United States Government Accountability Office

Report to Congressional Requesters

GAO

November 2017

DISASTER ASSISTANCE

Opportunities to Enhance Implementation of the Redesigned Public Assistance Grant Program

GAO Highlights

DISASTER ASSISTANCE

Opportunities to Enhance Implementation of the Redesigned Public Assistance Grant Program

Why GAO Did This Study

FEMA, an agency of the Department of Homeland Security (DHS), has obligated more than $36 billion in PA grants to state, local, and tribal governments to help communities recover and rebuild after major disasters since 2009. Further, costs are rising with disasters, such as Hurricanes Harvey, Irma, and Maria in 2017. FEMA recently redesigned how the PA program delivers assistance to state and local grantees to improve operations and address past challenges identified by GAO and others. FEMA tested the new delivery model in selected disasters and announced implementation in September 2017.

GAO was asked to assess the redesigned PA program. This report examines, among other things, the extent to which FEMA's new delivery model addresses (1) past workforce management challenges and assesses future workforce needs; and (2) past information sharing challenges and key IT management controls. GAO reviewed FEMA policy, strategy, and implementation documents; interviewed FEMA and state officials, PA program applicants, and other stakeholders; and observed implementation of the new model at one test location following Hurricane Matthew in 2016.

What GAO Recommends

GAO is making five recommendations, including that FEMA assess the workforce needed for the new delivery model and improve key IT management controls for its new information sharing and case management system, FAC-Trax. DHS concurred with all recommendations.

What GAO Found

The Federal Emergency Management Agency (FEMA) redesigned the Public Assistance (PA) grant program delivery model to address past challenges in workforce management, but has not fully assessed future workforce staffing needs. GAO and others have previously identified challenges related to shortages in experienced and trained FEMA PA staff and high turnover among these staff. These challenges often led to applicants receiving inconsistent guidance and to PA project delays. As part of its new model, FEMA is creating consolidated resource centers to standardize and centralize PA staff responsible for managing grant applications, and new specialized positions, such as hazard mitigation liaisons, program delivery managers, and site inspectors, to ensure more consistent guidance to applicants. However, FEMA has not assessed the workforce needed to fully implement the new model, such as the number of staff needed to fill certain new positions, or to achieve staffing goals for supporting hazard mitigation on PA projects. Fully assessing workforce needs will help to ensure that FEMA has the people and the skills needed to fully implement the new PA model and help to avoid the long-standing workforce challenges the program encountered in the past.

FEMA designed a new PA information and case management system—called the FEMA Applicant Case Tracker (FAC-Trax)—to address past information sharing challenges, such as difficulties in sharing grant documentation among FEMA, state, and local officials and tracking the status of PA projects, but additional actions could better ensure effective implementation. Both FEMA and state officials involved in testing of the new model stated that the new information system allows them to better manage and track PA applications and documentation, which could lead to greater transparency and efficiencies in the program. Further, GAO found that this new system fully addresses two of four key information technology (IT) management controls—project planning and risk management—that are necessary to ensure systems work effectively and meet user needs. However, GAO found that FEMA has not fully addressed the other two controls—requirements development and systems testing and integration. By better analyzing progress on high-level user requirements, for example, FEMA will have greater assurance that FAC-Trax will meet user needs and achieve the goals of the new delivery model.

Enhancements to the Federal Emergency Management Agency's (FEMA) Public Assistance Program under the New Delivery Model

Workforce management	Information systems	Preaward process
New specialized positions / Training tailored to new positions	FEMA Applicant Case Tracker (FAC-Trax) / New management capabilities	Consolidated Resource Center / Earlier discussion of hazard mitigation
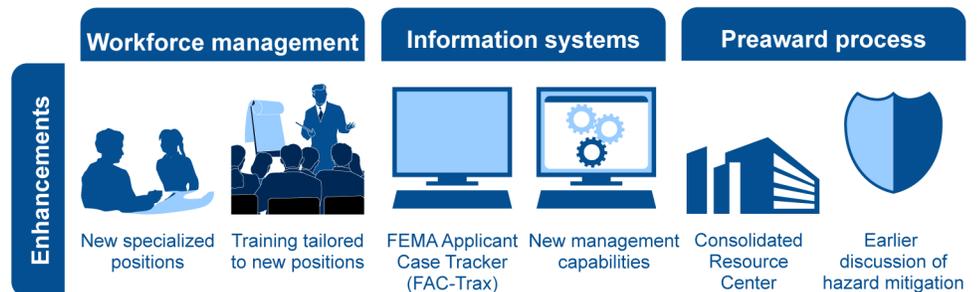
Source: GAO analysis of FEMA documentation; Art Explosion (clip art). | GAO-18-30

Contents

Figures

Abbreviations

CRC	Consolidated Resource Center
DHS	Department of Homeland Security
EMMIE	Emergency Management Mission Integrated Environment
FAC-Trax	FEMA Applicant Case Tracker
FEMA	Federal Emergency Management Agency
FIMA	Federal Insurance and Mitigation Administration
IT	information technology
JFO	Joint Field Office
MOU	memorandum of understanding
OIG	Office of the Inspector General
PA	Public Assistance
PMBOK® Guide	Program Management Institute's Guide to the Project Management Body of Knowledge

November 8, 2017

Congressional Requesters

In August 2017, Hurricane Harvey caused catastrophic and unprecedented flooding across southeast Texas and into Louisiana. While federal agencies support the evacuation, rescue, and relief to hundreds of thousands of residents, projections of damages exceed $50 billion. In the weeks that followed, Hurricanes Irma and Maria brought winds and storm surge, which caused damage across the U.S. Virgin Islands, Puerto Rico, and the southeast United States, adding to the projected disaster costs. These events are emblematic of a trend of rising costs from natural disasters. In both 2016 and 2017, 15 separate U.S. disasters resulted in losses exceeding $1 billion each. Each year, the federal government obligates billions of dollars to programs and activities that provide assistance to state and local governments, tribes, certain nonprofit organizations, and individuals that have suffered injury or damages from major disaster or emergency incidents, such as hurricanes, tornados, or fires. We reported in 2016 that the federal government obligated at least $277.6 billion in disaster assistance during fiscal years 2005 through 2014[1] and have recognized the rise in the number—and the increase in severity—of disasters as a key source of federal fiscal exposure.[2]

The Federal Emergency Management Agency (FEMA), a component of the Department of Homeland Security (DHS), leads the federal effort to mitigate, respond to, and recover from disasters, both natural and manmade. FEMA's Public Assistance (PA) grant program provides financial assistance to state, tribal, territorial, and local governments for debris removal; emergency protective measures; and the repair, replacement, or restoration of disaster-damaged, publicly owned facilities.

---

[1]GAO, *Federal Disaster Assistance: Federal Departments and Agencies Obligated at Least $277.6 Billion during Fiscal Years 2005 through 2014*, GAO-16-797 (Washington, D.C.: Sept. 22, 2016).

[2]The term fiscal exposure refers to the responsibilities, programs, and activities that may either legally commit the federal government to future spending or create the expectation for future spending. See GAO, *Fiscal Exposures: Improving Cost Recognition in the Federal Budget,* GAO-14-28 (Washington, D.C.: Oct. 29, 2013). Also, see GAO's Federal Fiscal Outlook web page:
http://www.gao.gov/fiscal_outlook/federal_fiscal_outlook/overview.

For example, flooding across northern and central California in early February 2017 resulted in substantial property and infrastructure damage, including severe damage to the Oroville Dam spillway. Shortly thereafter, the governor of California requested federal assistance, and the President subsequently issued an emergency declaration that made funding available for repairs to the spillway through the PA program.[3] PA is FEMA's largest disaster assistance grant program and from fiscal years 2009 through 2016, the agency obligated more than $36 billion in grants for such projects.

PA is a complex and multistep grant program administered through a partnership between FEMA and the state grantee, which provides funding to local officials who are the subrecipients of a PA grant award. Thus, it entails an extensive paperwork and review process between FEMA and grantee officials based on specific eligibility rules that outline the types of damage that can be reimbursed by the federal government and steps that federal, state, and local governments must take in order to document eligibility. Due in part to the complexity of the process, we identified a number of past challenges in various aspects of the program. Specifically, we assessed the PA program in 2008 during the Gulf Coast states' recovery from Hurricanes Katrina and Rita.[4] We identified a number of challenges related to FEMA's management of its PA workforce, including lack of training and high turnover among PA staff, which led to project delays and other problems. We also identified challenges related to information sharing between FEMA and PA grant applicants, which led to problems in tracking the status of projects, among other things. Moreover, in 2015 we identified challenges in effectively incorporating mitigation into PA projects and grant guidance during the recovery from Hurricane Sandy in the northeastern United States.[5] To address these various challenges, we have made a number of recommendations, and FEMA

---

[3]FEMA, "California Potential Failure of the Emergency Spillway at Lake Oroville Dam (EM-3381)," accessed October 10, 2017, https://www.fema.gov/disaster/3381.

[4]GAO, *Disaster Recovery: FEMA's Public Assistance Grant Program Experienced Challenges with Gulf Coast Rebuilding,* GAO-09-129 (Washington, D.C.: Dec. 18, 2008).

[5]GAO, *Hurricane Sandy: An Investment Strategy Could Help the Federal Government Enhance National Resilience for Future Disasters*, GAO-15-515 (Washington, D.C.: July 30, 2015). Hazard mitigation is any sustained action taken to reduce or eliminate long-term risk to people and property from natural hazards and their effects. Section 406 of the Robert T. Stafford Disaster Relief and Emergency Assistance Act, as amended, allows FEMA to fund hazard mitigation projects related to the damaged elements receiving PA funding. 42 U.S.C. § 5172; 44 C.F.R. § 206.226.

GAO-18-30 Disaster Assistance

has taken or is taking various actions to address them, as we discuss later in this report.

In recent years, FEMA has taken steps to redesign the PA program to address past challenges and make the program easier for FEMA and grantee officials to manage. As part of this effort, FEMA redesigned processes for developing, reviewing, and approving grant applications. The agency is also developing new PA staff positions; implementing a centralized and standardized grant processing approach; and developing a new information system to better maintain and share grant documentation. FEMA officials also report taking steps to better incorporate hazard mitigation during the PA grant process. Taken together, these efforts represent FEMA's "new delivery model" for managing project development in the PA program, which we refer to as the preaward process.[6] FEMA has been testing the new delivery model at certain disaster locations since 2015, in preparation for implementing it nationwide for all new disasters.

In light of past challenges and recent changes to the PA program preaward process, you asked us to assess FEMA's progress in addressing these challenges and implementing the new delivery model. Specifically, this report addresses the extent to which FEMA designed the new delivery model to address previously identified challenges related to

1. managing its PA program workforce and the extent that FEMA assessed the workforce needed to fully implement the new delivery model;

2. information sharing between FEMA and grant applicants and the extent that FEMA's new information sharing system satisfies key information technology (IT) management controls; and

3. incorporating hazard mitigation into the PA grant process.

To address all three objectives, we reviewed prior reports from GAO, the DHS Office of the Inspector General (OIG), and FEMA's own internal assessments identifying past PA program management challenges related to workforce management, information sharing, and hazard mitigation. We compared information from these reports to information and documentation of FEMA's efforts to implement the new PA delivery

---

[6]This does not include program activities after the grant award, such as grants management, closeout, or appeals.

model to determine the extent that the new model is being designed to address these challenges. We also reviewed program documentation, such as after-action reports that FEMA developed after testing the new model in disaster locations.[7] We conducted 62 semistructured interviews with FEMA officials at headquarters and in two selected regions out of the 10 FEMA regional offices,[8] including interviews with members of FEMA's PA workforce at the centralized processing center in Denton, Texas, and the Joint Field Office (JFO) in Savannah, Georgia, for Hurricane Matthew recovery efforts in the state.[9] We identified relevant officials based on job title, responsibilities, and referrals from other officials. We asked questions to identify their role in the implementation of the new delivery model, their experiences with implementation, and their assessment of the benefits and challenges of the model as it relates to our objectives and scope. We also conducted 11 semistructured interviews with selected state officials responsible for PA operations, to include those with and without new delivery model experience.[10] Lastly, we conducted three

---

[7]According to program officials, the new delivery model after-action reports determine the strengths, potential best practices, and areas for improvement observed by personnel involved in the new delivery model implementation. Officials collected information for these reports through direct observation of the operation, by conducting workshops and interviews, and by cross-referencing other sources of feedback.

[8]We interviewed PA officials in Regions IV and VI. We selected Region IV officials because that region oversees disaster activities in Georgia where officials conducted the third test implementation of the new delivery model. We included Region VI because the regional officials are located in Denton, Texas; these officials did not manage the co-located centralized processing center, and did not have experience with a new delivery model test implementation at the time of our review.

[9]We selected the centralized processing center in Texas and PA operations in Savannah, Georgia, following Hurricane Matthew because these were the only processing center and disaster field office implementing the new delivery model at the time of our review. We reviewed documents from prior tests of the new delivery model in Iowa and Oregon and spoke to state officials responsible for PA activities in Oregon. We focused our assessment on PA operations in the test following Hurricane Matthew because it was the first test to include all of the key changes in the new delivery model at the time of our review.

[10]We selected six states without new delivery model experience through a companion GAO review of the PA program examining the appeals process, and included states with high levels of PA appeals. The six states are Florida, Louisiana, New Jersey, New York, Mississippi, and Texas. The responses of the officials from these states are not generalizable across all states. In addition, we conducted five interviews with state officials with experience in the new delivery model. Four of the five state officials we interviewed that had new delivery model experience included state emergency managers and hazard mitigation officers for both Oregon and Georgia. The fifth state official we spoke with was the director of the National Emergency Management Association, a stakeholder throughout the PA reengineering and a professional association representing state and local emergency management professionals.

semistructured interviews with randomly selected applicants who applied for PA funding after the Hurricane Matthew disaster in Georgia.[11] Although their responses are not generalizable across all applicants, they helped inform our understanding of the experiences of recipients using the new delivery model for the first time.

To address our first objective, we reviewed FEMA documentation, including the *2014 PA Program Realignment* report, the *PA Cadre Training Plan,* and after-action reports from different tests of the new delivery model implementation to identify key workforce management changes under the new model. We also reviewed position descriptions, job aids, and training materials developed by FEMA to support new workforce roles and responsibilities under the new model. As part of the interviews previously described, we interviewed officials managing workforce activities under the new delivery model, including a PA program coordinator for workforce. We compared FEMA's workforce management efforts under the new model to leading practices we have identified for business process reengineering[12] and strategic workforce management.[13]

To address our second objective, we reviewed documents related to FEMA's acquisition and development of the new information system for the PA program. We interviewed program staff, stakeholders, and officials from FEMA's Recovery Technology Programs Division that are responsible for developing the new system, to understand changes to information sharing under the new model. We then compared FEMA's development efforts to key IT management control practices in the areas of risk management, requirements development, project planning, and systems testing and integration to determine the extent to which FEMA's

---

[11]Based on a list of applicants and projects provided by FEMA officials, we randomly selected applicants from different work categories to gain a diversity of project types, for example, including emergency work (such as debris removal) and permanent work projects (such as repairing dirt roads). While their views are not generalizable to all applicants and projects, they helped inform our understanding of the process.

[12]GAO, *Business Process Reengineering Assessment Guide*. GAO/AIMD-10.1.15 (Washington, D.C.: Apr. 1, 1997). This guide presents nine assessment issues organized in three major areas: Part A: Assessing the Agency's Decision to Pursue Reengineering, Part B: Assessing the New Process' Development, and Part C: Assessing Project Implementation and Results. Our evaluation focuses on Part C.

[13]GAO, *FEMA: Workforce Planning and Training Could Be Enhanced by Incorporating Strategic Management Principles,* GAO-12-487 (Washington, D.C.: Apr. 26, 2012).

efforts met these practices. We drew these key control practices from the Software Engineering Institute's *Capability Maturity Model® Integration for Acquisition and Development,* the Project Management Institute's *Guide to the Project Management Body of Knowledge (PMBOK® Guide),* and the Institute of Electrical and Electronics Engineers' (IEEE) *Standard for Software and System Test Documentation*.[14]

To address our third objective, we reviewed documentation such as FEMA PA policies and operations guidance related to incorporating hazard mitigation into PA projects, as well as process guides, job aids, and training materials developed under the new delivery model, to better understand how mitigation is addressed. In addition, we interviewed PA program officials; officials from FEMA's Federal Insurance and Mitigation Administration (FIMA), who assist PA officials to incorporate mitigation into the recovery process; and state officials involved with the second and third test implementations of the new model in Oregon and Georgia. We also reviewed after-action reports from the second and third test implementations of the new model and new delivery model performance measures in the *PA New Delivery Model Assessment Plan*. We then compared the information derived from the documentation and interviews to the goals and objectives identified in FEMA strategic plans, the National Disaster Recovery Framework, the National Mitigation Framework, and *Standards for Internal Control in the Federal Government,* to determine the extent that FEMA's new delivery model incorporates hazard mitigation planning into the PA process and includes goals aligned with broader FEMA mitigation goals.[15] Also, we obtained data from FEMA's existing PA information system—the Emergency Management Mission Integrated Environment (EMMIE)—on the number of PA projects that incorporated hazard mitigation in the third test implementation of the new delivery model in Georgia. We interviewed PA

---

[14]Software Engineering Institute, *Capability Maturity Model® Integration for Acquisition* (CMMI-ACQ), Version 1.3 (Pittsburgh, Pa.: November 2010) and *Capability Maturity Model® Integration for Development* (CMMI-DEV), Version 1.3 (Pittsburgh, Pa.: November 2010); Project Management Institute, Inc., *A Guide to the Project Management Body of Knowledge (PMBOK® Guide)*, 5th ed. (Newton Square, Pa.: 2013); Institute of Electrical and Electronics Engineers, *IEEE Standard for Software and System Test Documentation*, IEEE Standard 829™ 2008 (New York, N.Y.: July 18, 2008).

[15]GAO, *Standards for Internal Control in the Federal Government*, GAO-14-704G (Washington, D.C.: September 2014); Department of Homeland Security, *National Disaster Recovery Framework*, 2nd ed. (Washington, D.C.: June 2016); Department of Homeland Security, *National Mitigation Framework*, 2nd ed. (Washington, D.C.: June 2016).

program officials, reviewed OIG reviews of the EMMIE system, and reviewed related documentation and determined this EMMIE data was reliable for describing the rate of hazard mitigation in PA projects.

We conducted this performance audit from July 2016 to November 2017 in accordance with generally accepted government auditing standards. Those standards require that we plan and perform the audit to obtain sufficient, appropriate evidence to provide a reasonable basis for our findings and conclusions based on our audit objectives. We believe that the evidence obtained provides a reasonable basis for our findings and conclusions based on our audit objectives.
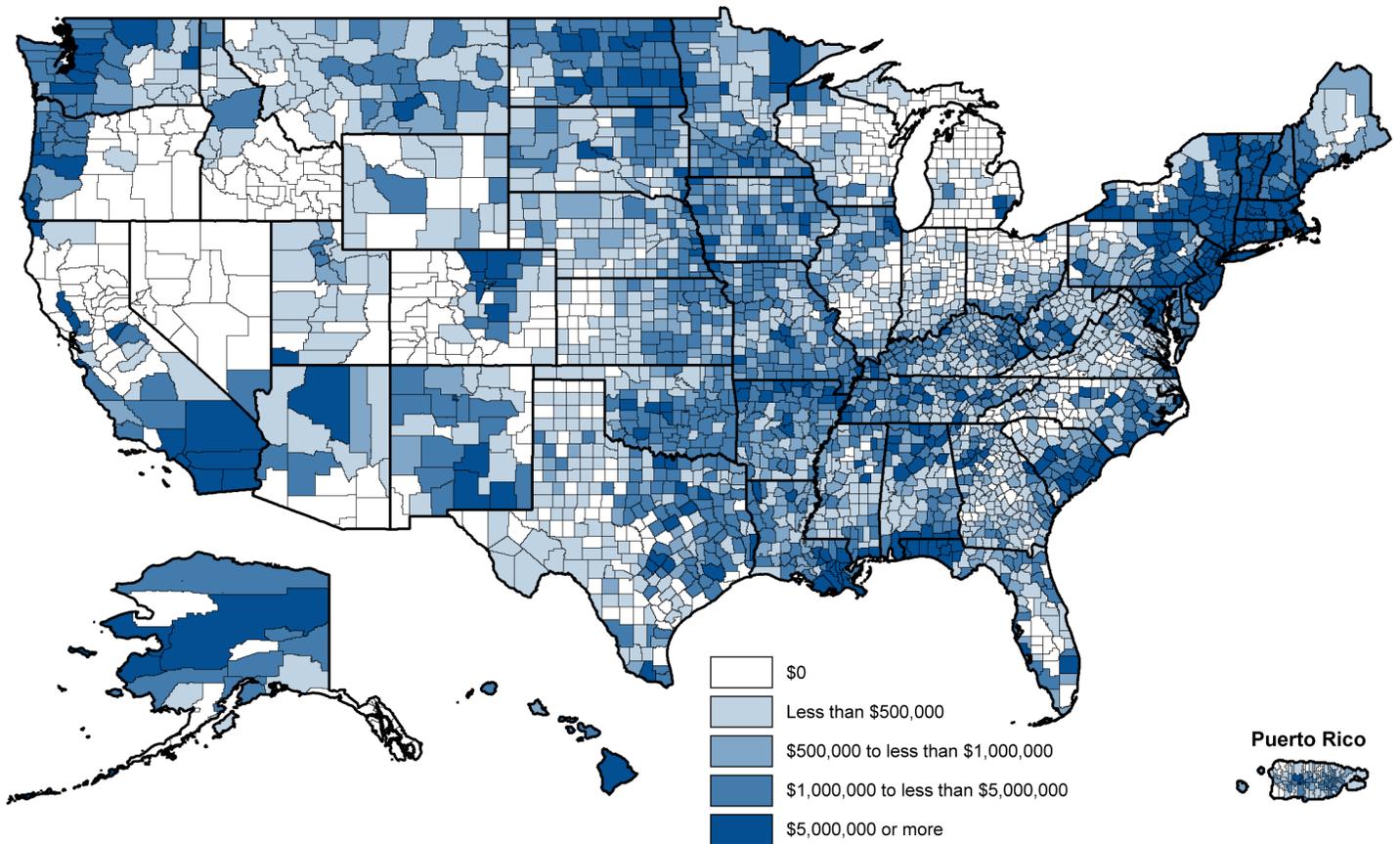
Background

FEMA's Public Assistance Grant Program

Major disaster declarations can trigger a variety of federal response and recovery programs for government and nongovernmental entities, households, and individuals.[16] FEMA's Office of Response and Recovery manages the PA grant program, providing funds to states, territorial governments, local government agencies, Indian tribes, authorized tribal organizations, and certain private nonprofit organizations in response to presidentially declared disaster declarations to repair damaged public infrastructure such as roads, schools, and bridges.[17] Figure 1 shows the total amount of PA funds obligated by county from January 2009 through February 2017 for federal disaster declarations.

---

[16]Under the Stafford Act, the governor of a state may request a declaration of a major disaster when effective response and recovery are beyond the capabilities of the state and affected local governments. See 42 U.S.C. § 5170.

[17]To be eligible, a private nonprofit applicant must show that it has: a current ruling letter from the U.S. Internal Revenue Service granting tax exemption under sections 501(c), (d), or (e) of the Internal Revenue Code of 1954; or documentation from the state substantiating it is a non-revenue-producing, nonprofit entity organized or doing business under state law. 44 C.F.R. § 206.221(f). Additionally, the applicant must own or operate a private nonprofit facility, meaning any private nonprofit educational, utility, emergency, medical, or custodial care facility, including a facility for the aged or disabled, and other facility providing essential governmental type services to the general public, and such facilities on Indian reservations. 44 C.F.R. § 206.222(b).

Figure 1: Federal Emergency Management Agency (FEMA) Public Assistance Funds Obligated by County for Disaster Declarations from January 2009 to February 2017

$0

Less than $500,000

$500,000 to less than $1,000,000

$1,000,000 to less than $5,000,000

$5,000,000 or more

Puerto Rico

Source: GAO analysis of OpenFEMA data, accessed April 2017; MapInfo (map). | GAO-18-30

Note: This does not reflect total Public Assistance (PA) obligations because it does not include instances in which FEMA obligated PA funds to a statewide entity, such as a state department providing emergency protective measures, or the limited cases for which data were not available.

To implement the PA program, FEMA's staff includes a mix of temporary, reservist, and permanent employees under two authorities, the Stafford Act and Title 5.[18] Reservists make up the largest share of the PA workforce, which consisted of 1,852 employees—1,041 reservists, 634 full-time equivalents, and 177 temporary Cadre of On-Call

---

[18]See 42 U.S.C. § 5149 (providing for the appointment of temporary personnel, experts, and consultants to carry out the purposes of the Stafford Act). Generally, Title 5 refers to the section of the United States Code that establishes the law for managing human resources in the federal government.

Response/Recovery Employees—as of June 2017, according to PA officials. Figure 2 summarizes the key characteristics for each type of employee.

Figure 2: Summary of Employee Types in the Federal Emergency Management Agency (FEMA) Public Assistance (PA) Workforce

Stafford Act employees		Title 5 employees
Reservists	**Cadre of On-Call Response/Recovery Employees**	**Permanent**
FEMA deploys reservists to work on an intermittent basis as needed to fulfill incident management roles within the PA "cadre." Deployments last an average of 30 days, but depend on disaster needs.	These are temporary employees with 2- to 4-year appointments. Based on their qualifications, FEMA can deploy these employees to fulfill any role related to the incident for which they are hired.	Full- or part-time employees make up FEMA's day-to-day workforce responsible for administering the agency's ongoing program activities in headquarters and regional offices. During disasters, FEMA can deploy these employees as needed.

FEMA augments its workforce through specialized contractors, known as PA Technical Assistance Contractors, and other individuals as needed for disaster operations. For example, the Department of Homeland Security (DHS) Surge Capacity Force is comprised of DHS and other federal employees who volunteer to deploy for disaster operations. In addition, FEMA Corps are members of AmeriCorps National Civilian Community Corps who work under supervision of FEMA staff and can assist with PA activities.

Source: GAO summary of FEMA documents. | GAO-18-30

Note: A "cadre" is a group of FEMA employees organized by operational or programmatic functions and FEMA Qualification System positions that perform disaster-related activities during FEMA disaster operations. Based on their cadre, reservists' activities can include interviewing disaster survivors; conducting and verifying damage assessments; providing administrative, financial, and logistical support; and performing a wide variety of other tasks as identified by staffing needs and operational requirements. The Public Assistance cadre is one of 23 functional disaster cadres supporting FEMA programs.

After a disaster, FEMA sends PA program staff to the affected area to work with state and local officials to assess the damage prior to a disaster declaration. FEMA officials establish a temporary Joint Field Office (JFO) to house staff who will manage response and recovery functions after a declared disaster (including operations, emergency response and support

teams, planning, administration, finance, and logistics).[19] Once the President has declared a disaster, PA staff work with grant applicants to help them document damages, identify eligible costs and work, and prepare requests for PA grant funds by developing project proposals. These proposals may include proposals for hazard mitigation if the hazard mitigation work is related to the repair of damaged facilities, referred to as permanent work projects. Immediate emergency measures, such as debris removal, are not eligible for hazard mitigation. Officials then review and obtain approval of the projects prior to FEMA obligating funds to state grantees. Figure 3 describes the process used to develop, review, and obligate PA projects.

Figure 3: Public Assistance (PA) Grant Application Process

Source: GAO review of FEMA documents; Art Explosion (clip art). | GAO-18-30

Hazard Mitigation in the PA Program

In addition to rebuilding and restoring infrastructure to its predisaster state, the PA program can be used to fund hazard mitigation measures that will reduce future risk to the infrastructure in conjunction with the repair of disaster-damaged facilities.[20] There is no preset limit to the amount of PA funds a community may receive; however, PA hazard

[19]The JFO is a temporary federal multiagency coordination center established locally to facilitate field-level domestic incident management activities related to prevention, preparedness, response, and recovery when activated by the Secretary of Homeland Security. The JFO provides a central location for coordination of federal, state, local, tribal, nongovernmental, and private-sector organizations with primary responsibility for activities associated with threat response and incident support. For the purposes of this report, we examine only PA activities at the JFO.

[20]Mitigation measures for disaster-damaged facilities are funded under Section 406 of the Stafford Act. 42 U.S.C. § 5172. In contrast, FEMA's Hazard Mitigation Grant Program provides funds under Section 404 of the Stafford Act. Recipients can use Section 404 mitigation funds to provide protection to undamaged parts of a facility or to prevent or reduce damages caused by future disasters. The entire state, not just presidentially declared counties, may qualify for 404 mitigation projects. 42 U.S.C. § 5170c.

mitigation measures must be determined to be cost effective.[21] Some examples of hazard mitigation measures that FEMA has predetermined to be cost effective, if they meet certain requirements, include

- installing shut-off valves on underground pipelines so that damaged sections can be isolated during or following a disaster;
- securing a roof using straps, clips, or other anchoring systems in locations subject to high winds; and
- installing shutters on windows or replacing glass with impact-resistant material.

Applicants can also propose mitigation measures that are separate from the damaged portions of a facility, such as constructing floodwalls around damaged facilities to avoid future flooding. FEMA evaluates these proposals, considering how the proposed measure protects damaged portions of a facility and whether the measure is reasonable based on the extent of the damage, and determines eligibility on a case-by-case basis.[22]

FEMA's Federal Insurance and Mitigation Administration (FIMA) deploys a cadre of mitigation staff to help coordinate and implement hazard mitigation activities during disaster recovery, including PA hazard mitigation. A primary task of these staff is to identify and assess opportunities to incorporate hazard mitigation into PA projects. Generally, if an applicant seeks to incorporate hazard mitigation measures into a PA project, FIMA's hazard mitigation staff develop a hazard mitigation proposal.

---

[21]FEMA Public Assistance policy allows three different methods to test for cost-effective hazard mitigation. First, under the 15 percent rule, hazard mitigation measures may amount to up to 15 percent of the total eligible cost of repair work on a project. Second, certain hazard mitigation measures that have been predetermined to be cost-effective may qualify under the 100 percent rule, which permits the hazard mitigation as long as it does not exceed 100 percent of the eligible cost of the repair work on a project. Third, for measures that exceed eligible costs, the grantee or subgrantee must demonstrate that the measure is cost effective through an acceptable benefit/cost analysis methodology.

[22]The PA program also has other programs and policies that allow for or promote the use of risk reduction measures. For example, states can also receive funds through the PA Alternative Procedures program, under the authority of Stafford Act section 428, which provides flexibility and financial incentives, some of which can be used to enhance disaster resilience. See 42 U.S.C. § 5189f.

Previous Challenges and Recommendations Related to the PA Program

We, the DHS OIG, and others have reported past challenges with FEMA's management of the PA program related to workforce management, information sharing, and hazard mitigation.[23] For example, we reported in 2008 that the PA program had a shortage of experienced and knowledgeable staff, relied on temporary rotating staff, and provided limited training to their workforce, which impaired PA program delivery and delayed recovery efforts after Hurricanes Katrina and Rita.[24] We found that staff turnover, coupled with information sharing challenges, delayed projects when applicants had to provide the same information each time FEMA assigned new staff and that poorly trained staff provided incomplete and inaccurate information during their initial meetings with applicants or made inaccurate eligibility determinations, which also caused processing delays. We recommended that FEMA strengthen continuity among staff involved in administering the PA program by developing protocols to improve information and document sharing among FEMA staff. In response, in 2013 FEMA instituted a *PA Consistency Initiative,* which included hiring new managers for FEMA regional offices, stakeholder training on PA program administration, and using a newly developed internal website to allow staff to post and share information to address continuity and knowledge sharing concerns during disaster operations. FEMA also developed the *Public Assistance Program Delivery Transition Standard Operating Procedure* to facilitate the transfer of responsibility for PA program activities during cases of staff turnover during recovery operations. Despite FEMA's efforts to implement our recommendations, the DHS-OIG, in 2016, found continuing challenges after Hurricane Sandy with workforce levels, skills, and performance of reservists, who make up the majority of the PA workforce.[25]

---

[23]Additionally, GAO has identified such challenges with FEMA's management of the PA program since the early 1990s. GAO, *Earthquake Recovery: Staffing and Other Improvements Made Following Loma Prieta Earthquake*, GAO/RCED 92-141 (Washington, D.C.: July 30, 1992); GAO, *Disaster Assistance: Improvements Needed in Determining Eligibility for Public Assistance*, GAO/RCED-96-113 (Washington, D.C.: May 23, 1996); and GAO, *Disaster Assistance: Improvement Needed in Disaster Declaration Criteria and Eligibility Assurance Procedures*, GAO-01-837 (Washington, D.C.: Aug. 31, 2001).

[24]GAO-09-129.

[25]Department of Homeland Security, Office of Inspector General, *FEMA Can Enhance Readiness with Management of Its Disaster Incident Workforce*, OIG-16-127-D (Washington, D.C.: Sept. 2, 2016).

Regarding information sharing, in 2008, we also identified difficulties sharing documents among federal, state, and local participants in the PA process and difficulties tracking the status of projects. We recommended that FEMA improve information sharing within the PA process by identifying and disseminating practices that facilitate more effective communication among federal, state, and local entities. In response, FEMA proceeded with the implementation of a grant tracking and management system, called EMMIE, which was used previously in 2007. However, in subsequent years we found weaknesses in how FEMA developed the system and the DHS-OIG found that information sharing problems similar to the ones identified in our 2008 report persisted.[26]

Regarding hazard mitigation, we reported in 2015 that state and local officials experienced challenges in using PA hazard mitigation during the Hurricane Sandy recovery efforts because PA officials did not consistently prioritize hazard mitigation, and in some cases discouraged mitigation projects during the PA grant application process, among other challenges. We recommended that FEMA assess the challenges state and local officials reported, including the extent to which they can be addressed, and implement corrective actions, as needed.[27] In response to our recommendation, FEMA developed a corrective action plan that included actions and milestones for reviewing, updating, and implementing PA hazard mitigation policy.[28] FEMA also identified the PA new delivery model as a solution for some of the challenges state and local officials reported. Previously, the OIG also reported that PA program officials did not consistently identify eligible PA hazard mitigation projects, and that PA officials did not prioritize the identification of PA hazard mitigation opportunities at the onset of recovery efforts after the 2005 Gulf

---

[26]GAO, *Information Technology: FEMA Needs to Address Management Weaknesses to Improve Its* Systems, GAO-16-306 (Washington, D.C.: Apr. 5, 2016); Department of Homeland Security, Office of Inspector General, *FEMA's Process for Tracking Public Assistance Insurance Requirements*, OIG-12-18 (Washington, D.C.: Dec. 16, 2011); *FEMA Faces Challenges in Managing Information Technology*, OIG-16-10 (Washington, D.C.: Nov. 20, 2015).

[27]GAO-15-515.

[28]For example, in September 2016, FEMA published the *PA Required Minimum Standards Policy*, which generally requires, as a condition of assistance, that buildings eligible for repair, replacement, or construction located in hazard-prone areas will use, at a minimum, the hazard-resistant provisions referenced in nationally recognized building codes and standards.

Coast hurricanes.[29] See appendix I for a summary of findings and the status of our past recommendations on challenges with workforce management, information sharing, and hazard mitigation related to the PA program since our last review in December 2008.

FEMA's own internal reviews and outreach efforts have also identified similar challenges. For example, at FEMA's request the Homeland Security Studies and Analysis Institute assessed the effectiveness and efficiency of the PA program in 2011.[30] The institute's report outlined 3 key findings and 23 recommendations relating to the PA preaward process. For example, the report found that FEMA could enhance training programs to develop a skilled and experienced workforce; utilize technology and employ web-based tools to support centralized processing, transparency, and efficient decision making; and identify and address potential special considerations, such as hazard mitigation proposals, as early as possible in the preaward process to improve consistency. In 2014, PA program officials analyzed the PA grant process and used input from agency staff and officials involved in various aspects of the program to identify potential improvements. The resulting *Public Assistance Program Realignment* report found that challenges in workforce management, information sharing, and hazard mitigation continued, and included recommendations for improvement. For example, the report concluded that a shortage of qualified staff, high turnover, unclear organizational responsibilities, and inconsistent training were long-standing and continuing challenges that impaired the PA pre-award process. In addition, from January 2015 to April 2015, FEMA conducted extensive outreach with more than 260 stakeholders across FEMA headquarters, all 10 regions, 43 states, and 4 tribal nations to discuss challenges in the PA program and opportunities for improvement. For example, stakeholders identified challenges with ineffective information collection during the preaward process and suggested identifying special considerations, such as hazard mitigation, earlier in the PA process as an idea for improvement. In response, FEMA began redesigning the PA

---

[29]Department of Homeland Security, Office of Inspector General, *Assessment of FEMA's Public Assistance Program Policies and Procedures*, OIG-10-26 (Washington, D.C.: Dec. 8, 2009); and *Gulf Cost Recovery: FEMA's Management of the Hazard Mitigation Component of the Public Assistance Program*, OIG-10-28 (Washington, D.C.: Dec. 10, 2009).

[30]Homeland Security Studies and Analysis Institute, *Analysis of the FEMA Public Assistance (PA) Program*, RP10-17-11-03 (Arlington, Va.: Apr. 30, 2011).

preaward process to operationalize the results of its 2014 report and address areas for improvement identified through its outreach efforts.

The PA New Delivery Model

FEMA awarded a contract for program support to help PA officials implement a redesigned PA program in 2015.[31] This included a new process to develop and review grant applications, and obligate PA funds to states affected by disasters; new positions, such as a new program delivery manager who is the single point of contact throughout the grant application process; a new Consolidated Resource Center (CRC) to support field operations by supplementing project development, validation, and review of proposed PA project applications; and a new information system to maintain and share PA grant application documents.[32] As part of the new process, PA program officials identified the need to ensure that staff emphasize special considerations, such as hazard mitigation, earlier in the process. Taken together, these efforts represent FEMA's "new delivery model" for awarding PA program grants. Enhancements in the PA program under the new delivery model are presented in figure 4.

Figure 4: Enhancements to the Federal Emergency Management Agency's (FEMA) Public Assistance (PA) Program under the New Delivery Model
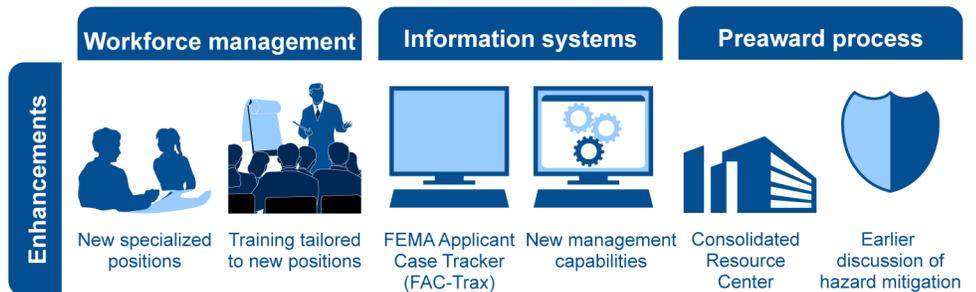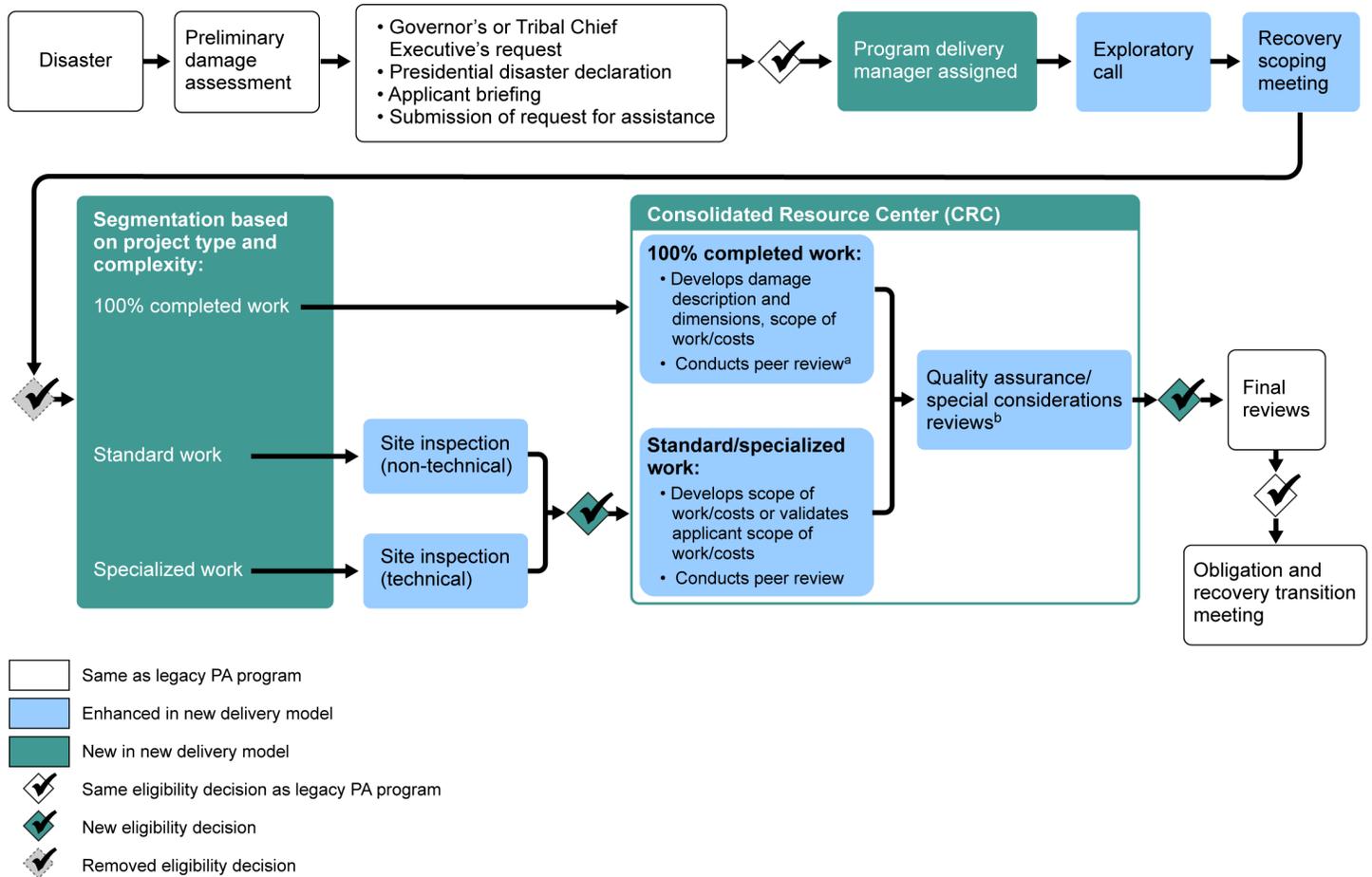

Source: GAO analysis of FEMA documentation; Art Explosion (clip art). | GAO-18-30

[31]PA officials entered into an indefinite-quantity contract for the supplies or services provided through five task orders from September 2015 through February 2017. The period of performance for the contract ended in August 2017, and the maximum allowable cost is approximately $5.5 million.

[32]While FEMA made changes to the PA process, the laws, regulations, and policies underlying the PA program were not changed.

Regarding the new delivery model process, FEMA introduced several changes to enhance outreach to applicants during the "exploratory call"—the first contact between FEMA and local officials—and during the first in-person meeting, called the "recovery scoping meeting." FEMA also revised decision points during the process, when program officials can request more information from applicants, and applicants can review and approve the completion of project development steps. FEMA also incorporated special considerations, such as hazard mitigation, earlier in the new process during the exploratory calls and recovery scoping meetings. The changes and enhancements to the PA grant award process in the new delivery model are presented in figure 5.

Figure 5: New Delivery Model Changes and Enhancements in the Public Assistance (PA) Grant Award Process

Same as legacy PA program

Enhanced in new delivery model

New in new delivery model

Same eligibility decision as legacy PA program

New eligibility decision

Removed eligibility decision

Source: GAO analysis of FEMA documentation. | GAO-18-30

[a]PA officials conduct peer reviews on 100 percent completed projects depending on the expertise of the specialist developing the project. Other specialists at the CRC check to ensure accuracy of the scope of work, cost estimates, and supporting documents for the project, and provide feedback on ways to improve work on future projects.

[b]In the PA program, special considerations include insurance, hazard mitigation, and environmental and historic preservation.

The new process divides proposed PA projects based on complexity and type of work into three categories—100 percent completed, standard, and specialized—that PA staff manage to expedite review or assign skilled staff to technical projects as needed. If the applicant has already completed work following a disaster, such as debris removal, it is considered "100 percent completed" and JFO staff collect the necessary documents and provide the information to the CRC staff who complete

the development of project applications, validate the information, and complete all necessary reviews. Projects that require repairs and further assistance from PA program staff at the JFO include "standard" and "specialized" projects, which include a site inspection to document damages, before the JFO staff provide the information to the CRC. Further, PA program officials assign PA staff based on their skills and experience to standard projects, which are less technically complex to develop, and specialized projects, which are more technically complex and costly. We discuss the new workforce positions FEMA developed for JFOs and CRCs, the new information system FEMA developed to maintain and share PA grant documents with applicants, and FEMA's efforts to incorporate hazard mitigation into PA projects later in this report.

Testing the New Delivery Model Prior to Full Implementation

Since 2015, FEMA has invested almost $9 million to redesign the PA program through the reengineering and implementation of the new delivery model, including about $4.7 million for contract support for implementation, and $4 million for acquisition of the new information system.[33] FEMA tested the new delivery model in a series of selected disasters, using a continuous process improvement approach to assess and improve the process, workforce changes, and information system requirements, prior to implementing the new model for all future disasters.[34] For example, FEMA first tested the new process in Iowa in July 2015 and, in February 2016, PA program officials expanded their test to include all of the new staff positions.[35] In October 2016, PA program officials added the new information system to achieve a comprehensive implementation of all of the elements of the new delivery model for the agency's response to Hurricane Matthew in Georgia, two additional disasters in Georgia in January 2017, and in Missouri, North Dakota, Wyoming, Vermont, and two disasters in New Hampshire from June
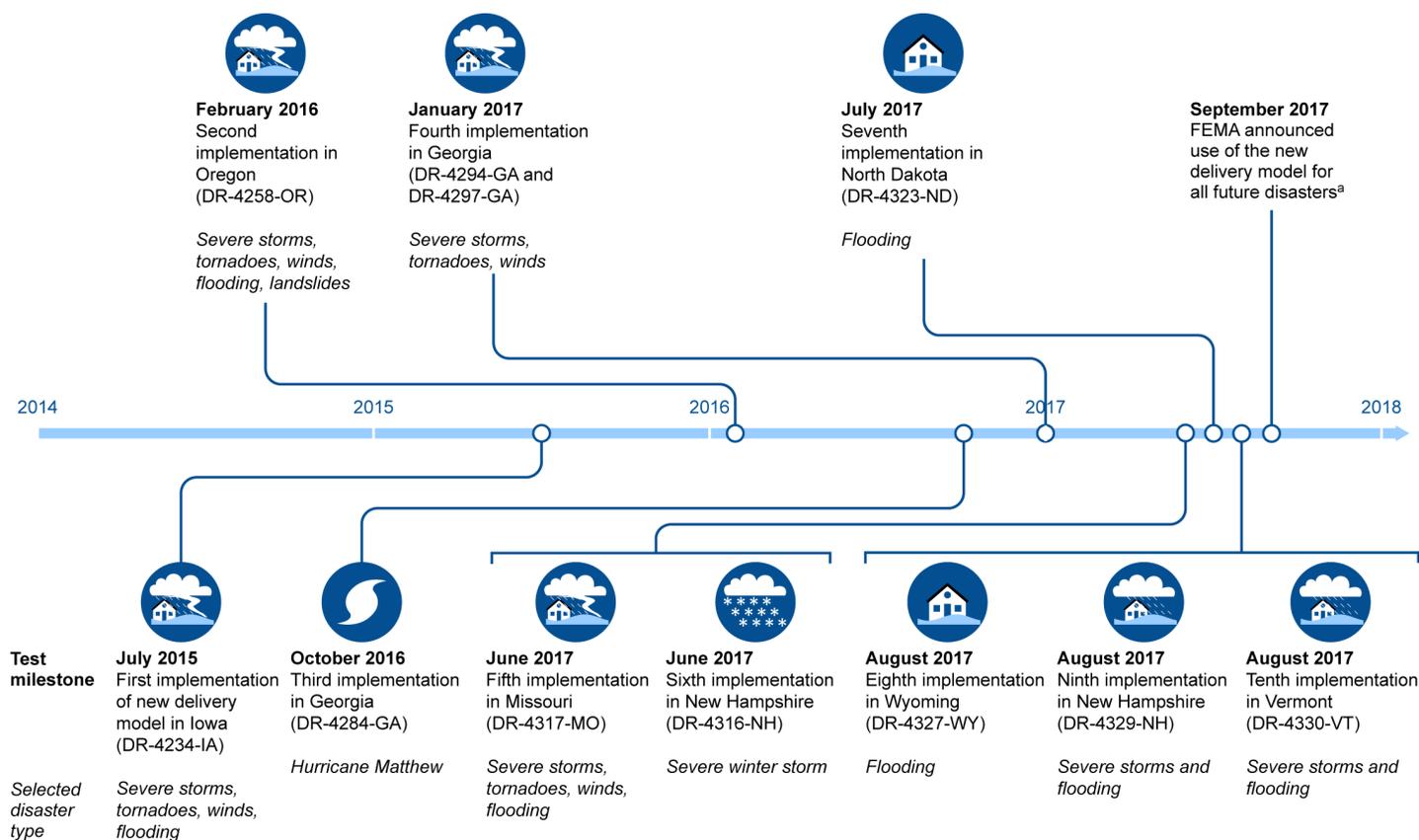
---

[33]According to PA managers, information system maintenance costs from fiscal year 2016 through fiscal year 2023 would be about $15 million, but total costs for the implementation effort are not known because officials involved in the implementation of the new delivery model manage these efforts as part of their regularly assigned disaster recovery and program management duties.

[34]FEMA selected the disasters based on the size and location of the disaster, along with the timing of its occurrence as it coincided with program officials' development of the elements of the new model.

[35]FEMA limited the scope of implementation to three categories of work—debris removal, emergency protective measures, and roads and bridges—during the first test implementation in Iowa.

through August 2017. The timeline for PA's implementation of the new delivery model is shown in figure 6.

Figure 6: The Federal Emergency Management Agency's (FEMA) Test Implementations of the New Delivery Model for Public Assistance

February 2016
Second implementation in Oregon (DR-4258-OR)

Severe storms, tornadoes, winds, flooding, landslides

January 2017
Fourth implementation in Georgia (DR-4294-GA and DR-4297-GA)

Severe storms, tornadoes, winds

July 2017
Seventh implementation in North Dakota (DR-4323-ND)

Flooding

September 2017
FEMA announced use of the new delivery model for all future disasters[a]

2014   2015   2016   2017   2018

Test milestone

July 2015
First implementation of new delivery model in Iowa (DR-4234-IA)

Selected disaster type

Severe storms, tornadoes, winds, flooding

October 2016
Third implementation in Georgia (DR-4284-GA)

Hurricane Matthew

June 2017
Fifth implementation in Missouri (DR-4317-MO)

Severe storms, tornadoes, winds, flooding

June 2017
Sixth implementation in New Hampshire (DR-4316-NH)

Severe winter storm

August 2017
Eighth implementation in Wyoming (DR-4327-WY)

Flooding

August 2017
Ninth implementation in New Hampshire (DR-4329-NH)

Severe storms and flooding

August 2017
Tenth implementation in Vermont (DR-4330-VT)

Severe storms and flooding

Source: GAO analysis of FEMA documentation. | GAO-18-30

Note: FEMA assigns "DR" or declaration numbers to all declared disasters. The format is DR, followed by a four-digit number, which reflects the type of disaster declaration, and the two-letter abbreviation for the state where the President declared the disaster.

[a]FEMA planned to implement the new model for all future disasters beginning in January 2018. However, historic disaster activity during hurricane season in 2017 accelerated this timeline.

According to program officials, FEMA planned to implement the new model for all future disasters beginning in January 2018. However, historic disaster activity during the 2017 hurricane season accelerated full implementation. As a result, on September 12, 2017, FEMA officials announced that, unless officials determined it would be infeasible in an

individual disaster, the program would use the new delivery model in all future disasters.[36]

FEMA Designed the New PA Delivery Model to Address Workforce Management Challenges, but Efforts to Support Full Implementation Could Be Enhanced

PA's New Delivery Model Was Designed to Respond to Previously Identified Workforce Challenges

According to FEMA's 2014 *PA Program Realignment* report and other program documents, PA officials designed the new delivery model to respond to persistent workforce management challenges related to identifying the required number of staff and needed skills and training, among other things, to improve the efficiency and effectiveness of the PA preaward process. To address these challenges, PA program officials centralized much of the responsibility for processing PA projects in the CRCs, created additional new positions with specialized roles and responsibilities in JFOs, and established training and mentoring programs to help build the new staffs' skills.

Centralized Roles at CRCs

In 2016, PA program officials centralized some of the project activities that otherwise were being carried out at individual JFOs at FEMA's first new CRC in Denton, Texas.[37] Officials did so by establishing 18 new positions, many of which directly correlated with positions that FEMA deployed to individual JFOs in the legacy PA delivery model. According to PA officials, centralizing positions will improve standardization in project processing, and result in a higher quality work product. As part of the new

---

[36]According to PA officials, Texas and Florida state officials requested that FEMA use the new delivery model in their states following Hurricanes Harvey and Irma.

[37]As of May 2017, PA program officials had begun hiring staff for a second CRC in Winchester, Virginia, and planned to complete hiring by the end of calendar year 2017.

delivery model, PA program officials created a new hazard mitigation liaison position for PA program staff at the CRC that did not previously exist at individual JFOs. The other new positions that PA program officials either created or centralized at the CRC included two specialized positions responsible for costing and validating PA projects. Previously, the PA project specialist deployed to the JFO would complete these tasks and others; however, the consistency of project development varied across the regions and disasters. In contrast, CRC staff are full-time employees who receive training to specialize in completing standardized project development steps for PA projects from multiple disasters on an ongoing basis.

"The Consolidated Resource Center improves the quality of projects and communication, allowing field staff to focus on customer service."
–Public Assistance program officials
Source: GAO. | GAO-18-30

Program officials anticipate that centralizing new specialized staff at the CRCs will also reduce PA administrative costs and staffing levels at the JFOs. For example, staff at the CRCs, such as the new hazard mitigation liaisons and insurance and costing specialists, could support project development for multiple disasters and regions simultaneously, whereas PA previously needed to deploy staff to each JFO to fulfill these roles. In addition, once JFOs operating under the new model send projects to the CRCs for processing and review, FEMA can more rapidly close its JFOs, reducing associated administrative costs.[38] For example, following Hurricane Matthew, FEMA credited the new delivery model, in part, with its ability to close the JFO in Georgia sooner than several other JFOs in neighboring states not involved in the implementation of the new delivery model.[39]

Specialized Roles at JFOs

"My program delivery manager was exceptional. He answered all my questions and helped me with the documentation."
–Georgia Public Assistance applicant
Source: GAO. | GAO-18-30

PA program officials created new positions with more specialized roles and responsibilities to help PA staff at JFOs provide more consistency in the project development process and guidance to applicants. Program officials split the broad responsibilities previously managed at the JFOs by PA crew leaders and project specialists, into two new, specialized positions—the program delivery manager and site inspector. The program

[38]FEMA officials estimated that, at full implementation, CRCs are expected to reduce overall disaster administrative costs in three major areas, including reducing the number and duration of deployments. Officials estimated that at least 25 percent and as much as 65 percent of staff would complete project development work from CRCs, saving on deployments costs, which can be as high as $68,000 per year per employee. According to the *PA New Delivery Model Assessment Plan*, officials plan to track data on the number and duration of deployments using their Deployment Tracking System, and coordinate with the FEMA Office of the Chief Financial Officer for administrative cost data.

[39]The JFO in Georgia closed on February 13, 2017, and the JFO in South Carolina closed on June 23, 2017. The JFOs in Florida and North Carolina were still open as of July 2017.

delivery manager serves as the applicant's single point-of-contact throughout the preaward process, manages communication with the applicant, and oversees document collection. All three PA grant applicants we spoke to following Hurricane Matthew in Georgia greatly appreciated the knowledge and assistance provided by their program delivery managers. Site inspectors are responsible for conducting the site inspection to document all disaster-related damages; determining the applicant's plans for recovery, coordinating with other specialists, and verifying the information collected with the applicant. Officials expect deployed staff at JFOs can complete the fieldwork faster and provide greater continuity of service to applicants. Further, program officials believe that specializing roles will enable them to provide more targeted training, and improve employee satisfaction.

New Training Courses and Mentoring

"Trainers and mentors are critical to helping staff learn the new delivery model."

–Public Assistance program official

Source: GAO. | GAO-18-30
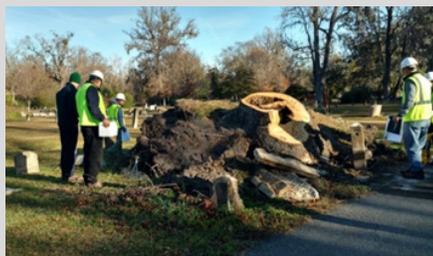
Site inspection, hazard mitigation, and environmental and historic preservation specialists, along with a new Public Assistance program mentor, conduct a site inspection with the applicant to document damages to a historic cemetery in Savannah, Georgia, following Hurricane Matthew in 2016.

Source: GAO. | GAO-18-30

PA program officials designed new training and mentoring programs for the new positions at the CRCs and JFOs and used a continuous feedback process to update and improve the training, position guides, and task books throughout the implementation of the new delivery model, according to PA officials.[40] According to a June 2017 update of the *PA Cadre Training Plan,* training for the new model has five major focuses: required training and skills for position qualification; on-site refresher training; mentor training; regional-based state, local, tribal, and territorial training; and training on the new information system. Specifically, officials developed six new training courses, and identified which are required for each position under the new delivery model. For example, a program delivery manager at the JFO is required to complete both the program delivery manager and site inspector specialist courses.[41] As of June 2017, PA program officials had provided at least one new model training course to 93 percent of their cadre (including program delivery manager training to 366 individuals and site inspector training to 1,172 individuals) and planned to provide 28 additional courses through September 2017 to the PA cadre. According to regional and CRC officials, the training

---

[40]The position guides, which PA program officials refer to as "position assists," are a resource for staff members that outline job requirements—tasks and performance expectations—of PA positions throughout the preaward process. Task books assign indicators of competencies to required tasks and behaviors. PA staff use task books to document proficiency in the identified competencies to meet job requirements.

[41]The six new courses are Site Inspector Specialist, Costing Specialist, Validation Specialist, Document Integrity Specialist, Program Delivery Manager, and PA Operations Management.

courses and mentoring from experienced staff helped maximize new staff's capabilities in the new process.

PA Officials Planned Additional Training to Address Issues Identified during Implementation

Throughout the third implementation of the new delivery model, JFO and CRC staff, as well as regional PA staff, stakeholders, and applicants, identified staff skills and training as a key area that needed more attention for full implementation of the new delivery model. Our work and FEMA's after-action reports from the third test in Georgia identified problems with site inspector skills, which affected the timeliness and accuracy of projects. Specialists and managers at the CRC noted that poorly trained site inspectors did not consistently provide the necessary information from the field, which resulted in delays for the CRC staff to process projects, and after-action reports also identified challenges with site inspector skills. According to a PA applicant in Georgia, the inconsistency of skills and experience of their site inspector resulted in the need to conduct a "do-over" site inspection on one of the applicant's projects, causing delays. PA staff and state officials attribute much of the site inspectors' skill gaps to their lack of training and experience in the program. According to PA Region officials, providing timely training will be a resource-intensive challenge for implementing the new delivery model for all future disasters. For example, it can be difficult to train reservists before FEMA deploys them to disasters, and many of the program's experienced reservists have retired or resigned, resulting in few mentors for the program and a high need to provide training to inexperienced and newly hired staff.

PA officials and stakeholders also emphasized the need for FEMA to provide additional training for state and local officials to build capacity and support the goals of the new delivery model. For example, according to JFO officials at the third implementation, the new delivery model increases responsibilities for applicants, who will require more applicant training than FEMA currently provides. According to state officials, applicant capabilities vary, and FEMA should provide training to state and local officials on the new delivery model and the information system before a disaster. Skill gaps among applicants could result in inconsistent implementation of the new process, according to PA staff and stakeholders, and PA staff said that training was important to prevent applicants from reverting back to the legacy PA grant application process.

To support full implementation of the new delivery model for all disasters, PA program officials have updated training courses for PA staff and applicants, and planned additional training to address these challenges and other lessons learned through the test implementation. For example,

PA officials told us they updated the site inspector training program in May 2017 and scheduled a new site inspector training session in August 2017 to include more hands-on training to help address the skill gaps identified for site inspectors. PA officials created a new training course for FEMA's regional offices, in part to enable regional PA staff to provide new delivery model training to state and local officials. PA officials also planned to develop a self-paced, online course for state and local officials by the end of 2017.[42]

Opportunities Exist to Enhance Workforce Assessment in the New Delivery Model

PA officials have not fully assessed the workforce needed for JFO field operations, CRC staff, or FIMA's hazard mitigation staff to support implementation of the new delivery model for all future disasters. PA program officials developed an initial assessment of the total number of staff needed in the field and the CRCs in 2016 to estimate cost savings associated with consolidating and specializing positions at the CRCs and deploying fewer staff to JFOs. However, the assessment did not identify the number of staff required to fill specific positions, including program delivery managers and hazard mitigation specialists, needed to support the new delivery model for full implementation. In reviewing the test implementations of the new delivery model, we found that inadequate staffing levels at the JFOs and CRCs, and with FIMA's hazard mitigation staff, affected staffs' ability to achieve the goals of the new delivery model.

- **Staff levels at the JFO.** We identified challenges with having the right number of program delivery managers and site inspection specialists to achieve program goals for customer satisfaction, efficiency, and quality in test implementations of the new delivery model. For example, in the second test implementation of the new delivery model in Oregon in 2016, PA did not deploy enough program delivery managers to the disaster, which resulted in unmanageable caseloads for program delivery managers, according to state and PA officials. PA program officials assigned program delivery managers an average

---

[42]Also, in response to a June 2017 DHS-OIG review of the PA program's efforts to address long-standing challenges with insurance specialists, FEMA noted that it plans to develop a course for insurance specialists under the new delivery model, to help specialists understand their roles and responsibilities, and track insurance requirements within the FAC-Trax information system. Department of Homeland Security, Office of the Inspector General, *Verification Review: FEMA's Lack of Process for Tracking Public Assistance Insurance Requirements Places Billions of Tax Dollars at Risk*, OIG-17-50-VR (Washington, D.C.: June 9, 2017).

caseload of 12 PA applicants, which was more than they could effectively manage, according to PA staff, and program officials aim for a caseload of 8 to 10 applicants. According to state officials, local officials reported they did not always receive the support they needed from program delivery managers who managed caseloads consisting of dozens of projects at multiple sites for each applicant during the Oregon implementation. As a result of overwhelmed program delivery managers, local officials faced challenges understanding their responsibilities, such as recognizing when they needed to provide information for the project development to proceed, according to state officials. PA staff involved with the third test implementation in Georgia in 2016 and 2017 said there were not enough site inspectors or program delivery managers to fully manage the workload at the JFO. Because of the specialization of roles, projects could not move forward when there were not enough staff to execute the next step in the process. For example, PA staff at the JFO said program delivery managers completed recovery scoping meetings rapidly, but faced a bottleneck in scheduling site inspections because there were more applicants awaiting site inspections than could be fulfilled by the number of site inspection specialists available.

- **Staff levels at the CRC.** Staff at the CRC reported challenges with staffing levels during the Oregon and Georgia test implementations, and expressed concerns about when PA officials will staff the CRCs to support full implementation of the new model for all disasters. During the Oregon test implementation, a CRC specialist said there were not enough technical specialists to manage the workload and, as a result, PA program officials had to redeploy site inspectors from their JFO field operations to the CRC to complete costing estimates. During the third test in Georgia, quality assurance specialists said that their workload resulted in added stress trying to complete the work in time while adhering to quality standards. According to CRC specialists in Denton, Texas, PA officials had not determined required staff levels for full implementation, but agreed that workload was too high and program officials needed to determine the appropriate staff levels for each CRC to support full implementation. PA officials were still evaluating CRC processing times and workload management from the Oregon and Georgia test implementations to determine staffing needs, according to PA officials. Further, PA program officials plan to establish a second CRC in Winchester, Virginia, before the end of 2017, but have not determined the number of additional permanent

full-time staff needed to support the CRCs for full implementation of the new delivery model.[43]

- **Staff levels for the hazard mitigation specialists.** PA officials have not identified the number of hazard mitigation specialists in FIMA's hazard mitigation cadre needed for full implementation of the new delivery model. According to JFO staff, current hazard mitigation staff levels are insufficient to provide the desired in-person participation of hazard mitigation staff on all recovery scoping meetings to share information on hazard mitigation with applicants and help them identify potential mitigation opportunities.[44] A PA program official said officials missed opportunities to pursue hazard mitigation during the test implementation after Hurricane Matthew in Georgia due to lack of hazard mitigation specialists. In addition, for the test implementation in Oregon, there were not enough hazard mitigation specialists to cover all site inspections and implement their new delivery model responsibilities, according to FEMA's after-action reports. The absence of hazard mitigation specialists in the early stages of PA project development may cause delays in officials' identifying hazard mitigation opportunities, according to a FIMA official. PA program officials said they did not work with FIMA to determine the appropriate levels of hazard mitigation staff under the new delivery model because they were refining the new process, but as of June 2017 were working with FIMA to do so.

One of the key implementation activities in our *Business Process Reengineering Assessment Guide* includes addressing workforce management issues. Specifically, this includes identifying how many and which employees will be affected by the position changes and retraining.[45] Further, our prior work has found that high-performing organizations identify their current and future workforce needs—including

---

[43]FEMA planned to establish the Denton and Winchester CRCs at two existing National Processing Service Centers, which are the centralized processing centers for FEMA's Individual Assistance Program, to minimize the associated infrastructure costs. Program officials planned for the Winchester CRC to be operational by April 2017, but experienced delays due to a hiring freeze early in 2017, according to program officials.

[44]The current workforce strength for the hazard mitigation cadre is approximately 980 staff, or approximately 45 percent of its workforce structure, with vacancies in about 55 percent of their cadre, according to officials. As of July 2017, FEMA is reassessing the workforce levels in light of the new delivery model and other challenges in the cadre, but did not specify when the assessment would be completed, according to PA program officials.

[45]GAO/AIMD-10.1.15.

the appropriate number and deployment of staff across the organization—and address workforce gaps, to improve the contribution of critical skills and competencies needed for mission success.[46]

According to a PA program official, their initial workforce assessment was not comprehensive because they were still collecting data required to make informed decisions. PA officials agreed that updating their workforce assessments prior to full implementation could be helpful, and acknowledged that program officials needed to be more proactive applying the lessons learned as they pivot from testing to full implementation of the new delivery model in 2018. FEMA also conducts a standard agency wide workforce structure review every 2 to 3 years, which helps officials determine the appropriate disaster workforce levels. As of June 2017, PA officials were working with other offices within FEMA to expedite the agency-wide assessment of the PA and FIMA hazard mitigation cadres, but did not know when they would complete the assessment. PA officials also acknowledged that they faced an aggressive schedule to complete various planned activities for workforce management, training, and other efforts, in support of full implementation, and that they may not be able to complete all efforts as thoroughly as they would like in order to expedite the transition of the PA program to the new delivery model.

The gaps in PA workforce assessment in the JFOs, CRCs, and for FIMA's hazard mitigation cadre present a risk that PA program managers will not have a sufficient workforce to support the goals of the new delivery model. In addition, the timing and implementation of the hiring and training activities for new PA program staff could take multiple months, and program officials will need to know what staff levels are necessary for full implementation of the new delivery model to inform resource decisions for the program in coordination with other agency offices. According to PA program officials, workforce assessment efforts have been delayed as a result of disaster response and recovery efforts related to Hurricanes Harvey, Irma, and Maria. Completing a workforce assessment will help program officials identify gaps in their workforce and skills, which could help PA program officials minimize the effects of long-standing workforce staffing and training challenges on the PA program delivery and inform full implementation for all disasters.

---

[46]GAO, *Human Capital: Key Principles for Effective Workforce Planning*, GAO-04-39 (Washington, D.C.: Dec. 11, 2003).

GAO-18-30 Disaster Assistance

FEMA Designed the New PA Information System to Resolve Past Challenges, but Opportunities Exist to Fully Implement Key Management Controls

FEMA's New PA Information System Is Designed to Resolve Long-Standing Information Sharing Challenges

As part of its new delivery model, PA developed a new information system called the FEMA Applicant Case Tracker (FAC-Trax)—a web-based project tracking and case management system—to supplement EMMIE and help resolve long-standing information sharing challenges.[47] As described earlier, in 2008 we recommended that FEMA improve collaboration and information sharing among federal, state, and local participants within the PA process by identifying and disseminating practices that facilitate more effective communication.[48] FEMA addressed our recommendation in 2008 with the implementation of EMMIE, which officials designed to facilitate communication among states, applicants, and the agency.[49] However, PA officials have since found EMMIE to have limitations that can delay the project development process and increase

---

[47]FAC-Trax is a web application, developed from commercially available off-the-shelf information technology products that FEMA and the contractor have adapted to meet PA program requirements. FEMA awarded the FAC-Trax contract in May 2016. The base year period encompasses the initial deployment of the solution through full operational capability for the PA program. However, as of May 2017, FAC-Trax has not yet reached full operational capability. EMMIE remains FEMA's system of record for PA grant awards, and other disaster grants, until the completion of the agency-wide Grants Management Modernization initiative planned for 2020.

[48]GAO-09-129.

[49]EMMIE is a web-based application that enables PA grantees and applicants to complete, submit, monitor, and manage PA applications online. FEMA first deployed EMMIE in December 2007, before using the system for all disasters in 2008. Prior to EMMIE, FEMA used the National Emergency Management Information System to electronically enter, record, and manage information regarding registered applicants for disaster assistance, including PA grant applications.

costs. For example, EMMIE does not collect information on all of the preaward activities that are part of the PA grant application process. As a result, PA program officials said they, and applicants, must use ad hoc reports and personal tracking documents to manage and monitor the progress of grant applications. PA officials added that EMMIE is not user-friendly and applicants often struggle to access the system. In response to these ongoing challenges, PA program officials developed FAC-Trax—a separate information system from EMMIE—with new capabilities designed to improve transparency, efficiency, and management of the PA program.

Specifically, FAC-Trax allows FEMA staff (PA Grants Manager) and applicants (PA Grants Portal), to review, manage, and track current PA project status and documentation. For example, applicants can use FAC-Trax to submit requests for public assistance, upload required project documentation, approve grant application items, and send and receive notifications on grant progress and activities. In addition, the FAC-Trax system includes standardized forms, as well as required fields and tasks that PA program staff and applicants must complete before moving on to the next steps in the PA preaward process. According to PA officials, these capabilities increase transparency, encourage greater applicant involvement, and enhance collaboration and communication between FEMA and grant applicants, to improve efficiency in processing and awarding grant applications and enhance the quality of project development. Further, PA officials said that FAC-Trax could reduce challenges associated with staff turnover during the project development process because the system stores and maintains applicant information and project documentation, making it easier for transitioning staff to assist an applicant. They also said they use FAC-Trax to gather and analyze data that supports management of the PA process, including measuring the timeliness of the grant application process. For example, during the test implementation of the new delivery model in Georgia following Hurricane Matthew, officials were able to document that, on average, program delivery managers took 5 days to conduct the exploratory call and 14 days to hold the recovery scoping meeting with applicants, and CRC officials took 33 days to develop and review grant proposals. Managers use this data to assess staffing needs and identify bottlenecks in the PA process, according to PA officials.

Opportunities Exist to More Fully Implement Two of Four Key IT Management Controls for FEMA's New PA Information System

FAC-Trax is critical to the new PA delivery model and will be a primary means of sharing grant application documents, tracking ongoing PA projects, and ensuring that FEMA staff and applicants follow PA grant policies and procedures. Given the importance of developing and testing this new information sharing system, we evaluated its development against four key IT management controls—(1) project planning; (2) risk management; (3) requirements development; and (4) systems testing and integration.[50] When implemented effectively, these controls provide assurance that IT systems will be delivered within cost and schedule and meet the capabilities needed by its users. We found that FEMA's development of FAC-Trax fully satisfied best practices for project planning and risk management, but additional steps are needed to fully satisfy the areas of requirements development and systems testing and integration, as discussed below. See appendix II for the full assessment of each IT management control.

Project Planning

PA program officials fully satisfied all five practices in the project planning control area, according to our assessment. Key project planning practices are (1) establishing and maintaining the program's acquisition strategy, (2) developing and maintaining the overall project plan and obtaining commitment from relevant stakeholders, (3) developing and maintaining the program's cost estimate, (4) establishing and maintaining the program's schedule estimate, and (5) identifying the necessary knowledge and skills needed to carry out the program.[51] To address the first and second practices, program officials established detailed plans that describe the acquisition strategy and objectives, the program's scope, and its framework for using an Agile software development approach, among other key actions. Agile is a method of software development that utilizes an iterative process and constantly improves

---

[50]GAO-16-306. In this prior review, we identified four key IT management controls based on a review of various criteria—the Software Engineering Institute's *Capability Maturity Model® Integration for Acquisition*, the Project Management Institute's *Guide to the Project Management Body of Knowledge*, and the Institute of Electrical and Electronics Engineers' *Standard for Software and System Test Documentation*. We assessed, against these four controls, three systems that play a critical role in supporting FEMA's response and recovery efforts: EMMIE, the Disaster Assistance Improvement Program, and the Integrated Public Alert and Warning System. Our review of FAC-Trax uses the same key IT management controls.

[51]*Capability Maturity Model® Integration for Acquisition*, Version 1.3.

software based on user needs and feedback.[52] Program officials also developed a plan detailing the program's approach to deploy and maintain FAC-Trax and established stakeholder groups and an integrated product team to support and oversee the development of FAC-Trax. To address the third and fourth practices, they developed and maintained a master schedule of all implementation tasks and milestones through project completion, and developed a life-cycle cost estimate of over $19 million. Additionally, FAC-Trax's acquisition performance baseline describes the system's minimum acceptable and desired baselines for performance, schedule, and cost. Lastly, in regards to the fifth practice, program officials identified the knowledge and skills needed to carry out the program in the *FAC-Trax Request for Proposal* and *FAC-Trax Capability Development Plan.*

Risk Management

PA program officials fully satisfied all four practices in the risk management control area, according to our assessment. Key risk management practices are (1) identifying risks, threats, and vulnerabilities that could negatively affect work efforts, (2) evaluating and categorizing each identified risk using defined risk categories and parameters, (3) developing risk mitigation plans for selected risks, and (4) monitoring the status of each risk periodically and implementing the risk mitigation plan as appropriate.[53] To address the first and second practices, program officials identified key risks that could negatively affect FAC-Trax in a "risk register"—an online site used to track risks, issues, and mitigating actions.[54] As of May 2017, officials had identified 13 risks in the risk register—four open and nine closed—and evaluated and categorized the identified risks based on the probability of occurrence and scope, schedule, and cost impacts. For example, program officials reported that two of its open risks have a "medium" risk rating—meaning the risk has the potential to slightly affect project cost, schedule, or performance. To address the third and fourth practices, program officials developed and documented risk mitigation plans for all identified risks. For example,

---

[52]Office of Management and Budget, U.S. Digital Services, *TechFAR: Handbook for Procuring Digital Services Using Agile Processes*, accessed on July 17, 2017, https://playbook.cio.gov/techfar/.

[53]*Capability Maturity Model® Integration for Acquisition*, Version 1.3.

[54]Program officials also identified five technical, cost, and schedule risks in the FAC-Trax acquisition plan, one of which they included in the risk register. According to PA officials, they managed the other four risks outside of the register and closed them in September 2016 following the solutions engineering review, which demonstrates the readiness of the program to proceed with the procurement.

program officials planned to mitigate the risk of limited engagement of subject matter experts by identifying and engaging with appropriate experts through workshops, and monitoring the capability development process to identify any issues that may cause project delays. In addition, PA program officials documented the responsible officials, reevaluation date, and risk status, among other things, for each risk in the register, and reviewed and updated risks during weekly and monthly program reviews with stakeholders throughout FEMA.[55]

Requirements Development

PA program officials fully satisfied four out of five practices in the requirements development control area, according to our assessment. Key requirements development practices are (1) eliciting stakeholder needs, expectations, and constraints, and transforming them into prioritized customer requirements; (2) developing and reviewing operational concepts and scenarios to refine and discover requirements; (3) analyzing requirements to ensure that they are complete, feasible, and verifiable; (4) analyzing requirements to balance stakeholder needs and constraints; and (5) testing and validating the system as it is being developed.[56] To address the first and second practices, program officials developed a requirements management plan outlining how officials capture, assess, and plan for FAC-Trax enhancements, and established a change control process to review, prioritize, and verify user requests for changes to the system and feedback. As of May 2017, the PA program office received 734 change requests related to FAC-Trax, of which program officials completed 420 changes and planned to address an additional 277 entries. Program officials also developed a functional requirements document outlining the high-level requirements for FAC-Trax and detailed operational concepts and scenarios for each phase of the preaward process in the system's concept of operations.[57] To address the fourth practice, program officials created a standard template to analyze and document the user needs and acceptance criteria for

---

[55]In addition to regularly reviewing and updating the risks in the risk register, PA program officials documented the risk category, probability, and impact, as well as the responsible officials and risk status for the four risks managed and addressed outside of the risk register.

[56]*Capability Maturity Model® Integration for Acquisition*, Version 1.3.

[57]The PA program office was able to obtain additional requirements for FAC-Trax through customer feedback on a temporary technology tool—an Access database referred to as the Public Assistance Recovery Information System—used to support the second test implementation of the new delivery model in February 2016.

planned system capabilities in March 2017.[58] In addition, PA program officials identified risks and dependencies for recommended changes to FAC-Trax, and balanced the cost and priority of system enhancements as part of the change control process. Lastly, regarding the fifth practice, program officials tested and evaluated FAC-Trax during development, which included validating system enhancements through user acceptance testing.

However, program officials did not fully address the third practice—analyzing requirements to ensure they are complete, feasible, and verifiable—because they did not ensure detailed user requirements were necessary and sufficient by tracking them back to higher-level requirements.[59] For example, although program officials reviewed change requests for completeness and followed up with users to verify requirements, officials did not track system enhancements, made in response to detailed user requirements (e.g., allowing users to search PA projects by project number), back to the high-level requirements (e.g., storing data and information provided by the applicant) identified in the FAC-Trax functional requirements document and performance work statement. Officials did not track system enhancements back to high-level requirements because they did not have a complete understanding of basic user needs and system requirements at the beginning of the FAC-Trax effort, according to the PA program manager. A PA official also said the change control process was a way to identify the basic capabilities FAC-Trax needed to have and that tracking enhancements back to high-level requirements could have made the change control process more difficult to manage, and reduced user participation if, for example, users needed to understand how their change requests related to high-level requirements. However, program officials could have tracked enhancements back to high-level requirements themselves using the change control process without putting any additional burden on users. Despite not having a complete understanding of user needs and system

---

[58]Acceptance criteria specify how a desired feature or capability is to function from the customer's perspective. System users evaluate acceptance criteria for planned system capabilities during user acceptance testing and after PA deploys FAC-Trax following system enhancements, according to PA program officials. We did not evaluate the quality of the acceptance criteria used by PA program officials.

[59]This reporting criterion includes the following practice and sub-practice from the *Capability Maturity Model® Integration for Acquisition*: analyzing requirements to ensure they are necessary and sufficient and determining whether requirements satisfy higher-level requirements.

requirements at the beginning of the FAC-Trax effort, analyzing whether users' change requests satisfy higher-level requirements identified in key design and planning documents would have provided officials with a basis for more detailed and precise requirements throughout project development and helped them better manage the project, according to IT management controls.[60] Further, according to the PMBOK® Guide, tracking or measuring system capabilities against approved requirements is a key process for managing a project's scope, measuring project completion, and ensuring the project meets user needs and expectations.[61]

Program officials acknowledged the importance of tracking system enhancements back to documented system requirements. Ensuring that FAC-Trax meets user needs and expectations is especially important because the information system is key to the success of the new delivery model, according to PA officials. By analyzing progress made on documented, high-level requirements, a step that reflects a key IT management control for requirements development, the PA program will have greater assurance that FAC-Trax will provide functionality that meets user needs and expectations.

Systems Testing and Integration

PA program officials did not fully satisfy either of the two practices in the systems testing and integration control area, according to our assessment. Key systems testing and integration practices are (1) developing test plans and test cases, which include a description of the overall approach for system testing, the set of tasks necessary to prepare for and perform testing, the roles and responsibilities for individuals or groups responsible for testing, and criteria to determine whether the system has passed or failed testing; and (2) developing a systems integration plan to identify all systems to be integrated, describe how integration problems are to be documented and resolved, define roles

---

[60] *Capability Maturity Model® Integration for Acquisition*, Version 1.3; *Capability Maturity Model® Integration for Development*, Version 1.3.

[61] Project Management Institute, Inc., *A Guide to the Project Management Body of Knowledge (PMBOK® Guide)*, 5th ed., 2013. *PMBOK* is a trademark of Project Management Institute, Inc.

and responsibilities of all relevant participants, and establish a sequence and schedule for every integration step.[62]

In regards to the first practice, PA program officials and the FAC-Trax contractor established a test plan that identifies the method and strategy to perform testing, including the necessary tasks, such as responding to user feedback and testing errors, and incorporating necessary resolutions into future work, testing parameters, and the roles and responsibilities of the individuals responsible for testing. However, program officials have not developed system testing criteria to evaluate FAC-Trax, which would align with the practice described above of using criteria to determine whether the system has passed or failed testing. A key feature of Agile software development is the "definition of done"—a set of clear, comprehensive, and objective criteria, that the government should use to evaluate software after each iteration of development. PA program officials said they did not establish a definition of done because officials initially managing the FAC-Trax effort lacked familiarity with system development in the Agile environment.[63] Officials acknowledged the importance of establishing a definition of done and said they are planning to develop one, but have not identified how or when to incorporate it into the development process. According to the TechFAR—the government's handbook for procuring digital services using Agile processes—the government and vendor should establish this definition after contract award at the beginning of each cycle of software development.[64] By establishing criteria, such as a definition of done, to evaluate the system—a step that reflects a key IT management control for system testing and is an effective practice for applying Agile to software development—the PA program will have greater assurance that FAC-Trax is usable and responsive to specified requirements.

---

[62]A systems integration plan describes a program's approach for ensuring that all components of a system are appropriately integrated. A critical aspect of system integration is identifying and managing internal and external interfaces, including user interfaces, internal and external data sources, and other systems that may or may not be within the organization's control, but on which the system relies. *IEEE Standard for Software and System Test Documentation*, IEEE Standard 829™ 2008; *Capability Maturity Model® Integration for Development*, Version 1.3.

[63]By December 2016, the program management team for FAC-Trax included a program manager and staff with Agile experience, according to FEMA officials.

[64]*TechFAR: Handbook for Procuring Digital Services Using Agile Processes*.

In regards to the second practice, PA program officials developed a systems integration plan in June 2017 that identified the potential for integration of FAC-Trax with four FEMA systems, including EMMIE.[65] In addition, program officials included a description of how staff should document integration problems and the resolution of problems in FAC-Trax development and test plans. However, the systems integration plan does not define roles and responsibilities of all participants for system integration activities or establish a sequence and schedule for every integration step for the four FEMA systems. PA officials said that system integration planning for FAC-Trax is in the early stages, but acknowledged the importance of these elements of system integration planning. Officials plan to define roles and responsibilities of all participants for system integration activities and develop the sequence and schedule for every integration step as they add new systems to the FAC-Trax development plan and obtain funding needed for their integration. Nonetheless, FEMA has used FAC-Trax for selected PA disasters since October 2016 and plans to use FAC-Trax for all future disasters. According to IT management controls, agencies should establish the systems integration plan early in the project and revise it to reflect evolving and emerging user needs.[66] By ensuring that the FAC-Trax systems integration plan defines the roles and responsibilities of relevant participants for all integration relationships and establishes a sequence and schedule for every integration step, the PA program will have greater assurance that FAC-Trax functions properly with other systems and meets user needs.

---

[65]According to program officials, the initial estimate to integrate FAC-Trax and EMMIE for approximately 3 years is approximately $1 million.

[66]*Capability Maturity Model® Integration for Development*, Version 1.3.

FEMA's New PA Model Enhances Hazard Mitigation Staff Participation, but Opportunities Exist to Further Promote Mitigation

Changes under the New Model Include Enhanced Participation of Hazard Mitigation Staff

FEMA's new delivery model enhances participation of hazard mitigation staff with the goal of identifying opportunities for mitigation earlier in the PA preaward process, according to PA officials. Two key changes related to hazard mitigation under the new model include (1) an emphasis on engaging with hazard mitigation specialists at the JFO earlier in the PA process and involving them in specific PA preaward activities and (2) the establishment of the PA program's hazard mitigation liaison at the CRC. For example, position guides direct program delivery managers to coordinate with FIMA's hazard mitigation specialists prior to recovery scoping meetings, and site inspectors to coordinate with hazard mitigation specialists prior to site inspections to discuss a PA grant applicant's damages and any potential mitigation opportunities. PA program officials also developed guidance for conducting the exploratory call and the recovery scoping meeting with applicants, which include questions for PA staff to ask on the applicant's interest in or plans for incorporating hazard mitigation into potential projects.[67] In addition, a new hazard mitigation liaison at the CRC is responsible for reviewing PA projects for hazard mitigation opportunities and serving as a mitigation subject matter expert for the PA program.

According to data provided by FEMA, PA grant applicants incorporated hazard mitigation into approximately 18 percent of permanent work

---

[67]The exploratory call and recovery scoping meeting guides for the new delivery model include questions regarding the damage history at a particular facility; an applicant's plans to prevent similar damage in the future; an applicant's mitigation plan or current mitigation projects; and an applicant's preference for technical assistance to explore mitigation opportunities.

projects for all disasters nationwide from 2012 to 2015.[68] During test implementation of the new delivery model, state, PA, and FIMA officials all reported an increase in the number of hazard mitigation activities on PA permanent work projects. For example, state officials who participated in the second new model test in Oregon said that effective communication and coordination between PA and hazard mitigation staff resulted in applicants incorporating hazard mitigation into over 60 percent of permanent work projects. Furthermore, PA officials reported an increase in hazard mitigation during the third test implementation of the new model in Georgia following Hurricane Matthew, where approximately 16 percent of permanent work projects included mitigation, as of June 2017. This represents an increase compared to the PA program's estimate for the proportion of projects that incorporate hazard mitigation among previous PA hurricane disasters in Georgia, which was about 3 percent, according to PA officials.[69] While PA officials are trying to increase hazard mitigation through the new delivery model, not all disasters present the same number of opportunities to incorporate hazard mitigation. First, the PA program only incorporates hazard mitigation measures for permanent work projects, such as repairs to roads, bridges, and buildings. For example, as of June 2017, approximately 60 percent of the projects FEMA funded in Georgia for the third test implementation after Hurricane Matthew were for emergency work, which is not eligible for hazard mitigation measures. Second, the PA program only funds mitigation measures that officials determine to be cost-effective. In addition, we have previously reported on other factors that affect whether applicants incorporate hazard mitigation into PA projects, such as their capacity to manage and ability to fund hazard mitigation projects.[70]

---

[68]Officials measure only permanent work projects for hazard mitigation because hazard mitigation applies only to permanent work, as opposed to emergency work projects, which include debris removal and emergency protective measures, such as flood fighting activities, evacuation and sheltering of disaster survivors, and providing medical care and transport.

[69]FEMA officials at the joint field offices for the third and fourth new model test implementations in Georgia analyzed all PA disasters in Georgia from 2008 through 2015 to establish a baseline for evaluating mitigation efforts, and estimated that 3 percent of permanent work projects related to hurricane disasters during that time incorporated hazard mitigation, according to PA officials.

[70]GAO-15-515.

Opportunities to Better Promote Hazard Mitigation under the New Model

Hazard Mitigation Planning and Prioritization

Although the new model establishes hazard mitigation activities for PA and FIMA staff in the preaward process, it does not standardize and prioritize hazard mitigation planning at JFOs in the way FEMA has done with prior PA program policy. Specifically, FEMA's 2007 PA program policy standardized planning for hazard mitigation across PA recovery efforts by stating that agency and state officials should issue a memorandum of understanding (MOU) early in the disaster, outlining how PA hazard mitigation will be addressed for the disaster, including what mitigation measures will be emphasized, and identifying applicable codes and standards, and any potential integration with other mitigation grant programs.[71] However, PA program officials did not include guidance that standardizes planning for hazard mitigation, such as encouraging the use of an MOU, in FEMA's 2010 PA program policy, the most recent update to the *Public Assistance Program and Policy Guide* in April 2017, or the *New Delivery Model Operations Manual*. As a result, FIMA officials said FEMA and state officials do not consistently issue MOUs that outline how FEMA and the state plan to promote PA hazard mitigation during the recovery effort, explaining that the use of the MOU is based on the preferences and priorities of the FEMA officials involved. When not issuing an MOU, FIMA hazard mitigation staff and PA officials at the JFO meet to determine the extent which hazard mitigation staff interact directly with applicants regarding PA hazard mitigation during the recovery process, according to a FIMA official.

Having a consistent approach to planning for and prioritizing hazard mitigation across all disasters is important for FEMA, given that FEMA experienced challenges consistently prioritizing and integrating hazard

---

[71]FEMA, *Disaster Assistance Policy: Hazard Mitigation Funding Under Section 406 (Stafford Act)*, DAP9526.1 (July 30, 2007).

mitigation across PA recovery efforts, according to GAO and others.[72] For example, in our 2015 report on resilience in the Hurricane Sandy recovery, we found that state and local officials experienced challenges maximizing disaster resilience in the recovery effort because PA officials did not consistently prioritize hazard mitigation during project development.[73]

According to FEMA's National Mitigation Framework, planning is vital for mitigation efforts during disaster recovery, and federal, state, and local officials should establish procedures that emphasize a coordinated delivery of mitigation activities and capitalize on opportunities to reduce future disaster losses. Similarly, the *Recovery Federal Interagency Operational Plan,* which supports FEMA's National Disaster Recovery Framework, identifies planning as a key task for identifying mitigation opportunities and integrating risk reduction considerations into decisions and investments during the recovery process.[74] FIMA officials agreed that including the development of a formal plan, such as the historical 2007 PA program policy regarding the use of MOUs, for PA hazard mitigation in operations guidance would help program officials plan for and prioritize hazard mitigation. They noted that FIMA's hazard mitigation field operations guide includes procedures for implementing proposed MOUs to achieve mitigation goals. PA program officials said that, in light of changes to the PA process under the new model and subsequent

---

[72]GAO-15-515; Association of State Floodplain Managers, *National Flood Programs and Policies in Review (2015)* (Madison, Wis.: Feb. 25, 2015). The Association of State Floodplain Managers is a professional association and stakeholder group that commented on FEMA's bottom-up review of the PA program. It identified challenges with inconsistent integration of hazard mitigation in the PA process, and recommended that operational goals for a disaster recovery effort equally value the effective delivery of hazard mitigation programs. In addition, see Department of Homeland Security, OIG-10-26 and OIG-10-28.

[73]GAO defined disaster resilience as actions taken to mitigate vulnerabilities to the effects of severe weather and to adapt to effects of climate change. GAO-15-515.

[74]The *Recovery Federal Interagency Operational Plan* provides guidance to implement the National Disaster Recovery Framework, which establishes a comprehensive structure to enhance the nation's ability to work together, both before and after a disaster, to effectively deliver recovery assistance through the coordinated efforts of federal, state, local, and tribal governments and nongovernmental organizations. The National Mitigation Framework addresses how the nation will develop, employ, and coordinate hazard mitigation capabilities to reduce loss of life and property by lessening the impact of disasters. It also established the Mitigation Framework Leadership Group, an intergovernmental coordinating body, to integrate federal efforts and promote a national culture shift that incorporates risk management and hazard mitigation in all planning, decision making, and development to the extent practicable.

updates to program policies, the MOU policy from the 2007 PA program policy was outdated. But officials agreed that planning for and prioritizing hazard mitigation at the operational level is important and said they were examining additional ways to incorporate these activities early in the PA process. As FEMA continues to implement the new model, establishing procedures to standardize hazard mitigation planning for each disaster, as it did through prior policy, could improve the prioritization of hazard mitigation in PA recovery efforts and increase the effectiveness of mitigation for reducing disaster losses and increasing resilience.

New Delivery Model Performance Objectives and Measures Could Better Align with FEMA's Strategic Goal for Hazard Mitigation

PA program officials developed performance objectives and measures for hazard mitigation in the new delivery model, but could add measures to better align performance assessment for the PA program with FEMA's broader strategic goals for hazard mitigation. In its strategic plan for 2014–2018, FEMA established an agency-wide goal to increase the percentage of FEMA-funded disaster projects, such as those under the PA program, that provide mitigation above local, state, and federal building code requirements by 5 percentage points by the end of fiscal year 2018. For example, local building codes may require measures for new construction to mitigate against future damage. To align with FEMA's strategic goal, PA officials would also need to measure the number of PA projects that included mitigation measures that bring any repaired infrastructure to a level above applicable building codes.[75] However, under the new model, FEMA officials developed performance objectives (and associated measures) to increase the number of projects that include hazard mitigation by 5 percent, and increase the total dollars spent on hazard mitigation by 2 percent. While these measures could help to incentivize mitigation, they are not tied to building codes and do not include specific information that FEMA could use to continually assess the PA program's contributions to meeting the agency's strategic goal.

According to *Standards for Internal Control in the Federal Government,* agency management should design control activities, such as establishing and reviewing performance measures, to achieve the

---

[75]FEMA generally requires that all permanent work projects meet, at a minimum, the hazard-resistant provisions referenced in nationally recognized building codes and standards, even if they exceed local codes or standards or in instances where communities have not adopted a building code or standard. In some cases, FEMA will also provide PA funding for the increased cost associated with meeting locally adopted natural hazard resistant building codes or standards that exceed the nationally recognized building codes and standards.

agency's objectives.[76] In addition, our work on leading public sector organizations has found that such organizations assess the extent to which their programs and activities contribute to meeting their mission and desired outcomes, and strive to establish clear hierarchies of performance goals and measures. A clear connection between performance measures and program offices helps to both reinforce accountability and ensure that, in their day-to-day activities, managers keep in mind the outcomes their organization is striving to achieve.[77] FEMA's ability to evaluate and report on PA hazard mitigation data is constrained, but officials are addressing this challenge through the development of data reporting and analytics capabilities for the PA program's new information system, according to PA officials. PA program officials developed measures they could use to evaluate the new model during test implementation and compare new model performance to the legacy PA process, and agreed that aligning PA program hazard mitigation goals with FEMA's agency-wide strategic goals would be helpful. As FEMA continues to develop and implement the new model, developing performance measures and objectives to better inform and support the agency's broader strategic goals could help to ensure that FEMA capitalizes on hazard mitigation opportunities in PA recovery efforts.

Conclusions

FEMA's Public Assistance grant program is a complicated, multi-billion dollar program that is critical to helping state and local communities rebuild and recover after a major disaster. In recent years, FEMA has undertaken a major reengineering effort to make the PA preaward process simpler and more efficient for applicants and to address challenges encountered during recovery from past disasters. FEMA's new delivery model represents a significant opportunity to strengthen the PA program and address these past challenges, and growing pains are to be expected when implementing any large reengineering effort. Further, FEMA officials work to implement these changes while supporting response and recovery following disasters, including the catastrophic flooding from Hurricane Harvey in August 2017 and widespread damages from Hurricanes Irma and Maria in September 2017. As such, it is critical that feedback obtained and lessons learned while testing the new model inform decisions and actions as FEMA proceeds with full implementation

---

[76]GAO-14-704G.

[77]GAO/GGD-96-118.

for all disasters, including the complex recovery efforts in the states and territories affected by Hurricanes Harvey, Irma, and Maria.

FEMA has redesigned the PA delivery model to address various challenges related to workforce management, information sharing with state and local grantees, and incorporating hazard mitigation into PA projects. FEMA has developed new workforce processes, training, and positions to address past challenges, but completing a workforce assessment that identifies the number of staff needed will inform workforce management and resource allocation decisions to help FEMA ensure a more successful implementation. This is particularly important as FEMA is using the new model for the long-term recovery from the 2017 hurricanes, and FEMA faces capacity challenges as its workforce is stretched thin. Further, FEMA's new FAC-Trax information sharing system provides FEMA and state and local applicants and grantees with better capabilities to address past challenges in managing and tracking PA projects. In developing FAC-Trax, FEMA implemented many of the key IT management controls that can help ensure that new IT systems are implemented effectively. However, additional steps are needed to fully satisfy the areas of requirements development and systems testing and integration. Finally, FEMA has taken some actions to better promote hazard mitigation as part of its new PA model. However, more consistent planning for hazard mitigation following a PA disaster and developing specific performance measures and objectives that better align with and support the agency's broader strategic goals related to hazard mitigation could help to ensure that mitigation is incorporated into recovery efforts, which presents an opportunity to encourage disaster resilience and reduce federal fiscal exposure from recurring catastrophic natural disasters.

Recommendations for Executive Action

We are making the following five recommendations to FEMA's Assistant Administrator for Recovery:

- The FEMA Assistant Administrator for Recovery should complete a workforce staffing assessment that identifies the appropriate number of staff needed at joint field offices, Consolidated Resource Centers, and in FIMA's hazard mitigation cadre to implement the new delivery model nationwide. (Recommendation 1)

- The FEMA Assistant Administrator for Recovery should establish controls for tracking FAC-Trax capabilities to the system's functional and operational requirements to more fully satisfy requirements

development controls and ensure that the new information system provides capabilities that meets users' needs and expectations. (Recommendation 2)

- The FEMA Assistant Administrator for Recovery should establish system testing criteria, such as a "definition of done," to assess FAC-Trax as it is developed; define the roles and responsibilities of all participants; and develop the sequence and schedule for integration of other systems with FAC-Trax to more fully satisfy systems testing and integration controls. (Recommendation 3)

- The FEMA Assistant Administrator for Recovery, in coordination with the Associate Administrator of the Federal Insurance and Mitigation Administration, should implement procedures to standardize planning for addressing PA hazard mitigation at the joint field offices, for example, by requiring FEMA and state officials to develop a memorandum of understanding outlining how they will prioritize and address hazard mitigation following a disaster as it did through prior policy. (Recommendation 4)

- The FEMA Assistant Administrator for Recovery, in coordination with the Associate Administrator of the Federal Insurance and Mitigation Administration, should develop performance measures and associated objectives for the new delivery model to better align with FEMA's strategic goal for hazard mitigation in the recovery process. (Recommendation 5)

Agency Comments and Our Evaluation

We provided a draft of this report to DHS and FEMA for review and comment. DHS provided written comments, which are reproduced in appendix III. In its comments, DHS concurred with our recommendations and described actions planned to address them. FEMA also provided technical comments, which we incorporated as appropriate.

With regard to our first recommendation, that FEMA complete a workforce staffing assessment that identifies the number of staff needed at joint field offices, Consolidated Resource Centers, and FIMA's hazard mitigation cadre, DHS stated that PA, in coordination with the Field Operations Directorate and FIMA, will continue to refine and evaluate staffing needs and update the cadre force structures under the new delivery model. DHS estimated that this effort would be completed by June 28, 2019. This action, if fully implemented, should address the intent of the recommendation.

With regard to our second recommendation, that FEMA establish controls for tracking FAC-Trax capabilities to ensure the new information system meets users' needs, DHS stated that Recovery program managers will update the *FAC-Trax Requirements Management Plan* and the *FAC-Trax Release Plan* to ensure the tracking and traceability of FAC-Trax functional and operational requirements. DHS estimated that this effort would be completed by January 31, 2018. This action, if fully implemented, should address the intent of the recommendation.

With regard to our third recommendation, that FEMA establish systems testing criteria to assess the development of FAC-Trax; and define the roles and responsibilities, and sequence and schedule for system integration, DHS stated that Recovery program managers will update the *FAC-Trax System Integration Plan* to include integration with the Deployment Tracking System, Enterprise Data Warehouse, Preliminary Damage Assessment interface, and State Grants Management system interface. DHS estimated that this effort would be completed by June 29, 2018. This action, if fully implemented, should address the intent of the recommendation.

With regard to our fourth recommendation, that FEMA implement procedures to standardize planning for addressing PA hazard mitigation at the JFO, DHS stated that PA will update current process documents or develop new documents to better incorporate mitigation into the operational planning phase of the new delivery model. DHS estimated that this effort would be completed by July 31, 2018. This action, if fully implemented, should address the intent of the recommendation.

With regard to our fifth recommendation, that PA coordinate with FIMA to develop performance measures and associated objectives for the new delivery model that better align with FEMA's strategic goals for hazard mitigation in the recovery process, DHS stated that PA will reconvene the PA-Mitigation working group to develop and refine PA related hazard mitigation performance measures. DHS estimated that this effort would be completed by June 29, 2018. This action, if fully implemented, should address the intent of the recommendation.

We are sending copies of this report to the Secretary of Homeland Security and interested congressional committees.

If you or your staff have any questions about this report, please contact me at (404) 679-1875 or CurrieC@gao.gov. Contact points for our Offices of Congressional Relations and Public Affairs may be found on the last page of this report. GAO staff who made key contributions to this report are listed in appendix IV.

Chris P. Currie
Director, Homeland Security and Justice

The Honorable Ron Johnson
Chairman
The Honorable Claire McCaskill
Ranking Member
Committee on Homeland Security and Governmental Affairs
United States Senate

The Honorable Thomas R. Carper
Ranking Member
Permanent Subcommittee on Investigations
Committee on Homeland Security and Governmental Affairs
United States Senate

The Honorable Bill Shuster
Chairman
The Honorable Peter DeFazio
Ranking Member
Committee on Transportation and Infrastructure
House of Representatives

Appendix I: Selected Prior Work Related to Federal Emergency Management Agency's (FEMA) Public Assistance (PA) Program

Table 1: Findings and Recommendations from Prior GAO Reports Related to the Federal Emergency Management Agency's (FEMA) Public Assistance (PA) Program

Report	Findings	Recommendations	Status	Progress
FEMA: Opportunities Exist to Strengthen Oversight of Administrative Costs for Major Disasters (GAO-15-65) - December 17, 2014	Although FEMA created administrative cost targets, FEMA does not require those targets to be met. FEMA lacks an integrated plan with time frames and milestones to hold senior officials accountable for achieving its goals to reduce and more effectively control costs. FEMA does not track administrative costs by major disaster program, such as Individual or Public Assistance, and has not assessed the costs versus the benefits of tracking such information.	FEMA should (1) develop an integrated plan to better control and reduce its administrative costs for major disasters, (2) assess the costs versus the benefits of tracking FEMA administrative costs by Disaster Relief Fund program, and (3) clarify the agency's guidance and minimum documentation requirements for direct administrative costs.	Closed - Implemented	FEMA (1) developed and issued an integrated plan to manage administrative costs, setting a goal in its 2014–2018 Strategic Plan to lower these costs, and establishing administrative cost targets in its integrated plan; (2) selected an approach to track administrative cost data based on a costs and benefits analysis; and (3) issued a Public Assistance Guidance document with clarifying guidance on costs eligibility, direct administrative costs, and checklists on documentation requirements. In addition, on February 29, 2016, the President signed into law the Directing Dollars to Disaster Relief Act of 2015, requiring FEMA to implement an integrated plan to control its costs, assess the costs versus the benefits of tracking FEMA's administrative cost data for major disasters by program and track such data if feasible, and clarify its guidance and minimum documentation requirements for a direct administrative cost claimed by a PA grantee or subgrantee. This law also requires FEMA to report these efforts in annual reports for the next 7 years.[1]

---

[1]Pub. L. No. 114-132, 130 Stat. 293 (2016).

Report	Findings	Recommendations	Status	Progress
FEMA: Additional Planning and Data Collection Could Help Improve Workforce Management Efforts (GAO-15-437) - July 9, 2015	FEMA faces challenges in implementing and managing its two new workforce components: the Surge Capacity Force and the FEMA Corps. FEMA does not have a plan for how it will increase the number of volunteers to meet its staffing target goals. GAO found that FEMA does not collect full cost information, including the costs of FEMA Corps background investigations and the salaries and benefits of Surge Capacity Force volunteers who are paid by Department of Homeland Security components while they are deployed. FEMA does not assess all aspects of program performance because it does not have performance measures that correspond to all program goals. The agency also does not collect reliable performance data, or have an automated system for comparing performance against FEMA Corps project goals.	We recommended that, among other things, FEMA develop a plan to increase Surge Capacity Force volunteer recruitment and collect additional cost and performance information for its two new workforce components.	Closed - Implemented	FEMA officials provided information or documentation of: plans to increase Surge Capacity Force registrations, cost calculations of FEMA Corps background checks for 2016 and estimated total staff cost for supervision of FEMA Corps, an analysis of salary and benefit information of Surge Capacity Force volunteers from other DHS components, program performance measures to use for future assessments of the FEMA Corps program, a new exit survey to provide program performance data, benchmarks for the completion of the Corporation for National and Community Service information system development project, program performance measures including rates of deployment of Surge Capacity Force members during disaster response, and a revised Surge Capacity Force survey instrument designed to include a data field that captures additional feedback (positive or negative) concerning the end of the deployment.

Report	Findings	Recommendations	Status	Progress
Hurricane Sandy: An Investment Strategy Could Help the Federal Government Enhance National Resilience for Future Disasters (GAO-15-515) - July 30, 2015	State and local officials experienced challenges with disaster resilience opportunities related to: implementation challenges with PA and the Hazard Mitigation Grant Program, limitations on comprehensive risk reduction approaches in a postdisaster environment, and local ability and willingness to participate. In addition, there is no comprehensive, strategic approach to identifying, prioritizing and implementing investments for disaster resilience. The emphasis on the postdisaster environment can create a reactionary and fragmented approach where disasters determine when and for what purpose the federal government invests in disaster resilience.	FEMA should assess the challenges state and local officials reported and implement corrective actions as needed. The Mitigation Framework Leadership Group (MitFLG)– created to help coordinate hazard mitigation efforts of relevant local, state, tribal, and federal organizations–should establish an investment strategy to identify, prioritize, and implement federal investments in disaster resilience.	In progress	In April 2017, FEMA officials provided a corrective action plan that included interim actions and milestones leading to the establishment of procedures and training to assist in implementing policy changes through the end of calendar year 2016. In September 2016, FEMA issued new policies to establish minimum standards for Public Assistance projects that are intended to promote resilience and achieve risk reduction. The April 2017 update indicates that FEMA plans to complete actions to implement this recommendation in 2017. In addition, in March 2016, officials from FEMA's Federal Insurance and Mitigation Administration told us they were working with the Office of Management and Budget to implement this recommendation and shared a high-level work plan designed to guide MitFLG through the creation of a disaster resilience investment strategy. According to this plan, the strategy is to be complete in 2017.

Report	Findings	Recommendations	Status	Progress
Information Technology: FEMA Needs to Address Management Weaknesses to Improve Its System (GAO-16-306) - April 5, 2016	FEMA faces challenges in ensuring that its information technology (IT) programs adequately support the agency's ability to respond to major disasters in several areas: governance and oversight, IT modernization, and workforce planning. None of the three emergency management programs GAO selected for this review had fully implemented key IT management controls in the areas of risk management, requirements development, project planning, and systems testing and integration. Specifically, the three selected emergency management programs inconsistently implemented these practices by, for example, not always developing adequate risk mitigation plans, establishing processes for requirements management, developing and updating schedules and cost estimates, and ensuring complete and adequate system testing along with systems integration plans.	FEMA should fully define its investment board's roles and responsibilities and procedures for selecting and overseeing investments, update its strategic plan and complete plans for IT modernization, and establish time frames for completing workforce planning efforts. FEMA should also establish policies and guidance for implementing key IT management controls.	In progress	FEMA is in the process of implementing these recommendations. FEMA has established an IT Governance Board that serves as the primary structure for FEMA's IT decision-making process, implemented a risk management process to identify potential problems before they occur, and implemented a requirements management process to ensure requirements are defined and user needs met. FEMA is still taking action to update its IT Modernization Plan, assess skills required to staff and sustain IT modernization efforts, implement program management plans and system integration plans, and ensure that FEMA policy for managing IT programs includes guidance for implementing key management practices.

Source: GAO. | GAO-18-30

Note: We selected GAO reports published after our December 2008 review of the Public Assistance program that found challenges with workforce management, information sharing, and hazard mitigation related to the Public Assistance program. We summarized FEMA's actions taken or planned to address GAO recommendations for each selected report. See GAO, *Disaster Recovery: FEMA's Public Assistance Grant Program Experienced Challenges with Gulf Coast Rebuilding,* GAO-09-129 (Washington, D.C.: Dec. 18, 2008).

Appendix II: Assessment of Information Technology Management Controls for the FEMA Applicant Case Tracker (FAC-Trax)

Table 2 shows details on the Federal Emergency Management Agency (FEMA) Public Assistance (PA) program office's implementation of key practices across four information technology (IT) management control areas for its new information system, the FEMA Applicant Case Tracker (FAC-Trax). PA developed FAC-Trax as a web-based project tracking and case management system to supplement the Emergency Management Mission Integrated Environment (EMMIE) and help resolve long-standing information sharing challenges. To determine the extent to which the FAC-Trax program office implemented IT management controls, we reviewed documentation from the FAC-Trax program and compared it to key management best practices, including the Software Engineering Institute's *Capability Maturity Model® Integration for Acquisition and Development,* the Project Management Institute's *Guide to the Project Management Body of Knowledge (PMBOK® Guide),* and the Institute of Electrical and Electronics Engineers' *Standard for Software and System Test Documentation*.[1] We assessed the program as having fully implemented a practice if the agency provided evidence that it fully addressed the practice; partially implemented if the agency provided evidence that it addressed some, but not all, portions of the practice; and not implemented if the agency did not provide any evidence that it addressed the practice.

---

[1]Software Engineering Institute, *Capability Maturity Model® Integration for Acquisition* (CMMI-ACQ), Version 1.3 (Pittsburgh, Pa.: November 2010) and *Capability Maturity Model® Integration for Development* (CMMI-DEV), Version 1.3 (Pittsburgh, Pa.: November 2010); Project Management Institute, Inc., *A Guide to the Project Management Body of Knowledge (PMBOK® Guide)*, 5th ed., 2013; Institute of Electrical and Electronics Engineers, *IEEE Standard for Software and System Test Documentation*, IEEE Standard 829™ 2008 (New York, N.Y.: July 18, 2008).

Table 2. Public Assistance (PA) Program Office's Implementation of Key Information Technology Management Controls for FAC-Trax

Key practices	GAO assessment	
Project planning		
Establishing and maintaining the program's acquisition strategy	PA program officials developed an acquisition plan for FAC-Trax identifying the capabilities the system is intended to deliver, the acquisition approach, and acquisition objectives. Additionally, program officials developed a capability development plan outlining a strategy for the program to obtain approval to acquire FAC-Trax. Lastly, program officials developed a systems engineering plan describing the program's scope and its framework for using an Agile development approach, as well as a deployment, support, and maintenance plan for FAC-Trax.	●
Developing and maintaining the program's cost estimate	PA program officials developed an acquisition program baseline detailing FAC-Trax's cost parameters and a life-cycle cost estimate for the system. As of May 2017, the life-cycle cost estimate for FAC-Trax through fiscal year (FY) 2023 is approximately $19.3 million. PA program officials updated the life-cycle cost estimate for FYs 2016 and 2017 after price negotiations with the FAC-Trax contractor, and will continue to update the estimate as annual budgets are approved, according to the *Integrated Logistic Support Plan*. The contracting officer's representative for FAC-Trax performs a cost review at the end of each month, according to program officials. Furthermore, the contractor's weekly status report includes information on the number of hours worked and the percent of contract value spent. Program officials also review program costs with Office of Response and Recovery, PA, Office of the Chief Information Officer (OCIO), and other program office stakeholders during a weekly program review.	●
Establishing and maintaining the program's schedule estimate	PA program officials developed an acquisition program baseline detailing FAC-Trax's schedule parameters, as well as an integrated master schedule for the system. The integrated master schedule identifies tasks, major milestones, and task dependencies. The PA program manager reviews and updates the integrated master schedule on a weekly basis. Program officials also review FAC-Trax's schedule with Office of Response and Recovery, PA, OCIO, and other program office stakeholders during a weekly program review.	●
Identifying the necessary knowledge and skills needed to carry out the program	PA program officials identified the knowledge and skills needed to carry out the program in FAC-Trax contract documentation and the capability development plan. Specifically, program officials included an attachment to the FAC-Trax contract listing the required labor categories and corresponding functional position descriptions. Program officials also described the role, position type, minimum grade, and minimum certification for required personnel resources for the acquisition, development, and implementation of FAC-Trax.	●
Developing and maintaining the overall project plan, and obtaining commitment from relevant stakeholders	PA program officials developed, reviewed, and maintained project planning documents and obtained commitment from relevant stakeholders. For example, program officials reviewed and updated the integrated master schedule and costs on a weekly and monthly basis, respectively. Further, program officials reviewed the status of project elements, such as the schedule, quality and technical issues, stakeholders, staffing, cost, and risks, with Office of Response and Recovery, PA, OCIO, and other program office stakeholders during a weekly program review. PA program officials also established tactical, functional, and stakeholder groups, as well as an Integrated Product Team to support and oversee the development of FAC-Trax.	●

Key practices	GAO assessment	
Risk management		
Identifying risks, threats, and vulnerabilities that could negatively affect work efforts	FEMA's Recovery Technology Programs Division (RTPD) has a division-level risk management plan that serves as guidance for all Recovery systems, including FAC-Trax. Program officials identified key risks that could negatively affect FAC-Trax work efforts in RTPD's "risk register"—an online site used to track risks, issues, and mitigating actions for the division and each program office. Program officials also identified five technical, cost, and schedule risks in the FAC-Trax acquisition plan. Program officials included one of these risks in the risk register, while the remaining four were managed outside of the register. As of May 2017, program officials had identified 13 risks in its risk register—four open and nine closed. The four open risks were (1) limited subject matter expert engagement during requirements development, (2) vacancies in program management office support positions, (3) unresolved service level agreement support and funding issues, and (4) the loss of the authority to operate due to a Trusted Internet Connection that is not compliant with Department of Homeland Security security policy.	●
Evaluating and categorizing each identified risk using defined risk categories and parameters, such as likelihood and consequence, and determining each risk's relative priority	Program officials evaluated and categorized the identified risks based on the probability of occurrence and scope, schedule, and cost impacts. These four points of measurement are used to calculate an overall risk score. The risk score helps program officials determine a risk's risk rating—low, medium, or high. For example, program officials reported that two of its open risks have a "medium" risk rating—meaning the risk has the potential to slightly impact project cost, schedule, or performance. In addition, program officials detailed the risk category, probability, and impact for the five risks identified in the FAC-Trax acquisition plan.	●
Developing risk mitigation plans for selected risks to proactively reduce the potential impact of risk occurrence	Program officials developed risk mitigation and contingency plans for each risk in the risk register. For example, program officials planned to mitigate the open risk concerning subject matter expert engagement, by identifying and engaging with appropriate subject matter experts through requirements development workshops scheduled in advance of the sprint they are to support, and monitoring the development of user stories to identify any issues that may cause delays. In addition, program officials described the risk management plan and responsible officials for the five risks identified in the FAC-Trax acquisition plan.	●
Monitoring the status of each risk periodically and implementing the risk mitigation plan as appropriate	PA program officials review and update program risks during a monthly program meeting. Program officials also review program risks with Office of Response and Recovery, PA, OCIO, and other program office stakeholders during a weekly program review. Furthermore, the FAC-Trax contractor provides a weekly status update which includes a section on identified risks. Program officials established re-evaluation dates and recorded updates, including any actions taken, for each risk in the risk register. In addition, program officials were able to provide updates on the four risks identified in the FAC-Trax acquisition plan and managed outside of the register. According to PA officials, these risks were addressed and closed by the approval of program planning documents, such as the mission needs statement, concept of operations, and operational requirements document, following the solutions engineering review, which demonstrates the readiness of the program to proceed with the procurement, in September 2016.	●

Key practices	GAO assessment	
Requirements development		
Eliciting stakeholder needs, expectations, and constraints, and transforming them into prioritized customer requirements	Program officials established a requirements management plan outlining how it captures, assesses, and plans for FAC-Trax enhancements, and established a change control process to review, prioritize, and verify user requests for changes to the system and feedback. As of May 2017, the PA program office received 734 change requests related to FAC-Trax, of which program officials completed 420 changes and planned to address an additional 277 entries. PA program officials also facilitated workshops to gather requirements for specific user groups and obtained additional requirements for FAC-Trax through customer feedback on a temporary technology tool— an Access database referred to as the Public Assistance Recovery Information System—used to support an early stage of the new model implementation. Further, program officials developed a functional requirements document outlining the high-level functional and operational requirements for FAC-Trax.	●
Developing and reviewing operational concepts and scenarios to refine and discover requirements	PA program officials developed a concept of operations for FAC-Trax detailing operating concepts and scenarios for each phase of the PA preaward process. Program officials also detailed the workflow, phases, business functions, and data inputs and outputs for the re-engineered PA process in FAC-Trax's functional requirements document. In March 2017, program officials developed a standard template to describe the process, tasks, and data inputs and outputs for specific system capabilities.	●
Analyzing requirements to ensure that they are complete, feasible, and verifiable	As part of the change control process, PA program officials meet three times a week to discuss and prioritize change requests. Specifically, program officials review submissions to the change control form to ensure completeness, validate impacts and root cause, and research details for incoming requests. PA program officials also follow up with users to understand and verify requirements. In March 2017, program officials developed a standard template to capture acceptance criteria for specific requirements. However, PA program officials do not track system enhancements back to the high-level requirements identified in FAC-Trax's operational and functional requirements documentation and performance work statement.	◑
Analyzing requirements to balance stakeholder needs and constraints	PA program officials identified system requirements and constraints in the FAC-Trax concept of operations and functional and operational requirements documents. Further, through its change control process, program officials collect suggestions, issues, and feedback on FAC-Trax and system enhancements from stakeholders, identify risks for change requests, and balance prioritized requirements and estimated level of efforts with projected costs prior to each sprint. In March 2017, program officials developed a standard template to analyze and document the urgency and need for specific requirements.	●
Testing and validating the system as it is being developed	PA program officials and the FAC-Trax contractor established a testing and evaluation plan for the system, developed acceptance criteria for user stories, and obtained feedback from users during and after testing. The testing process concludes with user acceptance testing (UAT). If a change request fails during UAT or a new requirement is discovered during development, the PA program will capture the failed request or new requirement in the product backlog for implementation in a future product release.	●

Key practices	GAO assessment	
Systems testing and integration		
Developing test plans and test cases	PA program officials and the FAC-Trax contractor tested and evaluated the system during development. The FAC-Trax test plan identifies the method and strategy to perform the testing, including the necessary tasks, testing parameters, and the roles and responsibilities of the individuals responsible for testing. However, program officials did not develop system testing criteria to evaluate FAC-Trax. A key feature of Agile software development is the "definition of done"—a set of clear, comprehensive, and objective criteria, that the government should use to evaluate software after each iteration of development.	◑
Developing a systems integration plan	PA program officials developed a systems integration plan in June 2017 that identifies potential integration of FAC-Trax and four FEMA systems, including the Emergency Management Mission Integrated Environment. Specifically, the plan includes data requirements and standards; descriptions of the four systems FEMA plans to integrate with FAC-Trax and the proposed relationship for each connection; and security and access management requirements. In addition, program officials included a description of how integration problems are to be documented and resolved in FAC-Trax development and test plans. However, the systems integration plan does not define roles and responsibilities of all participants for system integration activities or establish a sequence and schedule for every integration step for the four FEMA systems.	◑

Legend:

● Fully implemented: The agency provided evidence that it fully addressed this practice.

◑ Partially implemented: The agency provided evidence that it addressed some, but not all, portions of this practice.

○ Not implemented: The agency did not provide any evidence that it addressed this practice.

Source: GAO analysis of FEMA documentation. | GAO-18-30

Note: Key IT management practices are from the following sources: Software Engineering Institute, *Capability Maturity Model® Integration for Acquisition* (CMMI-ACQ), Version 1.3 (Pittsburgh, Pa.: November 2010) and *Capability Maturity Model® Integration for Development* (CMMI-DEV), Version 1.3 (Pittsburgh, Pa.: November 2010); Project Management Institute, Inc., *A Guide to the Project Management Body of Knowledge* (PMBOK® Guide), 5th ed., 2013; Institute of Electrical and Electronics Engineers, *IEEE Standard for Software and System Test Documentation*, IEEE Standard 829™ 2008 (New York, N.Y.: July 18, 2008).

Appendix III: Comments from the Department of Homeland Security

U.S. Department of Homeland Security
Washington, DC 20528

Homeland Security

October 23, 2017

Chris Currie
Director, Homeland Security and Justice
U.S. Government Accountability Office
441 G Street, NW
Washington, DC 20548

Re: Management's Response to Draft Report GAO-18-30, "DISASTER ASSISTANCE: Opportunities to Enhance Implementation of the Redesigned Public Assistance Grant Program"

Dear Mr. Currie:

Thank you for the opportunity to review and comment on this draft report. The U.S. Department of Homeland Security (DHS) appreciates the U.S. Government Accountability Office's (GAO) work in planning and conducting its review and issuing this report.

The Department is pleased to note GAO's recognition of the Federal Emergency Management Agency's (FEMA) efforts and progress in improving the administration of the Public Assistance (PA) program through a new delivery model. Subsequent to GAO's 2008 report about the PA program, FEMA engaged in a multi-year review and design process to improve the efficiency and effectiveness of how PA grant funding is provided to disaster survivors and is now implementing that new process nationwide.[1]

In 2014, FEMA began a dialogue with internal FEMA stakeholders and external partners from state, local, and tribal governments, to evaluate and deconstruct the PA grant process. This effort highlighted challenges in key areas and identified systematic weaknesses in the existing PA delivery model. PA program officials considered this feedback, in the context of various historical GAO and DHS Office of Inspector General (OIG) audit findings and recommendations, and developed a new PA delivery model focused on improving standardization, consistency, transparency, and customer service.

In 2015, in anticipation of the new PA model and the different needs required for its implementation, FEMA conducted a full workforce staffing assessment and developed a related workload model. This assessment also resulted in the retitling and training of each cadre member needed to support the new model. FEMA is currently re-evaluating the workload model to refine

---

[1] GAO, *Disaster Recovery: FEMA's Public Assistance Grant Program Experienced Challenges with Gulf Coast Rebuilding,* GAO-09-129 (Washington, D.C.: Dec. 18, 2008).

the workforce structure and capacity needed to continue with implementation of the new model to ensure its success.

FEMA developed the FEMA Applicant Case Tracker (FAC-Trax) to improve communication, data tracking and analytics, accountability, and organization. FAC-Trax is a web-based project tracking and case management tool developed to formalize standard processes and provide applicants real-time data and information on project status. The system is designed to provide the ability to capture applicant documents, maintain applicant and disaster profiles, and improve automated reporting. FAC-Trax is accessible to FEMA employees through the PA Grants Manager and to applicants through the PA Grants Portal.

As FEMA implements the new delivery model nationwide, program officials are closely watching performance metrics to measure the effectiveness of the program. FEMA is using objective criteria to measure various aspects of the delivery of the PA program including speed of project development, level of administrative costs, and amounts awarded for hazard mitigation. FEMA remains committed to lowering costs for future disasters by improving hazard mitigation opportunities. FEMA has established doctrinal processes, roles, and responsibilities that ensure discussions of hazard mitigation occur earlier in the PA grants process and hazard mitigation specialists are on hand to manage that process.

The draft report contained five recommendations with which the Department concurs. Attached find our detailed response to each recommendation.

Again, thank you for the opportunity to review and comment on this draft report. Technical comments were provided under a separate cover. Please feel free to contact me if you have any questions. We look forward to working with you in the future.

Sincerely,

JIM H. CRUMPACKER, CIA, CFE
Director
Departmental GAO-OIG Liaison Office

Attachment

2

**Attachment: DHS Management Response to Recommendations
Contained in GAO-18-30**

GAO recommended that FEMA's Associate Administrator for Recovery:

Recommendation 1: Complete a workforce staffing assessment that identifies the appropriate number of staff needed at joint field offices, consolidated resource centers, and in FIMA's Hazard Mitigation cadre to implement the new delivery model nationwide.

Response: Concur. Since the PA delivery model's redesign, program managers have conducted staffing assessments for various delivery functions such as training, field delivery support, technology development, and the consolidated resource center – including assigning hazard mitigation and environmental and historic preservation staff there. In coordination with the Field Operations Directorate (FOD) and FIMA, the PA cadre and Hazard Mitigation cadre force structures will be updated to staff Joint Field Offices under the new delivery model as implementation progresses.

To support this action, FEMA will accomplish the following milestones:

Milestone	Estimated Completion Date (ECD)
1. Develop a disaster forecasting tool to project PA disaster staffing needs based on workload drivers identified in each phase of project development.	11/30/2018
2. Refine hazard mitigation planning for individual disasters.	12/31/2018
3. Reevaluate the PA cadre force structure and, if necessary, develop recommendations to adjust staffing levels.	1/31/2019
4. Update disaster forecasting tool to project hazard mitigation staffing needs based on workload drivers identified in each phase of project development.	2/28/2019
5. Present recommendations regarding PA staffing levels to FEMA senior leadership and adjust as deemed necessary.	3/31/2019
6. Reevaluate the hazard mitigation cadre force structure and develop recommendations for adjusted staffing levels.	4/30/2019
7. Present recommendations regarding hazard mitigation staffing levels to FEMA senior leadership and adjust as deemed necessary.	6/28/2019

Overall ECD: June 28, 2019.

Recommendation 2: Establish controls for tracking FAC-Trax capabilities to the system's functional and operational requirements to more fully satisfy requirements development controls and ensure that the new information system provides capabilities that meets users' needs and expectations.

3

Response: Concur. To address this recommendation, Recovery program managers will accomplish the following:

Milestone	ECD
1. Update the FAC-Trax Requirements Management Plan to ensure that the ability to track capabilities to the system's functional and operational requirements is documented.	11/30/2017
2. Update the FAC-Trax Release Plan to document the traceability of FAC-Trax capabilities/user stories to the system's functional and operational requirements.	1/31/2018

Overall ECD: January 31, 2018.

Recommendation 3: Establish system testing criteria, such as a "definition of done," to assess FAC-Trax as it is developed; define the roles and responsibilities of all participants; and develop the sequence and schedule for integration of other systems with FAC-Trax to more fully satisfy systems testing and integration controls.

Response: Concur. To address this recommendation, Recovery program managers will accomplish the following:

Milestone	ECD
1. System Integration Plan: Incorporate interface-specific roles and responsibilities, sequence, and schedule for integration for the Deployment Tracking System (DTS) interface.	Completed
2. Update the System Integration Plan to incorporate general roles and responsibilities for all planned integrations.	10/31/2017
3. Update the system test plan to incorporate a "definition of done."	11/30/2017
4. System Integration Plan: Incorporate interface-specific roles and responsibilities, sequence and schedule for integration for the Enterprise Data Warehouse (EDW) interface.	11/30/2017
5. System Integration Plan: Incorporate interface-specific roles and responsibilities, sequence and schedule for integration for the Preliminary Damage Assessment (PDA) interface.	12/31/2017
6. System Integration Plan: Incorporate interface-specific roles and responsibilities, sequence, and schedule for integration for the State Grants Management system interface (NJEMGrants (MB3) System Administrator).	1/31/2018
7. System Integration Plan: Incorporate interface-specific roles and responsibilities, sequence and schedule for integration for the EMMIE interface.	6/29/2018

Overall ECD: June 29, 2018.

Recommendation 4: In coordination with the Associate Administrator of the Federal Insurance and Mitigation Administration, should implement procedures to standardize planning for addressing PA hazard mitigation at the Joint Field Office, for example, by requiring FEMA and state officials

4

to develop a memorandum of understanding outlining how they will prioritize and address hazard mitigation following a disaster as it did through prior policy.

Response: Concur. The FEMA PA program will update current process documents or develop new documents to better incorporate mitigation into the operational planning phase of the new delivery model.

Milestone	ECD
1. Reconvene the PA-Mitigation working group	4/30/2018
2. The working group will analyze hazard mitigation data collected in PA Grants Manager and other resources to research potential courses of actions.	5/10/2018
3. The working group will develop courses of actions for updated hazard mitigation planning procedures and refined PA-related hazard mitigation roles and responsibilities.	5/30/2018
4. Present recommendations to FEMA senior leadership on hazard mitigation planning procedures and take actions deemed appropriate.	6/29/2018
5. Finalize updates to any associated procedural documents and identify the need to align any PA policy documents based on updated hazard mitigation planning procedures.	7/31/2018

Overall ECD: July 31, 2018.

Recommendation 5: In coordination with the Associate Administrator of the Federal Insurance and Mitigation Administration, should develop performance measures and associated objectives for the new delivery model to better align with FEMA's strategic goal for hazard mitigation in the recovery process.

Response: Concur. FEMA agrees with this recommendation. The program will update new delivery model performance measures to better align with agency hazard mitigation strategic goals.

Milestone	ECD
1. Reconvene the PA-Mitigation working group to develop courses of actions for disaster-specific mitigation performance measures and alignment of new delivery model strategic measures with the FEMA Strategic Plan.	4/30/2018
2. The working group will analyze hazard mitigation data from EMMIE, PA Grants Manager and other data sources, and identify largest mitigation drivers in different event sizes.	5/10/2018
3. The working group will develop draft, refined, PA-related hazard mitigation performance measurements.	5/30/2018
4. The working group will present recommendations to FEMA senior leadership on refined hazard mitigation measures and implement those deemed appropriate.	6/29/2018

Overall ECD: June 29, 2018.

5

Appendix IV: GAO Contact and Staff Acknowledgments

GAO Contact

Chris P. Currie, at (404) 679-1875 or CurrieC@gao.gov

Staff Acknowledgements

In addition to the contact named above, Chris Keisling (Assistant Director), Amanda R. Parker (Analyst-in-Charge), Mathew Bader, Allison Bawden, Anthony Bova, Eric Hauswirth, Susan Hsu, Rianna Jansen, Justin Jaynes, Tracey King, Matthew T. Lowney, Heidi Nielson, Claire Peachey, Brenda Rabinowitz, Ryan Siegel, Martin Skorczynski, Niti Tandon, Walter K. Vance, James T. Williams, and Eric Winter made key contributions to this report.