-data-owners-v2; and FEMA, "OpenFEMA Dataset: Housing Assistance Program Data - Renters - v2," last accessed October 28, 2020, https://www.fema.gov/openfema-data-page/housing-assistance-program-data-renters-v2.

[476] See, for example, the IHP data for homeowners, available at FEMA, "Housing Assistance Program Data—Owners," https://www.fema.gov/openfema-data-page/housing-assistance-program-data-owners.

[477] See, for example, the data description in the FEMA, "OpenFEMA Dataset: Individuals and Households Program - Valid Registrations - v1" dataset, available at https://www.fema.gov/openfema-data-page/individuals-and-households-program-valid-registrations-v1.

[478] FEMA, "Declared Disasters," https://www.fema.gov/disasters/disaster-declarations.

of assistance provided, including the amount of funding provided and the number of people served, projects developed, etc.[479]

FEMA publishes Disaster Relief Fund (DRF) monthly reports, which include an appropriations funding summary, a summary of the obligations for catastrophic events (i.e., those costing more than $500 million), and other information, including changes in program activity organized by catastrophic event.[480]

SBA Data Sources

SBA Disaster Loan data is available through the SBA's *Open Data Sources* (see the "Small Business Administration Disaster Loan Program" section of this report for more detailed information).

HUD Data Sources

Program data for HUD's CDBG-DR and CDBG-MIT programs is available through the HUD Exchange website (see the "HUD Community Development Block Grant—Disaster Recovery and—Mitigation" section of this report for more detailed information). HUD produces a CDBG-DR Grant History Report that lists the grants provided since 1992.[481] HUD also posts information on active disaster grants, including linking to grantee information and resources.[482] Due to the COVID-19 pandemic, HUD suspended the monthly CDBG-DR financial reporting process.[483]

Aggregated Data Sources

Sources of aggregated program data, including the agencies responsible for administering and managing the programs, the program data provided, and where the data can be accessed, are included in **Table B-2** and described below. While this report is focused on data associated with the recovery programs provided by FEMA, the SBA, and HUD, the aggregated data sources described herein also include data for most of the other federal recovery assistance programs that are providing discretionary funded relief or recovery resources.

[479] FEMA, "Hurricane Maria by the Numbers," https://www.fema.gov/fact-sheet/hurricane-Maria-numbers.

[480] The FEMA Disaster Relief Fund (DRF) Monthly Reports are available at https://www.fema.gov/about/reports-and-data/disaster-relief-fund-monthly-reports. For more information on the DRF, see CRS Report R45484, *The Disaster Relief Fund: Overview and Issues*, by William L. Painter.

[481] The HUD *CDBG-DR Grant History Report* is available at https://www.hudexchange.info/programs/cdbg-dr/reports/ .

[482] The HUD "CDBG-DR Active Disaster Grants and Grantee Contact Information" is available at https://www.hudexchange.info/programs/cdbg-dr/cdbg-dr-grantee-contact-information/#all-disasters.

[483] HUD, *CDBG-DR COVID-19 Fact Sheet*, 2020, https://www.hud.gov/sites/dfiles/CPD/documents/COVID-19-CDBG-DR-FAQs-072420.pdf.

Table B-2. Sources of Aggregated Disaster Recovery Program Data

Applies to Assistance for Puerto Rico Associated with the 2017 Hurricanes and 2019-2020 Earthquakes

Data Resource	Agency	Programs	Resource Available at
State Profiles	FEMA Recovery Support Function Leadership Group (RSFLG)	FEMA—PA, IA, and HMGP; SBA Disaster Loans; and HUD—CDBG-DR (additional federal agency programs are also included)	https://recovery.fema.gov/index.php/state-profiles
COR3 Transparency Portal	COR3	FEMA—PA, IA, and HMGP; SBA Disaster Loans; and HUD—CDBG-DR (additional federal agency programs are also included)	https://recovery.pr/en
USAspending.gov	Treasury	All	https://www.usaspending.gov/

Sources: Compiled by CRS from publicly available data sources provided by federal agencies and the Government of Puerto Rico.

The FEMA Recovery Support Function Leadership Group (RSFLG), "State Profiles" website provides information on funding "allocated,"[484] "obligated,"[485] and "outlayed"[486] from various program accounts/funds (e.g., the DRF, Disaster Loan Program Account, and Community Development Fund).[487] The information can be filtered, including by territory, agency, and funding source (e.g., enacted disaster supplemental appropriations legislation since FY2017, as well as annual appropriations for disaster funding through FEMA). A challenge with relying on the "State Profiles" website for program-level information is that the data are aggregated and do not provide detailed information on specific recovery programs.

Puerto Rico maintains an additional resource for aggregated data. COR3, the entity responsible for supporting the Government of Puerto Rico's recovery efforts, maintains a "Transparency Portal" website[488] that reports FEMA and other federal agency funding that has been

[484] Per the glossary on the FEMA Recovery Support Function Leadership Group (RSFLG) "State Profiles" website, "allocations" are defined as the "[a]ssignment of appropriated federal funds to specific states, territories, tribes or local units of government. Note: Not all agencies allocate disaster funds in advance of obligations." FEMA RSFLG, "State Profiles, Glossary."

[485] Per the glossary on the FEMA RSFLG "State Profiles" website, an "obligation" is "a binding agreement" that the U.S. government enters when awarding funding. "The government promises to spend the money, either immediately or in the future. An agency incurs an obligation, for example, when it places an order, signs a contract, awards a grant, purchases a service, or takes other actions that require it to make a payment." FEMA RSFLG, "State Profiles, Glossary."

[486] Per the glossary on the FEMA RSFLG "State Profiles" website, "outlays" are "[p]ayments made to liquidate an obligation." "An outlay occurs when Federal money is actually paid out, not just promised to be paid ('obligated')." FEMA RSFLG, "State Profiles, Glossary."

[487] The RSFLG "State Profiles" website is available at https://recovery.fema.gov/index.php/state-profiles.

[488] The COR3 "Transparency Portal" is available at https://recovery.pr/en (the website is also available in Spanish). The COR3 Transparency Portal was established to ensure a "transparent and effective recovery process" (COR3, "Transparency Portal: What Is Transparency?," https://recovery.pr/en/what-is-transparency).

"allocated,"[489] "obligated,"[490] and "disbursed."[491] The COR3 "Transparency Portal" website states that the FEMA program data are obtained from FEMA and COR3. Other federal program data note the agency the data were obtained from (in some cases they were obtained from the agency that provided the funding and in some cases FEMA provided the information). Challenges with relying on the COR3 "Transparency Portal" website for program-level information include:

- different dates when program data were updated (e.g., the Transparency Portal notes when the content was last updated, but also acknowledges that "the date of the financials vary by each Federal Agency.... "); and
- COR3 uses different funding status definitions than federal agencies, such as FEMA.

The database USAspending.gov (http://www.usaspending.gov), maintained by the U.S. Treasury Department, enables tracking of federal contract and grant awards, loans, and other assistance funding at state and local levels.[492] While this source may be useful for researching specific awards related to natural disaster responses in Puerto Rico, users should be aware that search results may be incomplete or contain inaccuracies, as identified in reports by the U.S. Government Accountability Office.[493] Additionally, USAspending.gov does not include filtering options for specific disaster events.

Congressional considerations related to program data are discussed in the "The Future of Recovery in Puerto Rico and Considerations for Congress" and "Increasing Access to Program Data and Project Status Information" sections of this report.

[489] The COR3 "Transparency Portal" website defines "allocated" as "[f]unding appropriated by Congress for Puerto Rico recovery efforts." COR3, "Transparency Portal."

[490] The COR3 "Transparency Portal" website defines "obligated" as "[a]llocated funding that has been committed by Federal Agencies for distribution." COR3, "Transparency Portal."

[491] The COR3 "Transparency Portal" website defines "disbursed" as "[o]bligated funding that has been distributed to Recipients, Subrecipients, and agencies." COR3, "Transparency Portal."

[492] For more information, see CRS In Focus IF10231, *Tracking Federal Awards in States and Congressional Districts Using USAspending.gov*, by Jennifer Teefy.

[493] Recent GAO reports include *DATA Act: OIGs Reported That Quality of Agency-Submitted Data Varied, and Most Recommended Improvements*, GAO-20-540, July 9, 2020, https://www.gao.gov/products/GAO-20-540; and *Data Act: Quality of Data Submissions Has Improved but Further Action Is Needed to Disclose Known Data Limitations*, GAO-20-75, November 8, 2019, https://www.gao.gov/products/GAO-20-75.

Appendix C. Building Codes[494]

Puerto Rico has recognized that structures that are being repaired and rebuilt must be resilient against sea level rise, high winds, hurricane storm surge, and seismic activity.[495] The Puerto Rican government has affirmed their intention to build back stronger and more resilient to future hazards through the adoption of stringent building codes.[496] In addition, FEMA is increasingly emphasizing the importance of building codes for disaster resilience, to enhance both public safety and protection of property.[497]

Building codes in the United States are not regulated at the federal level, and there are no national building codes. Building codes are administered at a community level and the federal government cannot mandate the level of code enforcement in states or communities. Although the process of developing building codes is often initiated at the state level through a legislative and public policy process, the final adoption and enforcement of a building code is a local responsibility; local building officials are responsible for enforcing the latest building codes within their jurisdiction.

Rather than create and maintain their own codes, most states and local jurisdictions adopt model codes that are created on a national or international level by standards-developing organizations, and amend them where needed prior to adoption into state laws and local ordinances, making compliance a requirement for builders and building owners. Model codes are transformed into law when local governments enact them.

Building codes set out what can be built, and how, but generally do not address the question of where to build; this must be done through land use planning or other policy actions. Building codes may only regulate new construction, without addressing the issue of retrofitting older buildings built before the code was implemented. Except in certain circumstances,[498] the code requirements for existing buildings are those that were in effect when the structure was designed and constructed.[499] Adoption of new codes does not require retrofitting older buildings, and legislation or regulations may not require, or may prohibit, the application of new building codes until the building has suffered a pre-determined amount of damage. For example, when a building is determined by a community to be substantially damaged[500] following a flood, floodplain management standards adopted by local communities can require the building to be rebuilt to current floodplain management requirements, even if the property previously did not need to do so.

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[494] For more information on building codes, contact Diane P. Horn, Analyst in Flood Insurance and Emergency Management.

[495] PRDOH, *Action Plan for the Use of CDBG-DR Funds* (Amendment 5), p. 18.

[496] PRDOH, *Action Plan for the Use of CDBG-DR Funds* (Amendment 5), p. 95.

[497] See, for example, FEMA, *2018-2022 Strategic Plan*, p. 14, https://www.fema.gov/sites/default/files/2020-03/fema-strategic-plan_2018-2022.pdf.

[498] This may occur when a building is significantly renovated or altered, or there is a change in use that triggers an update by the International Building Code (IBC) or International Existing Building Code (IEBC).

[499] FEMA, "Frequently Asked Questions, Building Codes Toolkit," January 29, 2014, p. 2, https://www.fema.gov/media-library-data/20130726-1902-25045-9664/building_codes_toolkit_faq_508.pdf.

[500] 44 C.F.R. §59.1 defines "substantial damage" as damage of any origin sustained by a structure whereby the cost of restoring the structure to its before-damaged condition would equal or exceed 50% of the market value of the structure before the damage occurred.

Risk reduction from the implementation of building codes is due to both the extent of the code as it applies to new construction and the degree of local adoption and enforcement, as the implementation of provisions of a strict building code depend on both the permitting and the inspection process.[501]

The Insurance Institute for Business and Home Safety (IBHS)[502] has produced a suite of design standards labelled FORTIFIED Home, a set of performance-based engineering and building standards designed to help strengthen new and existing homes through the installation of specific building upgrades that reduce damage from hurricanes, hailstorms, low-level tornadoes, and severe thunderstorms. These include the FORTIFIED Home Hurricane Standards, FORTIFIED Home High Wind and Hail Standards, and FORTIFIED Home High Wind Standards.[503] Each of these standards provides three optional levels to exceed I-Code design requirements. These are known as bronze, silver, and gold, with gold representing the highest standard. The gold hurricane designation, for example, aims to minimize damage and loss resulting from a category 3 hurricane. Switching from conventional construction standards to FORTIFIED standards has been shown to increase the resale value of a home by 6.8%.[504]

The IBHS has produced three *Rating the States* reports which assess elements of code enforcement and administration and contractor licensing in the states and jurisdictions that are most vulnerable to hurricanes. These reports rate each state on a 100-point scale, and consider factors such as:

- a state's current residential building code;
- the processes in effect to ensure universality of code application without weakening amendments;
- state and local enforcement; and
- licensing and education of building officials, contractors, and subcontractors who implement building code provisions.[505]

The IBHS did not assign a score to Puerto Rico, noting the difficulty of obtaining reliable information regarding the effectiveness of building code administration and enforcement programs to strengthen residential buildings against high winds and flooding.

[501] Ellen Vaughan and Jim Turner, *The Value and Impact of Building Codes*, 2014, pp. 1-27, http://www.coalition4safety.org/ccsc-toolkit/.

[502] The Insurance Institute for Business and Home Safety (IBHS) is a non-profit organization supported by property insurers and reinsurers that conducts research to identify and promote the most effective ways to strengthen buildings and communities against natural disasters and other causes of loss. See https://disastersafety.org/ for further information.

[503] IBHS, *FORTIFIED Standards*, 2015, https://ibhs.org/guidance/fortified-construction-standards/. Additional information about the "FORTIFIED: New IBHS Commercial Construction Tools Protect the Bottom Line" can be found at https://www.mylosscontrolservices.com/documents/loss-control-library/ibhs-fortified-commercial-construction-standards.

[504] Sebastain Awando et al., *Estimating the Effect of FORTIFIED Home Construction on Home Resale Value*, Alabama Center for Insurance Information and Research, 2016, p. 4, https://www.smarthomeamerica.org/resources/the-effect-of-fortified-construction-on-home-resale-value.

[505] IBHS, Rating the States 2018: An Assessment of Residential Building Code and Enforcement Systems for Life Safety and Property Protection in Hurricane-Prone Regions, Atlantic and Gulf Coast States, March 2018, p. 5, https://ibhs.org/wp-content/uploads/wpmembers/files/Rating-the-States-2018_IBHS.pdfhttp://disastersafety.org/wp-content/uploads/2018/03/ibhs-rating-the-states-2018.pdf.

Building Codes in Puerto Rico

The 2011 Puerto Rico Building Code (PRBC) was the building code in force for residential and commercial structures at the time of the 2017 hurricanes. The PRBC was based on the 2009 edition of the International Residential Code (IRC) with local amendments. The PRBC provided structural provisions for reinforced concrete design, as well as masonry construction built to withstand the wind load from a three-second gust of 145 mph,[506] but these provisions were not mandatory and the extent to which these standards were applied throughout Puerto Rico is unclear.[507] The 2011 code also included requirements for earthquake loads.

In response to the 2017 hurricanes, Puerto Rico stated that it intended to require rebuilding methods that:

- produced stronger and more resilient properties that are better able to reduce the risk from future disasters, rather than rebuilding to pre-storm standards;
- increased resilience in the face of natural hazards and address the risk of potential future hazards;[508] and
- incorporated an industry-recognized standard for building resilient or disaster-resistant structures in any new construction or substantial rehabilitation projects.[509]

In November 2018, Puerto Rico adopted the 2018 ICC family of I-Codes, and enacted legislation that directed the Construction Codes Review Committee[510] to revise Puerto Rico building codes on a three-year cycle.[511] Puerto Rico Codes 2018, Regulation No. 9049,[512] contains requirements for wind, flood, and earthquake loads. The Puerto Rico Permits Management Office is in the process of reviewing the Puerto Rico Building Codes to adopt the 2018 ICC codes.[513] As required by FEMA, the government of Puerto Rico intends to use the recovery period to address the problem of informal housing.[514]

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[506] A three-second gust speed of 145 mph corresponds to a category 3 hurricane on the Saffir-Simpson scale. See ASCE/SEI 2005, Minimum Design Loads for Buildings and Structures, ASCE/SEI 7-05, p. 33, https://ascelibrary.org/doi/book/10.1061/9780784408094.

[507] IBHS, Rating the States 2018: An Assessment of Residential Building Code and Enforcement Systems for Life Safety and Property Protection in Hurricane-Prone Regions, Atlantic and Gulf Coast States, March 2018, p. 25, https://ibhs.org/wp-content/uploads/wpmembers/files/Rating-the-States-2018_IBHS.pdf.

[508] See PRDOH, *Action Plan for the Use of CDBG-DR Funds* (Amendment 3), p. ix.

[509] PRDOH, *Action Plan for the Use of CDBG-DR Funds* (Amendment 2).

[510] The Construction Codes Committee was established in 2017, and is comprised of representatives from the Construction Council of Puerto Rico, regulatory government agencies, and FEMA. The committee was responsible for the review and transition from the 2011 to 2018 building codes. See Juan Nieves, *Puerto Rico's New Building Codes Are Creating a More Resilient Island*, https://www.dewberry.com/news/blog/post/blog/2019/06/27/puerto-ricos-new-building-codes-are-creating-a-more-resilient-island.

[511] Law 2018-109. This refers to Puerto Rico law number 109, which passed in 2018.

[512] See *9049 - Puerto Rico Codes 2018*, https://ogpe.pr.gov/freedom/publicSearch/publicDocument?sort=name&max=10&order=asc.

[513] PRDOH, *Action Plan for the Use of CDBG-DR Funds* (Amendment 3), p. 115.

[514] Governor of Puerto Rico, *Build Back Better Puerto Rico*, Request for Federal Assistance for Disaster Recovery, San Juan, PR, November 13, 2017, p. 12, https://media.noticel.com/o2com-noti-media-us-east-1/document_dev/2017/11/13/Build%20back%20better%20Puerto%20Rico_1510595877623_9313474_ver1.0.pdf (hereinafter Governor of Puerto Rico, *Build Back Better Puerto Rico*).

Wind Building Codes

The IBC adopts standards developed by the American Society of Civil Engineers (ASCE) Structural Engineering Institute (ASCE/SEI) to specify minimum design loads for wind, earthquake, and flood.[515] The wind-related provisions developed by the ASCE/SEI provide the methodology for determining design wind pressures and forces, the design wind speed, and requirements for windborne debris protection. Buildings are designed to withstand a certain wind speed (the design wind speed) based on historic wind speeds documented for different geographic areas. The wind loads prescribed for a particular structure are dependent on both the geographic location of the building and the wind hazard maps published at the time of design.[516] These wind maps describe the relationship between the frequency and severity of winds that will affect the building in the future, and the wind speeds that a building in a given area should be able to withstand.[517]

High winds in the 2017 hurricanes caused severe damage, particularly to structures that were not built to code.[518] The building codes in force at the time of Hurricanes Irma and María specified a design wind speed of 145 mph for all of Puerto Rico. A 2018 study for the Puerto Rico Planning Board recommended that a design wind speed of 187 mph be applied for the whole island.[519] The design wind speed for new buildings in Puerto Rico under the 2018 I-Codes ranges from 150 to 200 mph, depending on structure type and risk category.[520]

Flood Building Codes

Standards for buildings in the floodplain to protect against flood risk are generally based on the minimum standards required by FEMA for participation in the National Flood Insurance Program (NFIP). Key conditions of the NFIP minimum standards include, among many other conditions, that communities:

1. require permits for development in Special Flood Hazard Areas (SFHA);
2. require elevation of the lowest floor of all new residential buildings in the SFHA to be at or above the Base Flood Elevation (BFE);[521]
3. restrict development in the regulatory floodway to prevent increasing the risk of flooding; and

[515] These are included in a broader set of guidelines called *Minimum Design Loads for Buildings and Other Structures*, commonly referred to as ASCE 7. See https://www.asce.org/asce-7/.

[516] PRDOH, *Action Plan for the Use of CDBG-DR Funds* (Amendment 2), p. 94.

[517] PRDOH, *Action Plan for the Use of CDBG-DR Funds* (Amendment 2), p. 51.

[518] FEMA, Mitigation Assessment Team Compendium Report. 2017 Hurricane Season: Building Performance Observations, Recommendations, and Technical Guidance, FEMA P-2054, September 30, 2019, p. ES-4, https://www.fema.gov/sites/default/files/2020-07/mat-report_2017-hurricane-season.pdf.

[519] *Puerto Rico Cost and Constructability Report: Impacts of Updating the Natural Hazard Provisions of the 2011 Puerto Rico Building Code for Residential Buildings Using the 2018 International Residential Code (IRC) as the Base Code*. Report provided to CRS by FEMA Congressional Affairs staff, February 25, 2020.

[520] See International Code Council, "Puerto Rico," https://www.iccsafe.org/about-icc/government-relations/map/puerto-rico/.

[521] The Base Flood Elevation is the elevation of surface water resulting from a flood that has a 1% chance of being equaled or exceeded in any given year.

4. require certain construction materials and methods that minimize future flood damage.[522]

These standards are minimum requirements for NFIP participation, but states and communities can elect to adopt higher standards as a means of mitigating flood risk.

One of the main flood mitigation strategies in the NFIP regulations and I-Codes is the elevation of properties above the Base Flood Elevation (BFE). Such elevation above BFE is commonly referred to as freeboard. Since 2015, the I-Codes have required at least one foot of freeboard be incorporated into elevation requirements, and requirements may also exist for adding additional freeboard for critical facilities, depending on the type of facility and flood zone. Communities that use I-Codes have the option to establish a design flood elevation that exceeds I-Code standards.

Puerto Rico has participated in the NFIP since 1978, and approximately 58% of the total occupied housing units in Puerto Rico are in the SFHA.[523] Puerto Rico's floodplain management ordinance is the Puerto Rico Special Flood Hazard Areas Regulation (Planning Regulation 13), which became effective in January 2010. This ordinance enacted standards that are compliant with NFIP minimum requirements described above. However, the Puerto Rico floodplain management ordinance is not consistent with the standards included in the recently adopted 2018 ICC family of I-Codes, which require the minimum elevation of the lowest floor of a new building to be at least one to two feet above BFE, depending on the flood design class.[524] In addition, informal construction does not usually meet NFIP standards.[525]

The Puerto Rico Department of Housing (PRDOH) has expressed its intention to apply elevation standards for new construction, repair of substantially damaged structures, or substantial improvements to residential structures in the SFHA such that the lowest floor is at least two feet above the BFE. Substantially damaged structures in the SFHA will need to be reconstructed, elevated, or bought out. PRDOH will determine when elevation, as opposed to other strategies, is cost reasonable to promote a community's long-term recovery. PRDOH estimates a potential average cost of $44,307 for elevating a single-family wooden structure.[526]

Seismic Building Codes

The main objective of seismic building codes is to prevent structural collapse due to ground shaking and/or liquefaction. Seismic design requirements have increased in length and complexity with each new I-Code. The most recent recommended seismic provisions for new buildings require buildings to be able to withstand the ground acceleration leading to a 1% probability of structural collapse within a 50-year period.[527] Ground acceleration is a relatively

[522] See 44 C.F.R. §60, particularly 44 C.F.R. §60.3.

[523] Governor of Puerto Rico, *Build Back Better Puerto Rico*, p. 12.

[524] For more information, see ASCE 24-14, Flood Resistant Design and Construction, highlights for which are available at https://www.fema.gov/media-library-data/1436288616344-93e90f72a5e4ba75bac2c5bb0c92d251/ASCE24-14_Highlights_Jan2015_revise2.pdf.

[525] FEMA, *Mitigation Assessment Team Report. Building Performance Observations, Recommendations, and Technical Guidance*, p. 2-8.

[526] PRDOH, *Action Plan for the Use of CDBG-DR Funds* (Amendment 2), p. 101.

[527] FEMA, *National Earthquake Hazards Reduction Program (NEHRP) Recommended Seismic Provisions: Design Examples*, FEMA P-1050-1, Washington, DC, July 2016, pp. 2-4, https://www.fema.gov/media-library-data/1474320077368-125c7a1d1a3b864648554198526d671f/FEMA_P-1051.pdf. For more information, see CRS Report RL33861, *Earthquakes: Risk, Detection, Warning, and Research*.

simple design parameter which allows engineers to design a building to resist a certain horizontal force.[528]

Defining Peak Ground Acceleration (PGA)

Peak ground acceleration (PGA) is measure of how hard the earth shakes, or accelerates, and is commonly used in seismic hazard maps and earthquake engineering. PGA represents the largest increase in velocity recorded by a particular station during an earthquake and is usually expressed as a percentage of the acceleration due to gravity.

Source: Federal National Mortgage Association, United States Geological Survey (USGS) Peak Ground Acceleration (PGA) Calculator Tutorial, 2017, https://multifamily.fanniemae.com/media/7371/display.

The most common approach to making new buildings more seismically resilient—less likely to be damaged and more likely to be usable after an earthquake—is to design them with increased strength and stiffness. A stronger building is less likely to collapse, and a stiffer building is less likely to suffer nonstructural damage such as cracks in partition walls, broken windows, etc.[529] Stiffness is a measure of how much force is required to displace a building by a certain amount. A structure that is too stiff (often referred to as brittle) will be prone to failure under relatively small deformation demands. An example of a brittle structure is an unreinforced masonry building, which will tolerate very little displacement before the onset of damage and failure.[530] Strength is an indicator of the resistance of a substance before it deforms permanently or fractures.[531]

Reportedly, the 2011 Puerto Rico Building Code had incorporated seismic design parameters that were more restrictive than the ICC code upon which it was based, by adding amendments based on a study of the island's seismic history.[532] After adopting the 2018 ICC, rebuilding in Puerto Rico after the earthquakes will require an even higher seismic standard.

Building Codes for Multiple Hazards

Wood-framed second stories atop concrete ground floor structures are typical of informal construction, which has been built without analyzing the additional structural loads imposed on the first-floor house. Structures that are elevated on stilts or pilings to reduce flood risk may be more vulnerable to ground shaking during earthquakes, with concrete or wood-framed structures over column or pier foundations particularly at risk of failure during earthquakes, leading to

[528] USGS, Earthquake Hazards 201–Technical Q&A, https://www.usgs.gov/natural-hazards/earthquake-hazards/science/earthquake-hazards-201-technical-qa.

[529] Keith Porter, *Society Can Afford Seismically Resilient Buildings*, National Institute of Building Sciences, Working Paper, August 31, 2019, pp. 1-6, https://cdn.ymaws.com/www.nibs.org/resource/resmgr/mmc/mmc_workingpaper_porter.pdf.

[530] Andrew O'Donnell and Julia Krezel, *Ductility and Stiffness—What They Are and Why They Matter in an Earthquake*, AIR Worldwide, December 16, 2016, https://www.air-worldwide.com/blog/posts/2016/12/ductility-and-stiffness-what-they-are-and-why-they-matter-in-an-earthquake/ (hereinafter O'Donnell and Krezel, *Ductility and Stiffness*).

[531] O'Donnell and Krezel, *Ductility and Stiffness*.

[532] "Puerto Rico Permits Office Presents New Construction Code," *Caribbean Business*, January 24, 2020, https://caribbeanbusiness.com/puerto-rico-permits-office-presents-new-construction-code/.

foundation failure and/or structural collapse.[533] Post-disaster analysis has established that informally-constructed buildings are particularly prone to damage from compound disasters.[534]

A 2017 study by the Multihazard Mitigation Council of the National Institute of Building Sciences found that dependencies are likely to exist where strategies for mitigating more than one hazard are undertaken at a single facility or single system of facilities (e.g., buildings on a medical campus). They found that designing to exceed I-Code requirements could have multiple benefits. For example, designing to exceed 2015 I-Code earthquake requirements could reduce losses from fire following an earthquake, and could reduce losses from wind. Similarly, adopting a higher standard for wind might also reduce earthquake losses by improving the building's ability to resist lateral forces.[535]

[533] FEMA, Mitigation Assessment Team Compendium Report. 2017 Hurricane Season: Building Performance Observations, Recommendations, and Technical Guidance, FEMA P-2054, September 30, 2019, pp. 3-3 to 3-7, https://www.fema.gov/sites/default/files/2020-07/mat-report_2017-hurricane-season.pdf.

[534] FEMA, *Mitigation Assessment Team Report. Building Performance Observations, Recommendations, and Technical Guidance*, p. 1-7.

[535] Multihazard Mitigation Council, National Institute of Building Sciences, *Natural Hazard Mitigation Saves*, 2017 Interim Report, Washington, DC, December 2017, pp. 60-61, https://www.nibs.org/page/reports.

Appendix D. CRS Resources on Disaster Recovery Assistance and Puerto Rico's Recovery

For general information on the federal assistance programs described in this report, see

- CRS Report R41981, *Congressional Primer on Responding to and Recovering from Major Disasters and Emergencies*, by Bruce R. Lindsay and Elizabeth M. Webster;
- CRS Report R45484, *The Disaster Relief Fund: Overview and Issues*, by William L. Painter;
- CRS In Focus IF11529, *A Brief Overview of FEMA's Public Assistance Program*, by Erica A. Lee;
- CRS Insight IN11187, *Federal Emergency Management Agency (FEMA) Hazard Mitigation Assistance*, by Diane P. Horn;
- CRS In Focus IF10988, *A Brief Introduction to the National Flood Insurance Program*, by Diane P. Horn;
- CRS Insight IN10450, *Private Flood Insurance and the National Flood Insurance Program (NFIP)*, by Baird Webel and Diane P. Horn;
- CRS In Focus IF11298, *A Brief Overview of FEMA's Individual Assistance Program*, by Elizabeth M. Webster;
- CRS Report R46014, *FEMA Individual Assistance Programs: An Overview*, by Elizabeth M. Webster;
- CRS Report R41309, *The SBA Disaster Loan Program: Overview and Possible Issues for Congress*, by Bruce R. Lindsay;
- CRS Report R44412, *SBA Disaster Loan Program: Frequently Asked Questions*, by Bruce R. Lindsay;
- CRS Report R46475, *The Community Development Block Grant's Disaster Recovery (CDBG-DR) Component: Background and Issues*, by Michael H. Cecire and Joseph V. Jaroscak; and
- CRS Insight IN11389, *CDBG-DR Funding and Oversight: Puerto Rico*, by Joseph V. Jaroscak and Michael H. Cecire.

For additional information on the sources of recovery funding for Puerto Rico, see:

- CRS Report R45084, *2017 Disaster Supplemental Appropriations: Overview*, by William L. Painter; and
- CRS In Focus IF10755, *Major Disaster Assistance from the DRF: Puerto Rico*, by Bruce R. Lindsay.

For additional information on other recovery efforts, see:

- CRS Report R45263, *Puerto Rico—Status of Electric Power Recovery*, by Richard J. Campbell;
- CRS Insight IN10785, *Puerto Rico and Electric Power Restoration from Hurricane Maria*, by Richard J. Campbell; and

CRS Insight IN10764, *2017 Hurricanes and Army Corps of Engineers: Background for Flood Response and Recovery*, by Nicole T. Carter and Charles V. Stern.

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