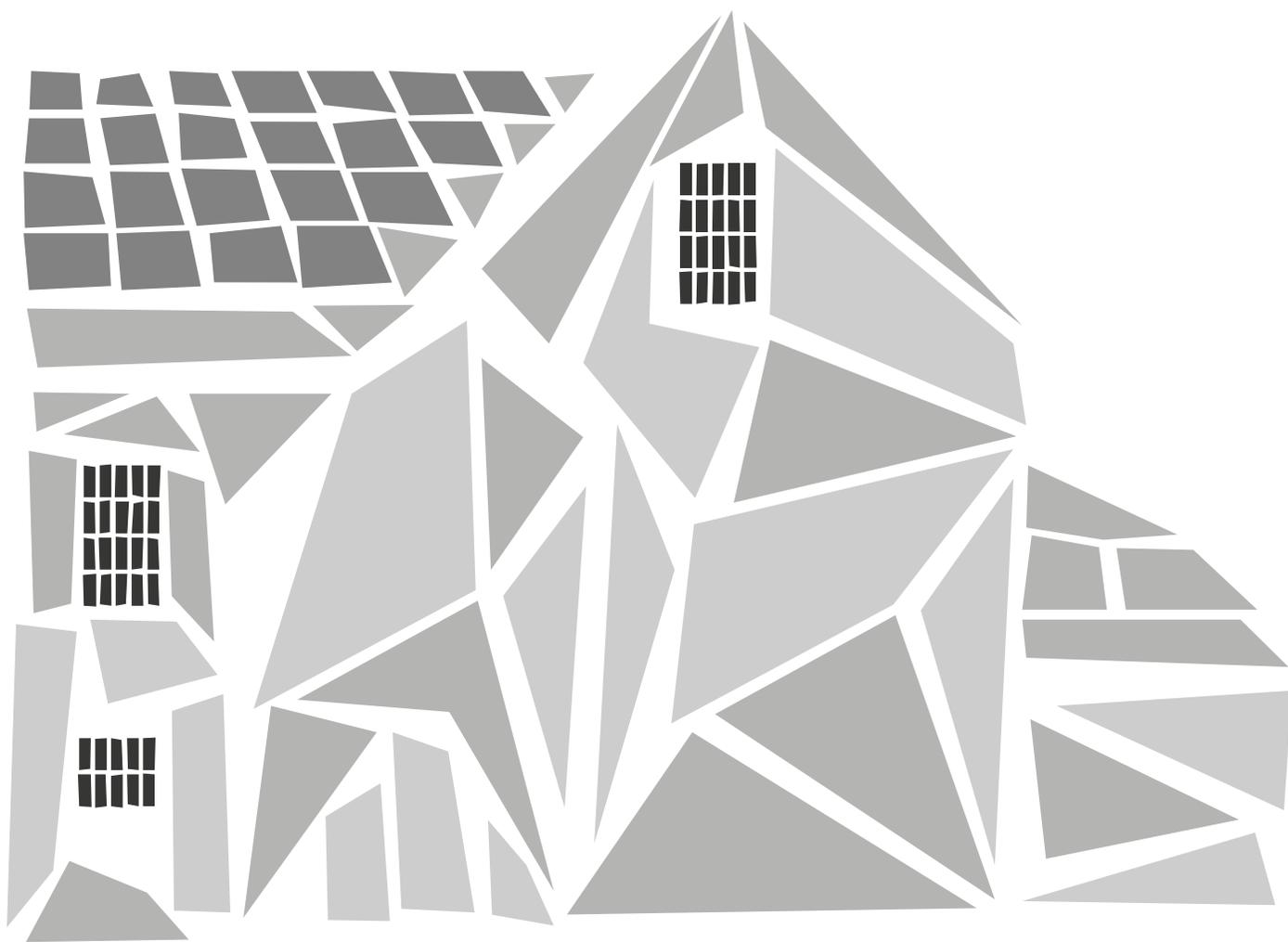


Housing Recovery and CDBG-DR

A Review of the Timing and Factors Associated with
Housing Activities in HUD's Community Development
Block Grant for Disaster Recovery Program



PD&R



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A Review of the Timing and Factors Associated with Housing Activities in HUD's Community Development Block Grant for Disaster Recovery Program

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Executive Summary

The U.S. Department of Housing and Urban Development's (HUD) Community Development Block Grant (CDBG) program for Disaster Recovery (DR) has increased in proportional value and importance within the portfolio of U.S. disaster response since its first use in 1993. Over the ensuing two and a half decades, the grants have provided long-term resources to support state and local governments as they rebuild housing and other local assets after disasters strike. CDBG-DR has become a critical backstop for filling any unmet needs after funding from private insurance and federal assistance from the Federal Emergency Management Administration (FEMA) and the Small Business Administration (SBA) has been exhausted.

CDBG-DR serves as a temporary bridge helping to pave the way back from the disaster to a community's long-term planning and development. CDBG-DR is not a permanently authorized federal program. Its funds come from special congressional budget appropriations, which have been set aside for a subset of presidentially declared disasters and for geographic units (that is, states, counties, or cities) that qualify for a variety of disaster-related needs. After each congressional appropriation, HUD issues program requirements and specific dollar allocations to which state or local grantees respond with an action plan for activities. Given the diversity in disaster types and severity, and inconsistent timing of congressional action, the speed and quality of recovery can vary substantially.

Potentially contributing to the variability in recovery time are the CDBG-DR grantees' program designs, capacity to execute, and selection of recovery activities. Grantees typically apportion most of their CDBG-DR funds to housing recovery, including assisting individual homeowners. Communities' and households' desire to rebuild quickly has consequently led to increased interest in the speed of CDBG-DR housing recovery activities. Much of what we know regarding CDBG-DR funded housing recovery programs, however, is anecdotal and circumstantial. Additional evidence on the timeliness of the program is needed to support grantees in more efficient design and implementation.

This study was commissioned to (1) describe completion times across CDBG-DR-funded housing recovery activities; (2) identify factors that contribute to variances in those times; and (3) provide guidance to support grantees in reducing potential lags and improving program launch based on likely contributing factors. Specifically, the research team measured activity completion times, analyzed the possible factors contributing to completion time, and explored the administrative challenges of implementing CDBG-DR housing activities across 88 CDBG-DR grants from fiscal year (FY) 2005 to FY2015—which includes housing activities created for Hurricanes Katrina, Ike, and Sandy.

Findings

How fast are housing recovery activities and have they gotten faster?

An important component of this report involves simply measuring how long housing recovery activities have taken under CDBG-DR funded grants. In this study, Urban outlined the overall chronology from disaster to grant completion for each of the CDBG-DR grants that involved housing recovery activities. The findings include the following points:

- ***Housing recovery programs across all housing activity types have taken an average of 3.8 years from the point of the disaster declaration to completion.*** In this analysis, completion is defined as the quarter in which 90 percent of an activity's budgeted costs have been expended. Average times are weighted by the activity size as measured in funds expended. More recent grants have seen faster housing activity completion rates. The housing activities created under the specific disasters of the 2013 Colorado floods and Hurricane Sandy, which also occurred in 2013, had the quickest completion rates at 3.5 years. Housing activities associated with Hurricanes Ike and Gustav, both occurring in 2008, stand out as having the longest recovery timeline of 5.9 years. Federal requirements that housing activities must be completed within a set timeframe after grant allocations have largely affected the pattern of reduced recovery times over the years. Overall, the CDBG-DR grants in our sample took an average of 4.7 years to complete. The longer grant-level timeframe includes infrastructure and economic development activities, which typically take longer than housing recovery.
- ***Improvements in the time to complete recovery have occurred in most stages of the recovery process.*** For example, the critical time between HUD's funding allocation and the grantees' activity completion, which is largely controlled by the grantees, has declined an average of 6.9 percent per year. The time for overall grant completion has declined 5.4 percent per year as well. The researchers broke each grant into phases and combinations of phases, depending on the responsible parties. The phases included the periods between disaster declaration and congressional appropriation; congressional appropriation to HUD allocation; HUD allocation to grant award; and grant award to completion of funded activities. The longest duration of time continues to be in the grant execution phase—that is, the period after HUD awards funding to the grantee. Analysis shows, however, that durations in the grant execution phase have shortened over the study years. The timing of HUD's actions, including allocation and grant award, has also shortened. Congressional appropriations, however, are not consistently timed immediately after disaster declarations.

What affects the speed of housing activity completion?

The research team supplemented HUD data with additional information including methods for administering funds; the total grant values and their housing activity portions; measures for variations in disaster severity; the frequency of grants for the same grantees; and local housing and economic characteristics, including the grantee's predisaster budget and revenues.

- **Homeownership assistance activities took the longest on face value (5.3 years), followed by the building of new affordable rental housing (4.6 years).** Reported completion rates across different types of housing activities reflect professional assumptions: the development and construction of affordable rental housing took longer than other housing compensation or rehabilitation activities, and relocation payments and assistance were the fastest activities (1.1 years). Housing rehab programs—the most publicly recognized activity and typically the largest proportion of grants—took an average of 3.7 years.
- **The assessment of completion times between state-level and county- or city-level grantees remains inconclusive.** Debates persist over the type of jurisdictions Congress and HUD should fund. The researchers compared different types of grant administration and grantees. Based solely on descriptive frequencies (that is, not accounting for other contributing factors), housing activities which are self-administered by state-level grantees tend to be completed the fastest—nearly 1 year earlier on average than when administered by subgrantees (typically, states passing funds along to counties or cities) or when counties or cities were the direct grantees. In contrast, regression analysis that controls for factors such as activity type and local population was ambiguous. This analysis suggests that locally administered grants are completed faster than state-administered grants, but the results were not statistically significant. Ultimately, the number of grants across different levels of disaster severity and grantee type is insufficient to enable a more conclusive analysis.
- **No quantifiable contextual factors that significantly and consistently contributed to housing recovery activity completions were found in the study.** The researchers assumed that local financial and professional capacity combined with differences in grant values could alter recovery times, but no evidence of this emerged. The team did find, however, that grantees in locations with higher concentrations of employment in the construction industry administered grants more quickly. Local socioeconomic factors (unemployment and homeownership rates, for example) appear to have an impact at the activity-level but are not statistically significant in our grant-level analysis.

- **Several issues emerged that qualitatively appeared to shape how housing activities may be accelerated, particularly in relation to the effect of grantees' internal capacity and the CDBG-DR regulatory framework.** The researchers also interviewed grantee stakeholders to explore operational reasons for delays. For example, the grantee staff's level of expertise, staff turnover, and program management systems were repeatedly identified as potential sources of time delays. Grantees also faced challenges with issuing subgrants and procuring contractors. These challenges ranged from establishing qualifications and eliciting an acceptable number of bidders, to oversight of the project. Along with HUD's procurement requirements, other federal regulations—such as environmental reviews—burdened grantees and added time to recovery completion. Grantee outreach to and case management for individual households were other causes of delay. Finally, contextual factors regarding the grantee's relationships with other jurisdictions (particularly where both state and local jurisdictions within the same state received grants or where a state subgranted to a local government) and with internal political transitions also appeared to shape recovery times.

Recommendations

After each severe disaster event, the federal government took stock of its response and recovery efforts, proposed legislative and executive rule changes, and altered operational capacity—actions that led to notable improvements in housing recovery speed. Opportunities exist, however, to further improve the federal structure, grantee capacity, and other factors that contribute to perceived delays in housing recovery supported by CDBG-DR without diminishing the quality and robustness of those activities and, ideally, improving recovery outcomes.

For the Federal Emergency Management Framework

The first set of recommendations lies squarely within the purview of the federal disaster enterprise—

- **Statutory Authority:** Congress could provide permanently enabling statutory authority for CDBG-DR to increase certainty during the appropriation and allocation stages early in the recovery timeframe and to create consistent program requirements.
- **Cross-Agency Collaboration:** Enabling better coordination among FEMA, SBA, and HUD—particularly regarding the communication of aid options to the potential recipient, sharing recipient data, and reducing regulatory and bureaucratic redundancy—could yield further time reductions.

- **Standardization of Program Requirements:** The most important potential improvements to CDBG-DR involve its relationship with other federal recovery programs in cross-cutting program requirements (Davis-Bacon, Fair Housing, and National Environmental Policy Act [NEPA] along with other environmental reviews). Inconsistencies and, in some cases, conflicts between the agencies' interpretations for the same households receiving assistance through grantees yielded increased delays.
- **Data Sharing:** Stakeholders stressed the importance of a database that FEMA, SBA, and other federal partners could use to help streamline processes and reduce delays caused by waiting for data. The ideal management system would be a single, unified, disaster data-system across all federal agencies and local authorities that could track damaged properties, households with unmet needs and their application, financial and demographic data, and the history of their interaction with all public-sector disaster aid sources.

For HUD

As the grantor, fund allocator, and grant monitor, HUD plays a critical role in ensuring that grantees move forward quickly and effectively. Recommendations for HUD, assuming CDBG-DR's current authorization and program requirement constraints remain the same—

- **Staffing:** Expanding the numbers and capacity of HUD field office staff can increase responsiveness to grantee questions and reduce the time involved in moving them up HUD's chain of command to the headquarters staff. Many grantees expressed a wish for more resources to be allocated to in-person trips, or for the HUD staff person to be located within the jurisdiction throughout the planning and early implementation of the grant.
- **Program Requirements:** Grantees consistently requested that HUD provide, as early as possible, additional clarity and guidance regarding CDBG-DR program requirements and common waivers.
- **Activity Design:** Both grantees and technical-assistance (TA) providers stressed the need for more concrete guidance from HUD on approaching design decisions, such as whether housing activities should be managed at the state or local level and about the comparative advantages of different assistance-delivery types (for example, rehabilitation, reimbursement, or compensation for single-family activities). Given the range of activities that are allowable under CDBG-DR, grantees also noted the importance of adding even more flexibility in the forms of (1) wrap-around services such as housing counseling; (2) the expansion or

experimentation with programs for harder-to-serve households, particularly renters; and (3) using recovery funds for predisaster home mitigation.

- **Integrating with Long-Term Community Development Data, Activities, and Goals:** Understanding pre-existing housing access and quality challenges, residents' demographic and financial conditions, and the local market for housing rebuilding contractors are all components of long-term planning that could help CDBG-DR grantees assess needs, define priority outcomes, and prioritize activities more quickly—even before a disaster strikes.
- **Monitoring and Reporting:** The Disaster Recovery and Grants Reporting (DRGR) system could be further improved to ensure consistency across grantees' reporting with accurate unit counts and consolidated reporting at the activity type. These steps will convert DRGR into a useful analytic database beyond its monitoring function.

For HUD's Technical-Assistance Providers

Grantees who received multiple allocations mentioned how the quality of HUD's TA has improved greatly over the years. This study identifies opportunities for further improvements in the content and delivery of TA from HUD's consultants, contractors, and program staff—

- **TA Subjects:** Grantees wished for standardized training on CDBG-DR requirements, especially on how to calculate the duplication of benefits, construction standards, complaint and appeal policies, fraud policies, and staff modeling structures. Standardized forms and templates for drafting action plans, determining eligibility, intake, income verification, and waiver requests ranked high on grantees' TA wish lists. As available, they also recommended the delivery of off-the-shelf software.
- **TA Delivery Mechanisms:** Grantees were enthusiastic about the opportunities to learn more from their peers; this was especially true of jurisdictions that were new to the CDBG-DR program. CDBG-DR training sessions provided by HUD that brought together multiple grantees were appreciated by grantee staff. Grantee staff also requested that these training sessions occur more often throughout a grant's lifecycle. Many grantees asked for a better guide or an index for the existing assistance such as the HUD Exchange, as well as links to other resources outside of HUD (such as FEMA) that could be useful. Grantees also recommended that TA materials be web-based, rather than paper-based, so that they are dynamic and can be adapted over time.

For Grantees

Several innovative solutions from previous grantees may help current and future grantees to address practical challenges—

- **Staff Capacity:** Documenting job positions so that playbooks and job descriptions can be used for onboarding new staff, transitioning temporary workers into permanent staff, and tapping into staff across agencies, or even neighboring jurisdictions, allowed grantees to piece together the necessary knowledge base and staff skills.
- **Grant Administration:** Several grantees quickly employed their internal knowledge of CDBG procurement rules or made bridges between agencies with program-related expertise (such as housing finance or environmental regulation) while centralizing CDBG-DR compliance. Occasionally, capacity assessments at the beginning of grants were helpful for identifying potential administrative gaps but, more commonly, debriefs and documentation at the end of grants provided lessons in the event of a future disaster and subsequent new grant.
- **Recipient Outreach:** Several grantees tailored the application and assistance process to include clear program procedures and application processes with all potential requests for documentation and instructions to be provided early—and only once—in the process. A few grantees created a single point of contact for applicant households, often within existing nonprofit organizations from the affected communities.
- **Case Management:** A few grantees reached out to other agencies in their jurisdiction (such as social service providers) for guidance on case management strategies.
- **Data Management:** Repeat grantees have developed standardized data-sharing agreements among various agencies, subgrantees, and contractors. Many grantees invested in the development of their own data management systems just for CDBG-DR with either in-house IT staffing capacity or contracted staffing.

A final, fundamental point worth noting is that this study only focuses on the speed of housing recovery activities funded under CDBG-DR. It does not address the quality of recovery, the effectiveness in addressing all unmet housing needs that CDBG-DR intended to satisfy, or the overall speed of recovery for a community's housing beyond those receiving assistance, which are all factors that influence the perceptions of the recovery's speed. One grantee's consultant noted the tension between faster and better recovery. This study's findings and the resulting recommendations will hopefully contribute to both.

What is CDBG-DR?

To improve the speed of housing recovery in the Community Development Block Grant (CDBG) program for Disaster Recovery (DR), or CDBG-DR, it is important to understand why long-term local housing recovery became a part of federal policy, what its role has been within that evolving recovery framework, and how the role has changed the requirements and expectations of CDBG-DR and its grantees.

Housing Recovery and Public Assistance

Governmental assistance for long-term housing recovery after a disaster has occurred is a relatively recent phenomenon (Jones, 2018). Immediate disaster response and short-term relief for disaster victims fell on local aid charities and first responders up through the mid-20th century, with the assumption that the physical rebuilding of individual property was the responsibility of individual property owners and their private insurance. The Disaster Relief Act of 1950 formally adopted the presidential declaration process and the opportunity for federal assistance during a disaster, although federal funds were explicitly meant to supplement rather than substitute for state and local efforts, and were meant only for disaster response (Baca, 2008).

After a series of tornadoes and a hurricane in 1953, the federal government created its first property recovery program by allowing the Small Business Administration (SBA) to offer low-interest loans to eligible homeowners and businesses for rebuilding. This program was followed by a series of special appropriations and program creations that allotted an incrementally larger role for the federal government in more areas of disaster response, typically after major disasters (FEMA, 2003)—

- A 1964 Alaskan earthquake spurred an infusion of federal recovery funds, including an expansion of SBA loans and loan forgiveness from other federal mortgage programs.
- Special recovery funds followed 1965's Hurricane Betsy in Louisiana and tornadoes in the Midwest, leading to the creation of the National Flood Insurance Act of 1968.
- Hurricane Agnes led to expanded individual assistance programs in 1972.
- Hurricane Camille's catastrophic effects in Mississippi led to the 1974 Disaster Relief Act, which made several federal programs and funding streams permanent.

- Midwestern tornadoes in 1974 again led to further changes in the declaration process and its triggering effect for public and individual assistance to communities, which eventually led to the 1979 creation of the Federal Emergency Management Administration (FEMA).

To create standard policy, the Stafford Disaster Relief Act of 1988¹ redefined the triggers for federal intervention and funding—the cost-sharing requirements between state and local governments and the federal coffers—and created hazard mitigation programs to reduce the costs of relief and response. Despite that landmark legislation’s attempt to standardize disaster policy, the expansion of federal roles and funds continued. Five years later, the special appropriation of CDBG, in response to the Northridge Earthquake in California, planted long-term housing recovery needs within the landscape of federal disaster funding (Comerio, 1998).

After each incident, new federal programs and increased reliance on the federal government to support recovery became the precedent for the next disaster (Birkland, 1997). Short-term crisis response, rather than long-term foresight, has guided national recovery policy despite disaster frequency and growing calls for federal intervention. CDBG-DR’s increasing size among national programs and its evolving operations are due as much to incongruities in federal disaster response as to the increase in the quantity, severity, and individual characteristics of American disasters.

The History, Terms, and Uses of CDBG-DR

HUD’s CDBG-DR program was first appropriated in 1993 under the authority of Title I of the Housing and Community Development Act (HCD Act) of 1974, known commonly as the CDBG program, and remains under CDBG legislative authorization to this day. CDBG is the federal government’s largest source of financial assistance for neighborhood revitalization, housing rehabilitation, and economic development activities driven by state and local governments (Boyd, 2011). CDBG-DR funds may be congressionally appropriated to HUD after disaster declaration as part of a larger disaster-related funding effort across the federal government, and then distributed by HUD to states, and entitlement county and city jurisdictions (HUD, 2016a). The funds are typically allocated across grantees by a formula based partially on disaster damage, with a few exceptions, such as the National Disaster Resilience Competition or Rebuild by Design competitive grants.

¹The Robert T. Stafford Disaster Relief and Emergency Assistance Act, PL 100-707 (The Stafford Act), signed into law November 23, 1988; amended the Disaster Relief Act of 1974, PL 93-288.

CDBG-DR flexibility derives from CDBG statutory and regulatory requirements that both open the range of potential activities while imposing compliance and reporting restrictions on them. CDBG-DR funds are commonly used for housing (rehabilitation, new construction, and relocation), public facilities (rehabilitation), economic development (loans and job training), social services (housing counseling), and community planning along with grantee administration of funds. Grantees typically use most of their CDBG-DR funding for housing activities—the focus of this report’s inquiry.

Like all federal programs, these grant activities are subject to terms and specifications. The definition and magnitude of unmet recovery needs in relation to actual physical damage is a critical step in the path toward the release and use of CDBG-DR funds. All activities must connect directly to the disaster in question and those needs. For example, beneficiaries of housing recovery assistance must have suffered property damage or displacement as a direct result of the disaster. Certain restrictions that are universal to CDBG funding are upheld (such as Fair Housing Laws and requirements for environmental, historic preservation, and lead-based paint reviews), and low- and moderate-income (LMI) households are prioritized beneficiaries. HUD may modify or waive regulations and some statutory provisions and establish alternative requirements to allow for CDBG-DR grantees to address their local conditions and unmet needs.

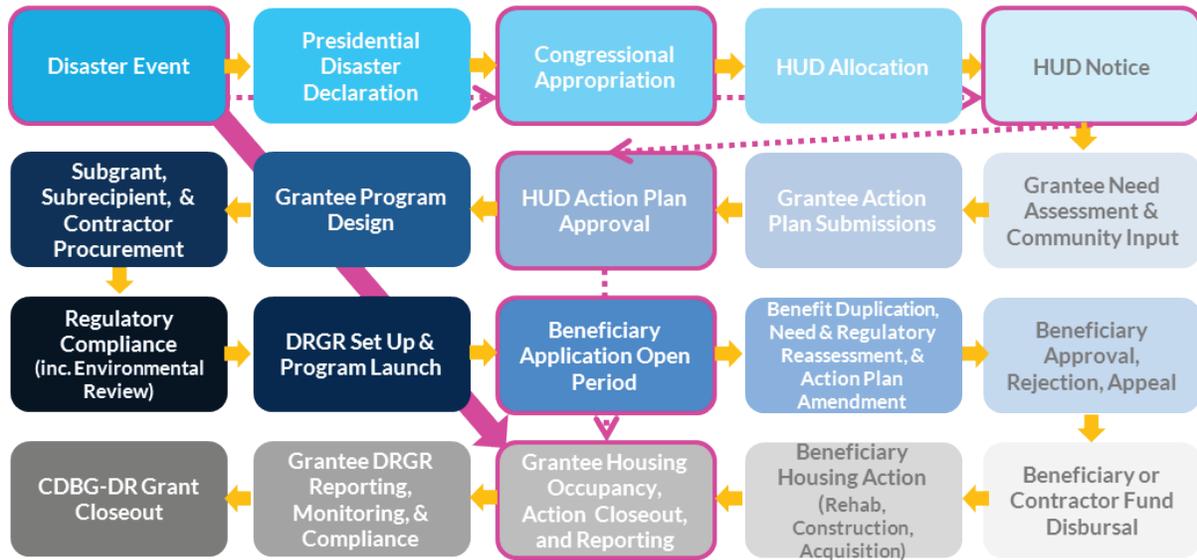
Amid national requirements and the opportunity for local grantees to define and design their chosen recovery activities, many occasions arise for iterative refinement and clarification that result in delayed implementation and deferred rebuilding. To understand where those moments for improvement exist, the researchers explored the overall sequence of events by which grantees receive and operationalize funds under CDBG-DR. The researchers then introduce descriptive findings regarding the timing of grant completions in relation to that sequence.

The CDBG-DR Grantmaking Sequence

Because CDBG-DR appropriations are intermittent, the nature of the overall timeframe from disaster to grant closeout varies widely. These appropriations are triggered by a significant disaster event or a series of smaller events over time. The general sequence of activities is presented in exhibit 1.

In exhibit 1, specific programmatic milestones (or a timeframe over which milestone activities occur, such as the application period for eligible households) follow the path of yellow arrows. From the perspective of grantees and their beneficiaries, however, the researchers note that the primary timeframe of interest is more straightforward: from the disaster event to the completion of their housing action, including re-occupancy. This is shown in the wide pink pathway.

Exhibit 1. CDBG-DR SEQUENCE OF STAGES



CDBG-DR = Community Development Block Grant program for Disaster Recovery. DRGR = Disaster Recovery and Grants Reporting.

Sources: Urban Institute; HUD (2016a)

Six milestones with consistent and reliable data for all CDBG-DR grants, which form a framework for this study’s quantitative analysis, are outlined in pink along a pink dotted path. These stages include (1) the disaster event; (2) the appropriation; (3) HUD’s notice of funding; (4) HUD’s approval of the grantee’s action plans; (5) the first expenditure which reflects the program launch; and (6) the eventual occupancy or action completion. These stages are described in the following paragraphs along with their required or average timeframes, if available—

- Disaster Event and Declaration:** Natural hazard events become disasters when they have significant social, economic, or environmental impacts. State governments increasingly request assistance from the federal government via the trigger of a presidential major disaster declaration (Lindsay and McCarthy, 2015).² Requests must be made within 30 days of a hazard event, and federal declarations are typically made immediately after (often within a single day). The declaration for 2016’s Hurricane Matthew, for example, was requested and made in nearly all affected states within 1 day as it moved up the Atlantic seaboard October 7–10. During this time, most disaster work on the ground is relief and response conducted by a jurisdiction’s emergency management functions with FEMA assistance as needed.

² A “major disaster” declaration triggers a broader set of federal resources that may include CDBG-DR, as opposed to an “emergency” declaration whose damage estimates are under \$5 million beyond local and state resource capacities and that trigger more limited FEMA assistance.

- **Congressional Appropriation:** In the event of a presidentially declared disaster or series of disasters, Congress may appropriate funds, including CDBG-DR, on a timeframe based entirely on the congressional schedule. In some cases, the funding can occur within weeks of an event, such as for Hurricane Harvey in 2017 and Hurricane Florence in 2018. In other cases, months may pass before funds are appropriated. Hurricane Matthew's CDBG-DR funding was included in the fiscal year (FY) 2017 Further Continuing Resolution signed on December 10, 2016. Congress directed these funds for all 2016 disasters before December 10, 2016, including Hurricane Hermine (September 2016) and Hurricane Matthew (October 2016)—meaning that, in theory, some affected communities could wait up to 1 year after their declaration date.

Before Congress appropriates CDBG-DR funding, state and local jurisdictions implement midterm relief and recovery activities with FEMA and are not necessarily planning for CDBG-DR recovery activities because the funds may not be forthcoming. After appropriation, likely grantees typically review past CDBG-DR regulations and perform additional planning for long-term recovery and for meeting the needs of those affected by the disaster.

- **HUD Notice and Allocation:** Based on FEMA-verified damage estimates in different jurisdictions, HUD allocates the congressional appropriation and issues a notice of funding availability (NOFA). The notice (or series of notices) typically includes allowable activities, additional requirements, and grant amounts and is produced within 60 days of the appropriations. This timeframe was longer prior to the 2012 Hurricane Sandy allocations, but, more recently, it has been reduced to as few as 30 days.
- **Grantee Action Plan Development and Submission:** Grantees are then required to submit Action Plans within 90 days of the publication of the HUD NOFA. Action Plans typically include full descriptions of damage estimates, assessment of unmet needs that are tied to the appropriated disasters, preliminary program designs in relation to the notice terms, and implementation strategies. Estimates and assessments ostensibly rely on the most recent damage data (typically provided by FEMA) and other pertinent knowledge about pre-disaster housing conditions and post-disaster housing needs (Eggers, 2009). Grantees must also provide time for public input to the plan before submitting it to HUD, and HUD can provide more targeted technical assistance (TA) and guidance. Jurisdictions are required to incorporate local feedback on Action Plans and confirm unmet needs in relation to the total allocation.

- **Action Plan Approval and Award by HUD:** HUD reviews the Action Plan and either approves it or requires the grantee to revise and resubmit it. The timeframe from Action Plan submission to approval and award depends on numerous factors including the magnitude of unmet needs, the complexity of the proposed activities, the extent of presubmission communication between the grantee and HUD, and whether the proposed activities comply with program requirements. The intensive review typically lasts from a few weeks to 2 months, and the plan is usually approved within 45 days of submission.
- **First Expenditure:** Prior to distributing funds, the grantees establish procedures and ramp up staffing and administrative capacity to support retail intake (marketing, applicant awareness and guidance, and standardized applications) and conduct reviews of applicant documentation and benefit duplication analyses. At the same time, grantees must provide any remaining Action Plan analyses, community input, and performance metrics typically within 3 months after Action Plan approval. This process is conducted through Action Plan amendments. HUD has invested heavily in TA efforts to support this critical enabling stage.
- **Activity Execution and Completion:** For the property owner, the final relevant milestone is the physical construction or property acquisition, which is typically constrained by the application process; the severity of damage; the local contracting market as procured by the grantee, subgrantee, or subrecipient; and the grantee's land use laws and building permitting capacity after the disaster. While other activities are critical for ensuring that the CDBG-DR funds are appropriately administered and expended, this final stage is more likely to receive public and political attention than any other. The total grant completion time as required by Congress or HUD ranges from 3 to 6 years when specified, although some grants have been extended.

Multiple factors contribute to both accelerating and delaying this timeframe, not the least of which is the urgency felt by the home occupants to return to safe, quality, and permanent housing. For example, changes in elevation requirements for rehabilitated homes made after Action Plan approval may alter the value of the property owner's benefit, the nature of the action required, and the necessary contractors; may potentially change the activity's environmental compliance; and may ultimately require an Action Plan Amendment—which all lead to potential changes in grant completion times.

The pressures to accelerate housing recovery are balanced with the realities of implementing complex and often large programs (typically for the first time for many grantee staff) in post-disaster conditions. Knowing the sequence of CDBG-DR milestones is helpful for identifying bottlenecks and

developing TA to overcome those bottlenecks. Before exploring the findings from the preliminary study results, the research team highlights the simplified set of six steps in the recovery sequence (exhibit 2).

EXHIBIT 2. CDBG-DR MILESTONE SEQUENCE



Sources: Urban Institute; HUD

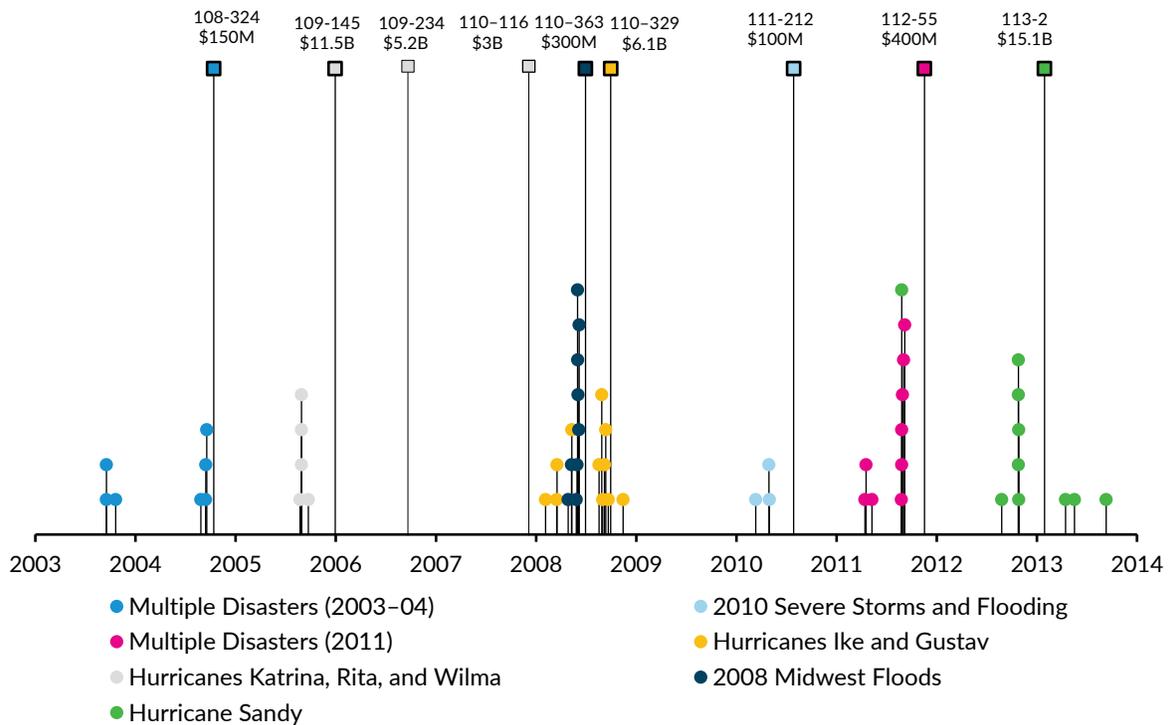
Past CDBG-DR Grants

In this study, the team examined disaster recovery housing activities that began or ended (spending) during the period of October 1, 2005, to September 30, 2015 (FY2006–FY2015). Collectively, the analysis includes several large-scale disasters and several smaller ones. This includes recovery activities for disasters that occurred before 2005. For example, Hurricane Isabel occurred in 2003, was funded in federal FY2005, and recovery work was still ongoing in FY2006. Consequently, it is included in the study sample. Similarly, the analysis of activities that began during the sample period includes spending data through the end of 2017. The list of study grants is provided in appendix B and these are linked to individual disaster declarations in appendix C.

Grants, Grantees, and Originating Disasters

Exhibit 3 shows a timeline of the disasters in the study sample and the disasters' corresponding appropriations. Each circle represents a disaster declaration associated with a CDBG-DR grantee, with stacked circles representing multiple declarations within the same month—either due to multiple disasters or a disaster that affected multiple states. Appropriations for each group of disasters are marked by a line topped with a square.

EXHIBIT 3. TIMELINE OF STUDY APPROPRIATIONS AND DISASTERS



Notes: Squares represent appropriations (public laws). Circles represent disasters covered by similarly colored appropriations.
Sources: FEMA and Urban Institute review of federal appropriations and HUD grantee action plans

The chart shows three strategies employed by appropriators that complicate CDBG-DR administration. The simplest appropriation is allocated for a single disaster or cluster of closely occurring disasters after their declarations. At other times, however, multiple appropriations are made for the same disaster over time; there were three appropriations for Hurricane Katrina, for example. Appropriators may also choose to provide funds for all the disasters that may have occurred over a longer timeframe, including disasters of both large and modest severity. Appropriations for disaster recovery, then, are not consistently paced with disaster events.

As shown in exhibit 4, Congress passed nine appropriations that funded CDBG-DR housing recovery efforts to 51 grantees (including 32 unique states and Puerto Rico, 11 towns or cities, and 8 counties or parishes) through 88 grants. With these funds, grantees completed 2,362 housing activities. (Non-housing activities include grants for infrastructure repair and economic development.) The nine appropriations of funding in our study each encompass grants for a variety of different disaster incidents across the country with a wide range of damage and severity.

EXHIBIT 4. GRANTS AND ACTIVITIES

	Overall	Includes Housing	Includes Non-Housing
Appropriations	9	9	9
Grantees	57	51	57
Grants	113	88	113
Activities	11,862	2,362	9,500

Source: HUD Disaster Recovery Grants Reporting data for grants which began or ended between FY2006–FY2015

The magnitude of the disaster damages covered (ostensibly the trigger for congressional special appropriations) is especially variable.³ Exhibit 5 displays the level of damage to owner-occupied housing and the number of grants and grantees for each disaster (a single grantee may receive multiple grants). The team calculated damage levels based on FEMA inspection data. Total damage is the sum of FEMA-verified loss for homeowners’ damage across all ZIP Codes affected by the specified disaster, while average damage is the mean of FEMA-verified loss across grants.⁴

As is evident from exhibit 5, damages to owner-occupied housing ranged considerably from \$25 million for Tropical Storm Fay to \$9.4 billion for Hurricane Katrina. This means that the scale of recovery efforts that grantees were required to engage in differed significantly.

³ We group 137 FEMA disaster declarations into 30 disasters based on storm type, locality, and date of disaster. For a full breakdown of the categories, see appendix B.

⁴ FEMA inspects homes to determine eligibility for FEMA Individual Assistance. For homeowners, FEMA may provide a grant for repairs so a person can reoccupy their home. Often, these repair estimates are for temporary repairs, such as patching a roof rather than replacing a roof. For seriously damaged homes, the estimates substantially understate the cost for permanent repairs because FEMA inspects with the single goal of determining the habitability of a housing unit, as opposed to the repair or replacement value of the home and other possessions. (Martín, 2019). As such, FEMA-verified loss is a substantial understatement of actual cost to repair, but it provides a common measuring stick to compare across disasters. When HUD allocates CDBG-DR funds, it develops an estimate that inflates the FEMA-verified loss to estimate actual cost of repair and then subtracts the resources provided by insurance, SBA, and FEMA in order to calculate “unmet” housing needs. HUD’s CDBG-DR allocation formula has varied over time, but generally uses severe unmet housing needs in “most impacted areas”, which are (i) housing needs only for seriously damaged homes in counties and ZIP Codes with high levels of damage that are not covered by insurance, SBA loans, or FEMA assistance; (ii) small business damage not covered by insurance or SBA loans; and (iii) the match requirement for the permanent repair components of FEMA’s Public Assistance program (Richardson and Renner, 2007). HUD allocations to grantees are based on severe unmet housing needs, versus all housing damage.

EXHIBIT 5. FEMA-VERIFIED LOSS DAMAGE OF OWNER-OCCUPIED HOUSING FOR SELECTED DISASTERS

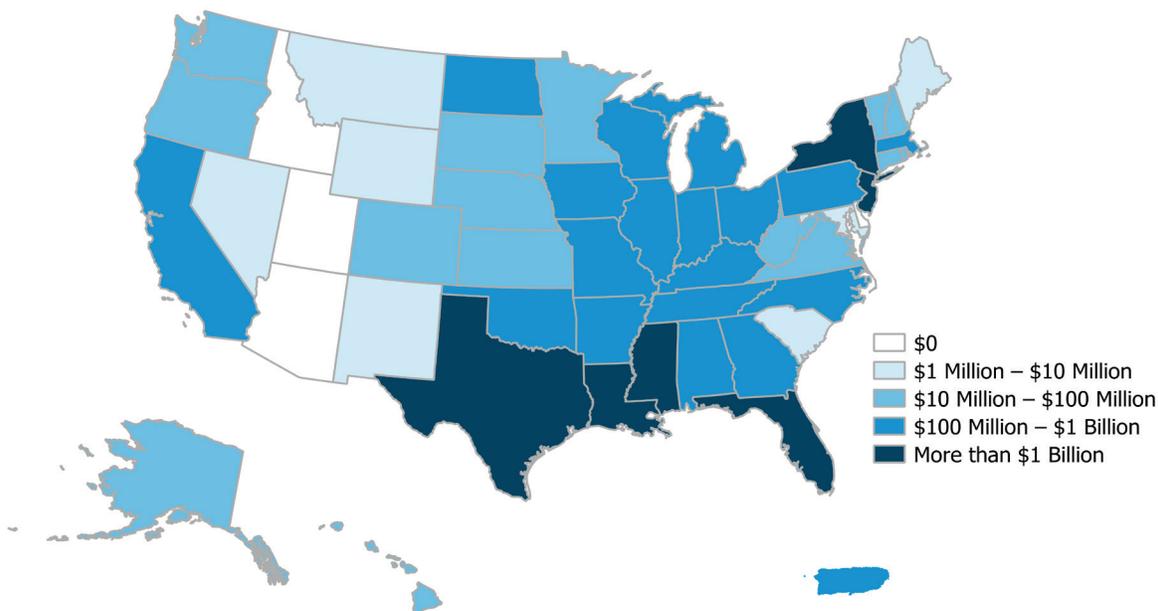
Disaster	Year	Grantees	Grants	Owner Occupied FEMA-Verified Loss Damage (Millions)	Average FEMA-Verified Loss Damage per Grant (Millions)
Hurricane Katrina	2005	4	9	\$9,411	\$1,046
Hurricane Rita	2005	1	2	\$405	\$203
TN/MO/AR Severe Storm	2008	3	3	\$82	\$27
Midwest Floods	2008	6	9	\$521	\$58
Tropical Storm Fay	2008	1	1	\$25	\$25
Hurricanes Ike & Gustav	2008	4	4	\$1,390	\$347
ND Flooding	2011	2	4	\$136	\$34
AL Severe Storms	2011	4	8	\$219	\$27
Hurricane Sandy	2013	6	6	\$2,356	\$393
CO Severe Storm	2013	1	1	\$63	\$63

Notes: This table includes the 10 largest disasters in our dataset and information of 47 of the 88 grants in our dataset. Damages adjusted to 2017 dollars.

Source: FEMA housing archives

Exhibit 6 presents cumulative damage estimates for all states and Puerto Rico for the 2004–15 timeframe.

EXHIBIT 6. TOTAL FEMA-VERIFIED LOSS DAMAGE OF OWNER-OCCUPIED HOUSING BY STATE AND TERRITORY (2004–15)



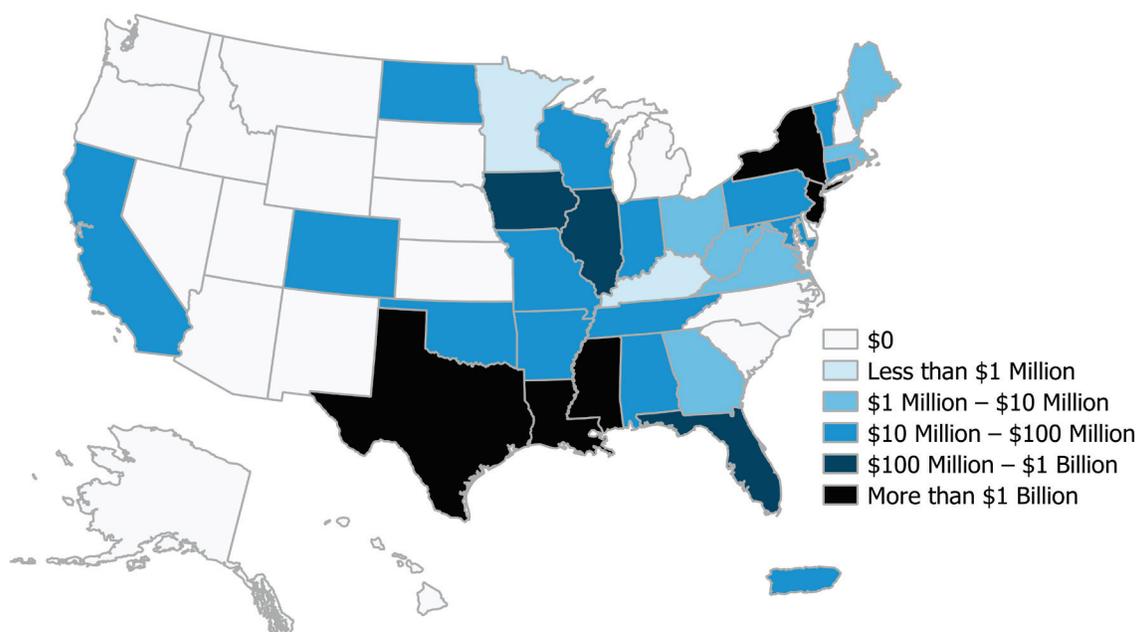
Source: FEMA Housing Archives

Grant Funds and Housing Activities

Disaster damage during the study period was particularly concentrated in a few states, namely those along the Gulf Coast and in the New York City tri-state area. Not surprisingly, these places also received significant CDBG-DR allocations. Exhibit 7 displays total housing allocations, by state, for the 88 federal grants for disasters in our sample. There is a large degree of conformity between the spatial location of allocations (exhibit 7) and damages (exhibit 6) at the state level.

It is important to note that some grantees, such as Louisiana, have received multiple grants for the same and/or multiple disasters—suggesting the potential for capacity-building to have occurred in some of these areas with repeated CDBG-DR grants.

EXHIBIT 7. TOTAL CDBG-DR HOUSING ALLOCATIONS BY STATE AND TERRITORY (2006–15)



Note: Allocations are adjusted to 2017 dollars.

Source: HUD Disaster Recovery Grants Reporting data for grants which began or ended between FY2006–FY2015

This picture of CDBG-DR grants is enhanced when looking across appropriations, disasters, and recovery activities undertaken by those grantees. Exhibit 8 shows average funds expended by appropriation (or round of appropriations), disaster, grant, and activity. To make comparisons across time, we treat the three appropriations for Hurricanes Katrina, Rita, and Wilma as one. On average, \$3.54 billion was expended per appropriation, \$827 million per disaster, \$282 million per grant, and \$11 million per activity.

EXHIBIT 8. AVERAGE HOUSING FUNDS EXPENDED (MILLIONS)

	Avg. Funds Expended
Appropriation*	\$3,545
Disaster	\$827
Grant	\$282
Activity	\$11

Note: *To make comparisons across time, we count the three appropriations for Hurricanes Katrina, Rita, and Wilma as a single appropriation. Funds expended are adjusted to 2017 dollars.

Source: HUD Disaster Recovery Grants Reporting data for grants which began or ended between FY2006–FY2015

Grantees can administer CDBG-DR funds directly, or subgrant them to local governments (either from a state grantee or another local government grantee). The share of grantees electing to administer the CDBG-DR funding themselves versus subgranting the funding to local governments was roughly equivalent. Twenty-six grantees self-administered the funds, seven of which were states and 19 of which were counties, cities, or towns. Twenty-four grantees, all states, subgranted funds with two (Texas following wildfires in 2011 and Louisiana following Hurricane Isaac in 2012) administering a portion of funds while also subgranting to local governments (exhibit 9). Self-administered efforts were significantly larger, however, as they represented 88 percent of all funds expended. Less than one-half of all activities (44 percent) were self-administered when considering the actual number of activities rather than the funding amount.

EXHIBIT 9. HOUSING GRANTS AND ACTIVITIES BY ADMINISTRATION TYPE

Administration Type	Grants	Grantees	Funds Expended (Millions)	Percent of All Funds Expended	Activities	Percent of All Activities
State Self-Administered	14	7	\$20,025	81	790	34
Local Self-Administered	23	19	\$1,799	7	226	10
Sub-Granted	50	24	\$2,995	12	1,340	57
Total	87	50	\$24,820	100	2,356	100

Notes: Data on administration type are missing for one grant (B-05-DJ-39-0001), which consists of six activities and \$1,195,313 funds expended. As some grantees received multiple grants and adopted different administration types, the number of grantees by administration type do not sum to the total number of unique grantees. Funds expended are adjusted to 2017 dollars. Local self-administration involves counties (or county-equivalent jurisdictions like parishes or *municipios*), cities, and townships. Units of general local governments like these are defined as eligible for CDBG-DR allocations pending appropriations.

Source: HUD Disaster Recovery Grants Reporting data for grants which began or ended between FY2006–FY2015

In turn, grantees allocated funds to the following types of housing activities: acquisition of property, affordable rental housing, construction of housing, homeownership assistance,

rehabilitation, relocation payments and assistance, homeowner compensation, and rental assistance. Exhibit 10 examines funding and number of activities by activity type.

EXHIBIT 10. TYPES OF HOUSING ACTIVITIES

Activity Type	Grantees	Funds Expended (Millions)	Percent of Funds Expended	Activities	Percent of All Activities
Homeowner Compensation	2	\$13,578	55	14	1
Rehabilitation	40	\$6,500	26	778	33
Affordable Rental Housing	20	\$3,090	12	727	31
Homeownership Assistance	17	\$286	1	103	4
Acquisition of Property	34	\$782	3	400	17
Construction of Housing	24	\$304	1	176	7
Relocation Payments and Assistance	16	\$234	1	130	6
Rental Assistance	8	\$46	0	34	1
Total	51	\$24,821	100	2,362	100

Notes: Many grantees fund multiple activity types. The "Grantees" column notes the number of unique grantees that conducted each activity, and because grantees can designate multiple activity types, it does not add up to the total of 51 grantees. Funds expended are adjusted to 2017 dollars.

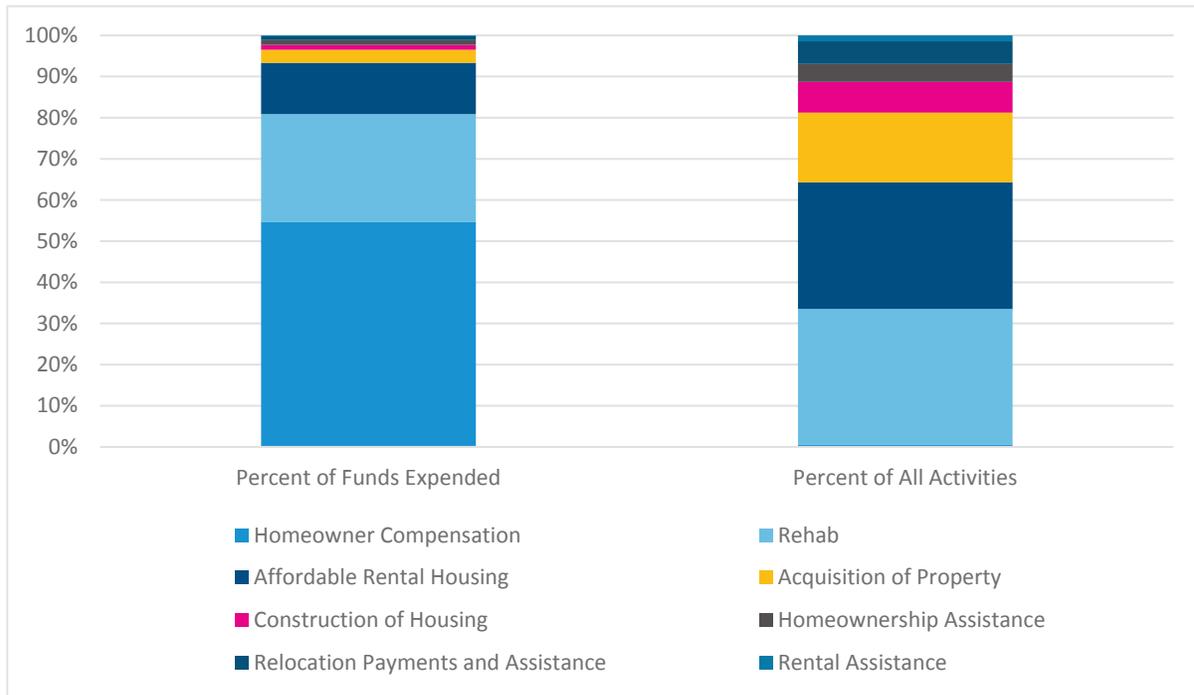
Source: HUD Disaster Recovery Grants Reporting data for grants that began or ended between FY2006–FY2015

Over 90 percent of housing expenditures were in three activity types. Homeowner compensation activities, which occurred in Mississippi and Louisiana following Hurricane Katrina, made up more than one-half of all funds expended despite being included in only 2 of the 51 grants and comprising only 14 of the over 2,300 activities. Rehabilitation activities distributed the next largest share of funds and account for one-third of all activities. These activities have been the primary focus of previous scholarship and press coverage. Affordable rental housing, a required activity for many grants, accounted for 12 percent of all funds expended and just under one-third of all activities.⁵

Exhibit 11 displays this visually by showing the percent of funding spent on each activity type and the percent of total activities for each activity type.

⁵ Congressional appropriations for 2005 and 2008 statutorily required that affordable rental housing programs be included in grantee Action Plans and resulting activities. Further, Hurricane Sandy appropriation required a set-aside for public housing.

EXHIBIT 11. TYPES OF HOUSING ACTIVITIES



Note: Funds expended are adjusted to 2017 dollars.

Source: HUD Disaster Recovery Grants Reporting data for grants funded FY2006–FY2015

Housing Recovery Completion Rates

This description of how CDBG-DR works and what it produces introduces a standard sequence of activities against which the various grants’ timing can be compared.

For example, exhibit 12 shows the average number of years between each of the key dates at the activity level and the grant level. All housing activities on average took 3.8 years to complete from the time of declaration, 3.2 years from appropriation, 3.0 years from HUD funding allocation, 2.8 years from HUD award, and 2.1 years from the first expenditure. It took longer on average to complete entire grants than single activities; while most activities moved from first expenditure to completion in the first 2 to 3 years, many grants included at least one activity that progressed more slowly. In comparison, grants took an average of 4.7 years to complete from the point of disaster, 4.1 years from appropriation, 4.0 years from HUD funding, 3.7 years from HUD award, and 3.7 years from the first expenditure.

EXHIBIT 12. TIME TO COMPLETE FOR DIFFERENT STARTING POINTS FOR HOUSING ACTIVITIES AND OVERALL GRANTS

	Years to Completion	
	Activity Mean	Grant Mean
Disaster Declaration to Completion	3.8	4.7
Appropriation to Completion	3.2	4.1
HUD Funding Allocation to Completion	3.0	4.0
HUD Award to Completion	2.8	3.7
First HUD Grant Expenditure to Completion	2.1	3.7
Number of Observations	2,362	88

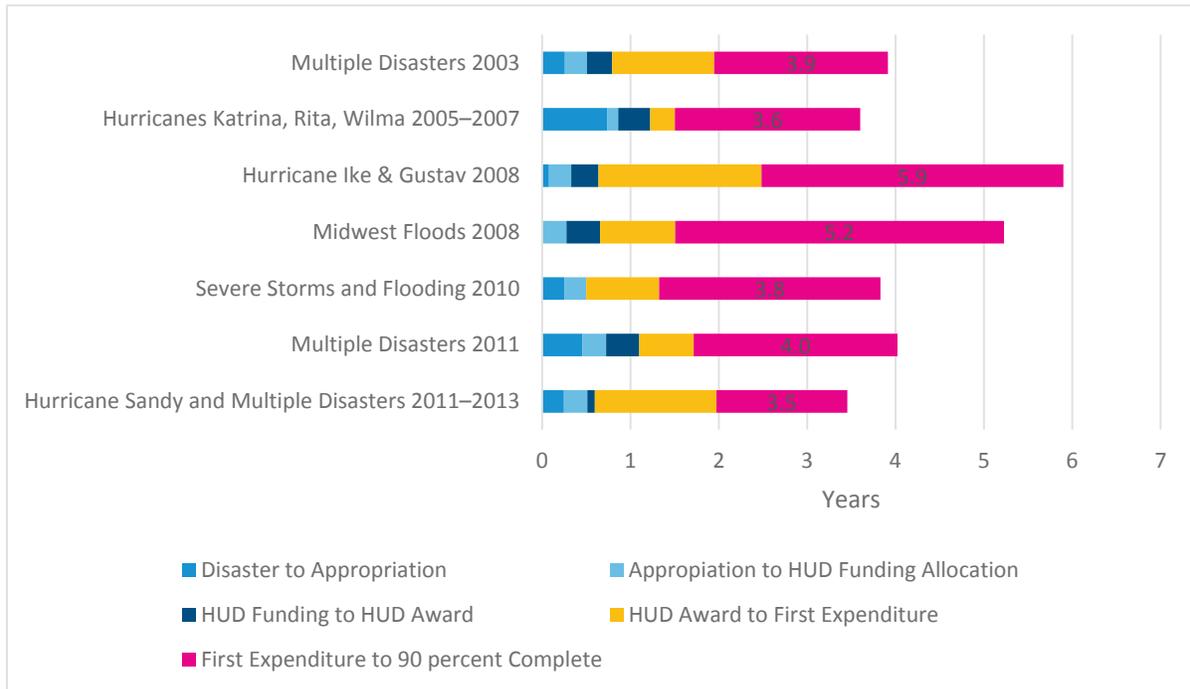
Source: HUD Disaster Recovery Grants Reporting data for grants which began or ended between FY2006–FY2015

Current scholarship suggests that different appropriations, disasters, grants, administration types, and activity types relate to recovery times. Starting with appropriations, exhibit 13 displays the average timeline by appropriation, weighted by activity expenditure.⁶

Certain appropriations were linked with longer recovery timelines. For example, recovery for the appropriation following the Midwest Floods in 2008 took 5.2 years, and Hurricanes Ike and Gustav recovery took 5.9 years. All other appropriations during this time took between 3.5 and 4.0 years to complete. Because many grantees drew funds before award, statistics measured at the appropriation-level frequently show no time between the award and first expenditure.

⁶ The research team calculated averages across activities, weighted by each activity's total expenditure, in order to reduce the potential for smaller activities that are not representative of the bulk of the disaster recovery assistance to skew the results. For example, to determine an average of 3 activities with estimated values of \$1 million, \$3 million, and \$10 million, the researchers weight the average by treating the activity of \$3 million as if it were 3 activities and the \$10 million activity as if it were 10 activities.

EXHIBIT 13. AVERAGE TIMELINE FOR HOUSING ACTIVITIES BY APPROPRIATION, WEIGHTED BY ACTIVITY EXPENDITURE



Notes: Funds expended are adjusted to 2017 dollars. Activities related to Hurricanes Katrina, Rita, and Wilma were funded by three separate appropriations between February 2005–December 2007.

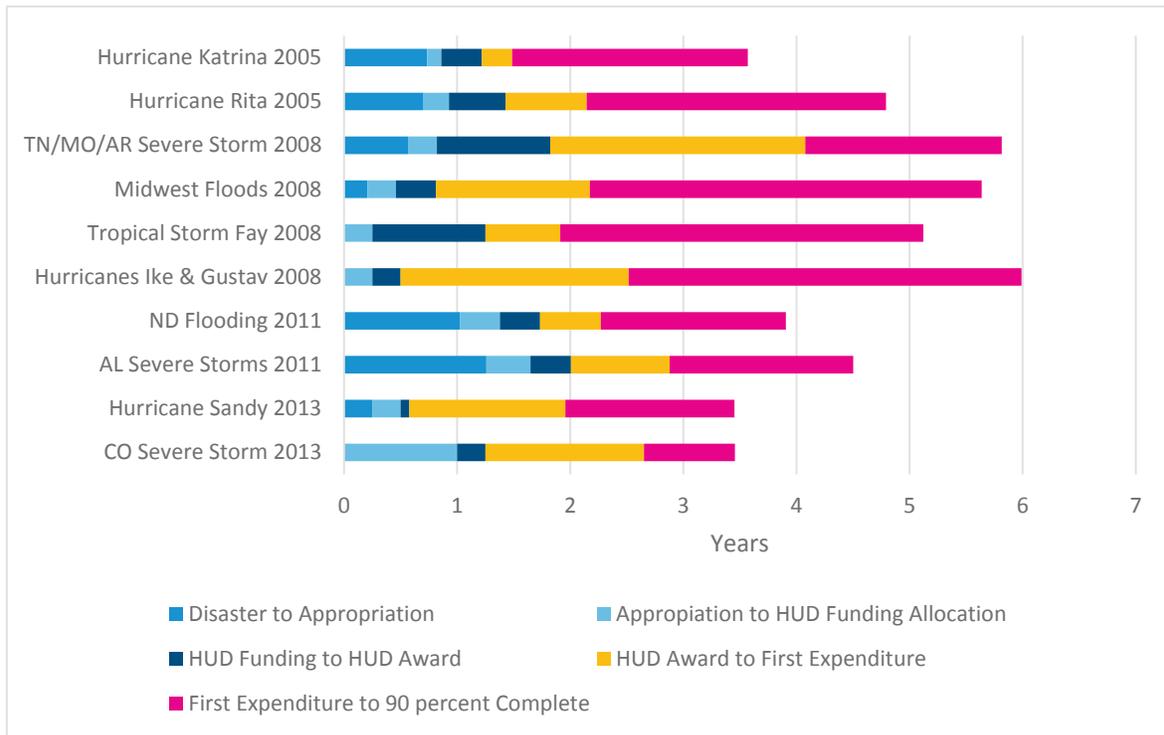
Source: HUD Disaster Recovery Grants Reporting data for grants that began or ended between FY2006–FY2015

As mentioned, appropriations typically respond to multiple disasters, and individual disasters may be funded through multiple appropriations, so it is useful to look at single disasters as well. Exhibit 14 looks at an average completion timeline for activities associated with several selected disasters and shows considerable variation in completion timelines.

Hurricanes Ike and Gustav stand out as having the longest recovery timelines at nearly 6 years. Housing activities for the Colorado severe storms and Hurricane Sandy (both in 2013) had the quickest recovery timeline at 3.5 years.⁷

⁷ Hurricane Sandy recovery timeframes were projected at the time of analysis because they were believed to be closing out shortly, but were confirmed independently during the report drafting.

EXHIBIT 14. AVERAGE TIMELINE BY SELECTED DISASTERS, WEIGHTED BY ACTIVITY EXPENDITURE

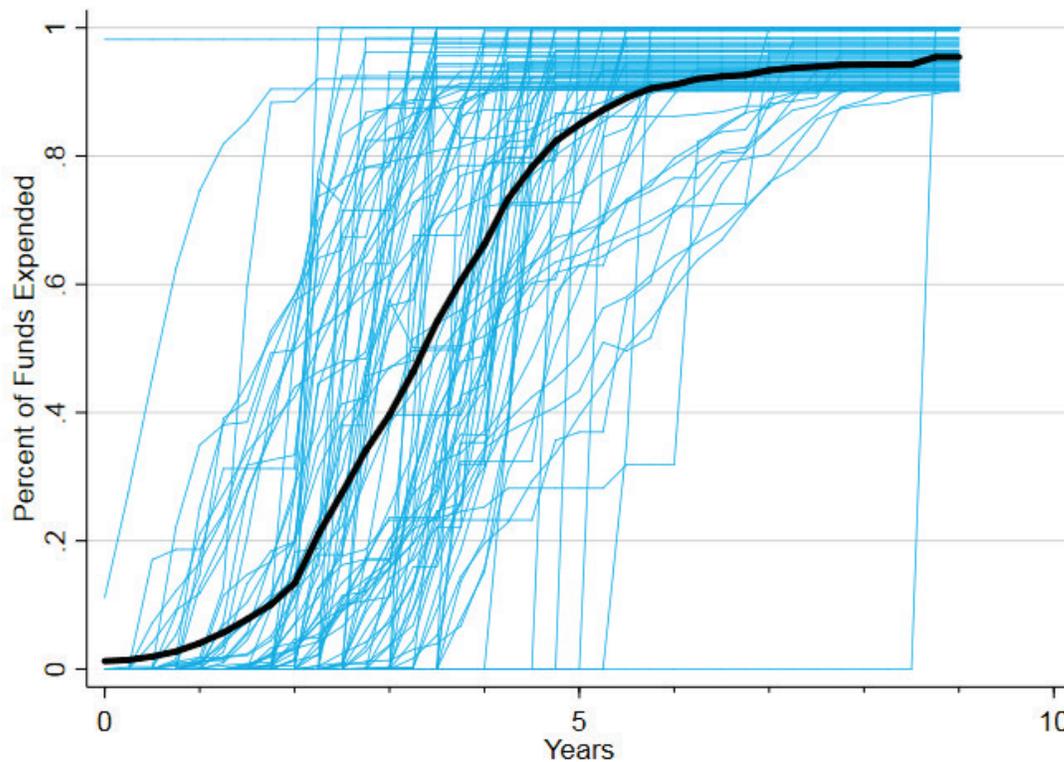


Note: Funds expended are adjusted to 2017 dollars.

Source: HUD Disaster Recovery Grants Reporting data for grants funded FY2006–FY2015

To further illustrate the variation in completion timelines, the researchers also looked at individual grants, not just appropriations and disasters. Exhibit 15 graphs the percent of total funds expended starting from first expenditure by grant, with the average of all grants shown in black.

EXHIBIT 15. PERCENT OF FUNDS EXPENDED FROM FIRST EXPENDITURE TO 90 PERCENT OF FUNDS EXPENDED BY GRANT



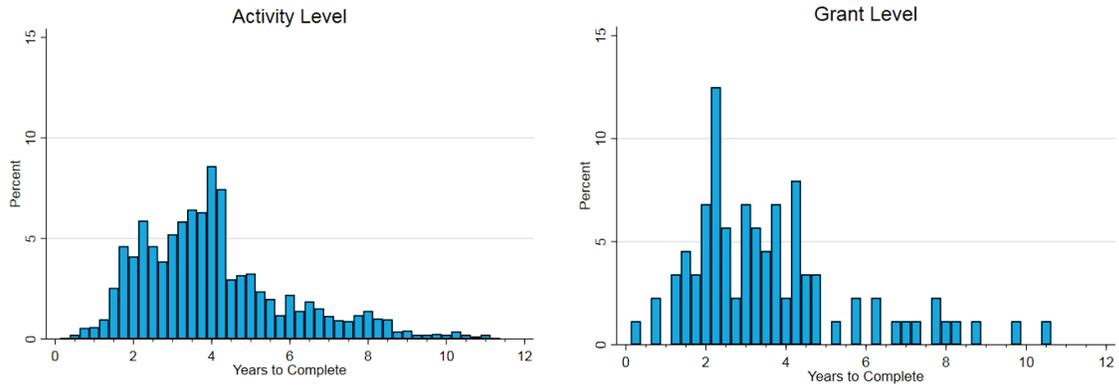
Notes: The black line is the mean years across all grants. It is possible for CDBG-DR funding to decrease in a given quarter if grantees enter negative funding amounts, for example, if they re-allocate funding from one activity to another. Funds expended are adjusted to 2017 dollars.

Source: HUD Disaster Recovery Grants Reporting data for grants that began or ended between FY2006–FY2015

The next three exhibits convey the full distribution (histograms) of recovery times for grants and activities. The exhibits examine recovery times for three stages: HUD funding to completion (exhibit 16), HUD award to completion (exhibit 17), and first grant expenditure to completion (exhibit 18). Each bar represents the percent of activities or grants that took a specific amount of time, in quarters, to complete. For example, the tallest bar in the right panel of exhibit 16 shows that about 12.5 percent of grants took 2.25 years between HUD funding allocation and completion.

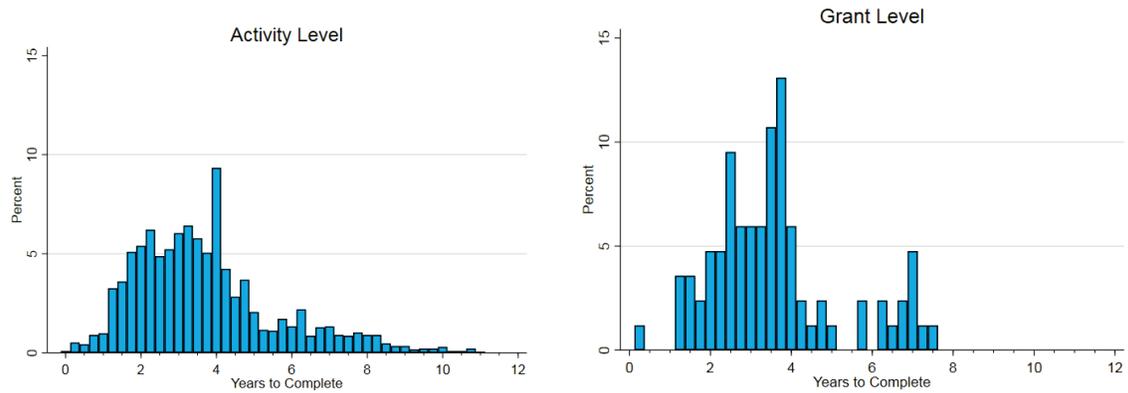
Note that a relatively high percentage of activities move from first expenditure to completion in less than 1 year, but a few activities take 6 or more years (exhibit 18). This leads to an average time of 2.1 years, presented in exhibit 12.

EXHIBIT 16. DISTRIBUTION OF YEARS BETWEEN HUD FUNDING ALLOCATION AND COMPLETION



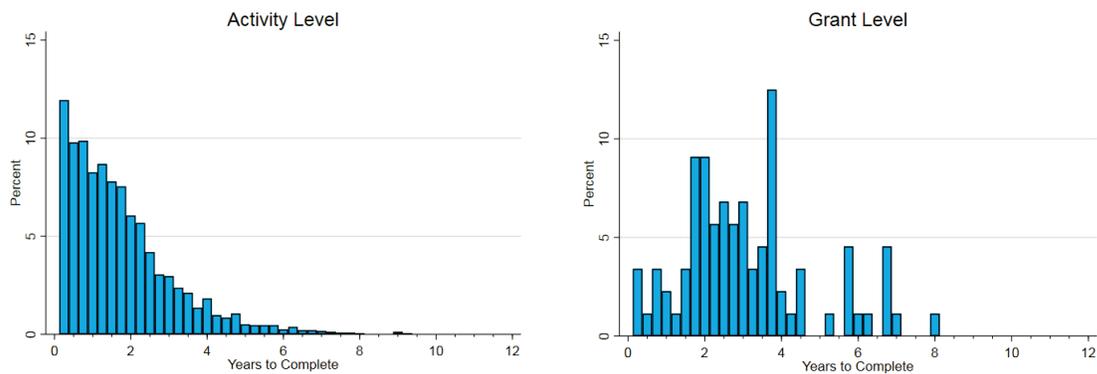
Source: HUD Disaster Recovery Grants Reporting data for grants funded FY2006–FY2015

EXHIBIT 17. DISTRIBUTION OF YEARS BETWEEN HUD AWARD AND COMPLETION



Source: HUD Disaster Recovery Grants Reporting data for grants funded FY2006–FY2015

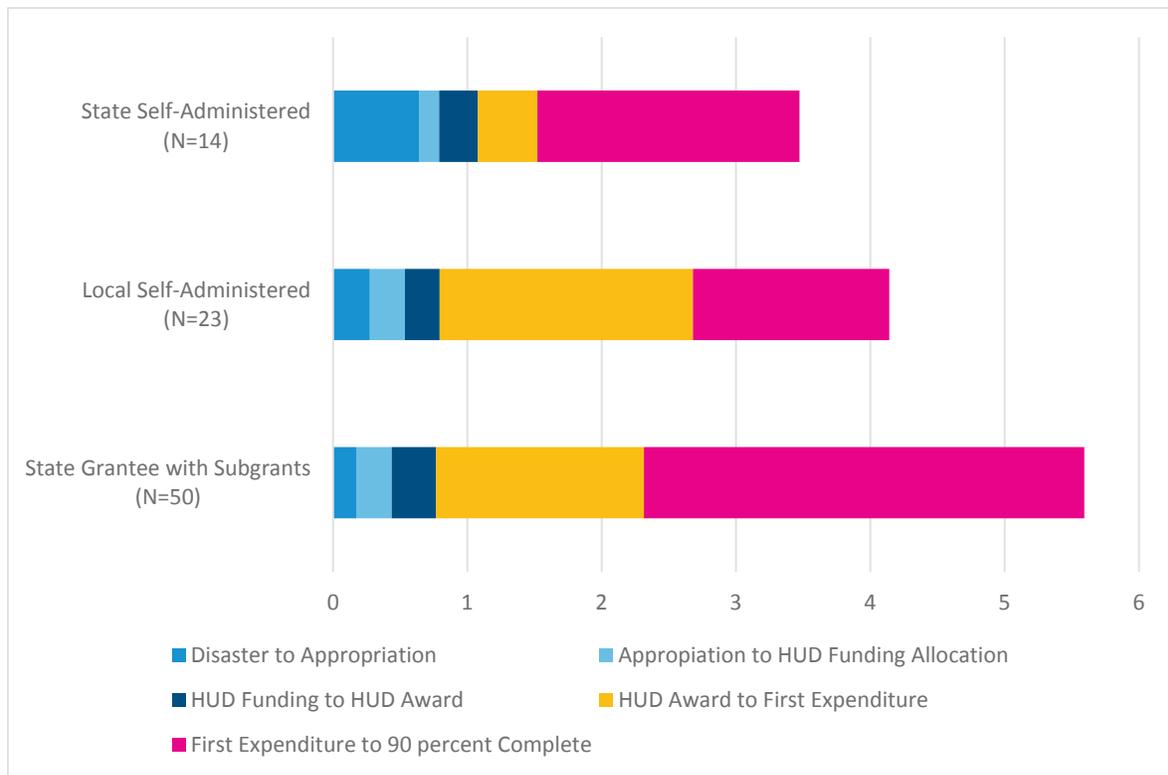
EXHIBIT 18. DISTRIBUTION OF YEARS BETWEEN FIRST HUD GRANT EXPENDITURE AND COMPLETION



Source: HUD Disaster Recovery Grants Reporting data for grants funded FY2006–FY2015

Finally, the research team also looked at average completion times across two dimensions: administration type and activity type. Exhibit 19 displays the completion times by administration type. As previously noted, state grantees can self-administer the recovery efforts, subgrant them to cities and counties, or do both. Counties and cities always self-administer. Subgranted activities take longer than self-administered recovery efforts overall: 5.6 years from the disaster event to completion, compared with 3.5 years and 4.1 years if self-administered directly by a state or local grantee, respectively. When looking at the timeframe just from HUD award—that is, when grantees directly control the speed of recovery, state self-administered housing programs are nearly 1 year faster than local self-administered counterparts and 2 years faster than when the states subgrant to local jurisdictions: 2.4 years for state-administered housing programs, compared with 3.3 years for local governments that have direct CDBG-DR grants, and 4.8 years when states subgrant to local jurisdictions.

EXHIBIT 19. AVERAGE TIMELINE BY ADMINISTRATION TYPE, WEIGHTED BY ACTIVITY EXPENDITURE



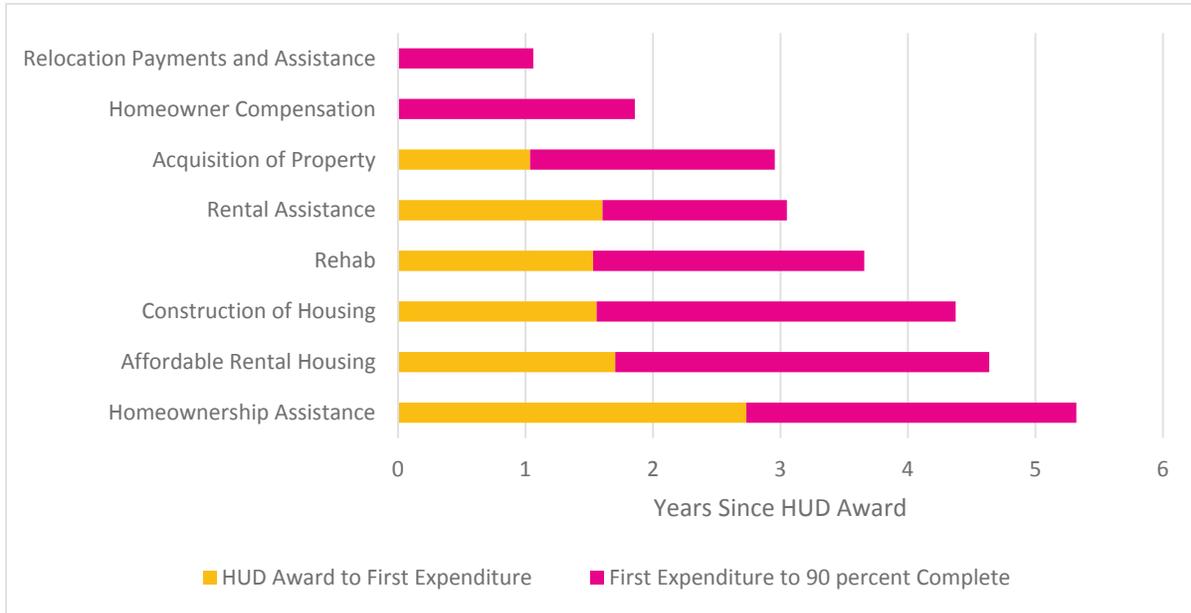
Notes: Funds expended are adjusted to 2017 dollars. State grants that combined self-administration and subgrants (n=2) are included in the “State Grantee with Subgrants” category for simplification purposes.

Source: HUD Disaster Recovery Grants Reporting data for grants that began or ended between FY2006–FY2015

Activity type appears to be influential as well. Exhibit 20 shows the activity-level averages of time from HUD award to the point of completion by activity type, weighted by activity expenditure. A fair

amount of variation in time expended, at each stage, is visible across the activity types. Homeownership assistance activities took the longest on average—5.3 years. As expected, because they do not involve physical rebuilding or recovery effort, relocation payments and assistance were the fastest at 1.1 years on average. Rehab programs, the most common of all housing recovery activities funded by CDBG-DR, took an average of 3.7 years to complete.

EXHIBIT 20. AVERAGE TIMELINE BY ACTIVITY TYPE, WEIGHTED BY ACTIVITY EXPENDITURE



Note: Funds expended are adjusted to 2017 dollars.

Source: HUD Disaster Recovery Grants Reporting data for grants funded FY2006–FY2015

The descriptive findings provide us with preliminary measurements of activity completion times as sequenced by the current CDBG-DR framework. The analysis, however, leaves many questions unanswered. Particularly, there are unanswered questions about the effects of external factors like preexisting capacity in grantee jurisdictions and disaster severity, or the internal administrative challenges of implementing CDBG-DR housing activities.

What Contributes to CDBG-DR's Timing?

The averages and distributions of completion rates between the Community Development Block Grant program for Disaster Recovery (CDBG-DR) grants and specific housing activities do not explain what causes those rates to vary, especially when controlling for different types and the severity of disasters or grantee contexts. In turn, it is unknown which factors could be potentially adjusted to change the pacing.

This chapter first reviews past scholarship and anecdotes to identify potential contributors to housing activities' pacing. Then, the authors describe findings from further analysis of the causes of recovery speed. The analysis relies on secondary data sources to quantitatively measure contextual contributors, along with qualitative primary data collected through interviews with grantee staff and supporting HUD staff from both HUD headquarters and HUD field offices.

Identifying the Factors

Because of the interest in increasing the speed of recovery, the perceived causes of CDBG-DR implementation delays are receiving increased attention. To get a preliminary sense of the perceived role of CDBG-DR in housing recovery and to identify potential causes of the pace of recovery, the researchers consulted with HUD staff working on CDBG-DR and reviewed academic research and media reports related to disaster recovery.

HUD Program Insights

Conversations with HUD CDBG-DR leadership shed light on key factors that potentially shape the quality and the speed of grantees' housing recovery activities.⁸ Although anecdotal, these insights are built from direct experience within the evolution of recovery delays, as well as from the nature of assistance and resources that have been devised in response over the past decade.

⁸ A 1-hour focus group was conducted with national HUD CDBG-DR leadership and staff (not including regional and field staff) on January 4, 2017, at HUD headquarters. Structured interview questions included those on factors that lead to rebuilding delays at every stage in the CDBG-DR implementation sequence, specifically disaster recovery. HUD staff also provided notes from a July 2016 CDBG-DR grantee stakeholder discussion regarding proposed revisions to CDBG-DR program requirements.

Key challenges discussed by CDBG-DR leadership began with the timing of congressional appropriations. Because CDBG-DR grants are funded through independent special appropriations, the program's availability and timing are unpredictable. Furthermore, because the program does not have authorizing language, each appropriation requires its own Federal Register Notice to govern implementation. Another concern about the appropriations' effect on recovery delays comes from required expenditure deadlines; HUD noted that potentially condensed timelines may impact the quality of recovery and may discourage grantees from pursuing housing activities with longer timeframes—such as the creation of affordable rental housing.

These fundamental structural characteristics pose challenges to HUD's administration of the grants: staff must be taken off other scheduled work—most often, the administration of ongoing disaster recovery efforts—in order to respond to these supplemental appropriations. The development of new notices consumes a great deal of the staff's time as well, potentially delaying grant starts.

In turn, the states, counties, and municipalities that may receive funds in the future are often unprepared due to the program variability, along with the potentially overwhelming size of grants. HUD staff noted that awards are often much larger than a jurisdiction's regular CDBG grant. Very few grantees have the necessary capacity and expertise to implement the program during normal times, let alone at the time of post-disaster allocation.

Some grantees are unfamiliar with how to implement CDBG-DR policies and procedures. Some grantees are also unprepared to analyze damage data, to recruit, assess eligibility, serve individual households, and to conduct environmental reviews among many other administrative steps. Grantees may be challenged by reporting requirements after a housing activity is completed, including reporting to HUD, expending funds, and completing closeout activities. These complex operational challenges are further impeded when a jurisdiction's leaders set a vision for their community's recovery and its pacing that may not account for all these steps, or when the leaders are transitioning out of office.

Despite the challenges faced at multiple levels of CDBG-DR's implementation, HUD staff suggested that there is potential for improvement; additional resources to provide early guidance to grantees could reduce the risk of future delays or program quality. For example, HUD could provide grantees access to data and provide assistance with analysis, so the grantees can develop a more robust and accurate assessment of unmet needs. Applicant awareness efforts and the sharing of best practices in early program marketing may also alleviate future time stressors.

Literature Review

There is a small but robust scholarship on housing recovery in the aftermath of catastrophic disasters (Bolin and Stanford, 1991; Berke, Kartez, and Wenger, 1993; Comerio, 1998; Peacock, Dash, and Zhang, 2007; Smith and Birkland, 2012; Peacock et al., 2014; Sapat and Esnard, 2017). Most studies focus on the major disasters that served as turning points in American disaster management policy, such as the 1994 Northridge earthquake; 2005's Hurricane Katrina; and 2012's Hurricane Sandy. Findings regarding the factors that contribute to recovery timing in these severe disasters may not be generalizable to all CDBG-DR appropriated disasters.

REBUILDING OUTCOMES

Much of the literature has focused on program outcomes more than timing. The only two studies to track the timing of long-term CDBG-DR rebuilding outcomes noted that properties damaged in Hurricane Katrina that received CDBG-DR support were nearly twice as likely to have been rebuilt and about twice as likely to be habitable in early 2010 in comparison to properties without CDBG-DR support (Turnham et al., 2011). Gregory (2017) corroborates the causal finding regarding CDBG-DR's effect on rebuilding for the post-Katrina CDBG-DR housing programs in Louisiana known as the Road Home Program.

Along with total rebuilding outcomes across a damaged community, some scholars have focused on how CDBG-DR outcomes play out between different populations within a jurisdiction depending on their program design and implementation; much of the literature comes from the Katrina context (Rose, Clark, and Duval-Diop, 2008; Green and Olshansky, 2012; Kamel, 2012; Gotham, 2014; Green, Kouassi, and Mambo, 2013; Peacock et al., 2014). Outcome differences by the type of housing have also been explored: in Louisiana, 29 percent of units in the homeowner stock were damaged compared with 35 percent of rental housing units (GAO, 2010). Furthermore, 73 percent of predisaster affordable rental units available to the extremely low-income were damaged, creating a greater burden for the most vulnerable in New Orleans (Mueller et al., 2011).

RECOVERY TIME

The amount of time it takes to rebuild is the primary interest of this work. Only a few studies, however, describe the speed of public-sector assistance in housing recovery or the factors that contribute to it. In HUD's Katrina CDBG-DR study, for example, most owners had rebuilt by the second year after the disaster event, yet repairs were still being completed for some properties up to the study's point of data collection—that is, 6 years after the disaster (Turnham et al., 2011).

Grantee Capacity

Existing research suggests that grantees' programmatic capacity and administrative factors shape recovery. Because HUD's 2011 study (Turnham et al., 2011) looked at recovery rates across multiple CDBG-DR housing programs, it pointed to additional program- and jurisdiction-specific characteristics as having played key roles in rebuilding timing. Following the 2005 Gulf Coast hurricanes, for example, Louisiana and Mississippi both had to develop new offices to lead disaster recovery efforts and hired additional staff to implement homeowner assistance programs (GAO, 2009). The scope of the relief and recovery effort following the Gulf Coast hurricanes in 2005 overwhelmed local agencies (The Brookings Institution and Greater New Orleans Data Center, 2009).

The early use of CDBG-DR in California's Northridge earthquake suggested that high-capacity jurisdictions with significant assessment and planning capability could foreseeably identify unmet needs and administer funds independently (Comerio, 1996). Later reliance on subgranting to smaller jurisdictions or the use of private-sector contractors suggested the appropriateness of capacity-building supplements (GAO, 2007; 2008).

A few studies also highlight challenges associated with regular CDBG program grants (Walker et al., 1994; Walker et al., 2002; GAO, 2009; GAO, 2012; Rose, Clark, and Duval-Diop, 2008, Gotham, 2014), which are further exacerbated in the aftermath of a disaster. This included the lack of staffing and operational capacity to administer grants and the lack of specific performance metrics for outcomes.

Housing Activity Design

Jurisdictions' program designs also varied in ways that may have contributed to timing. For example, Turnham et al. (2011) compared the "compensation" program design used in Mississippi and Louisiana, in which households received direct cash assistance, to the "rehabilitation" program in Texas in which the grantee contracted and oversaw direct housing repairs. The study found that the compensation method of funding led to faster drawdown of funds, but resulted in a lower percentage of households completing their rehabilitation in a timely manner or even using their funds for rehabilitation altogether. The inclusion of property acquisition along with repairing and rebuilding changed recovery times because the former required no physical improvement.

Program Requirements

Another common CDBG-DR implementation challenge, aside from capacity, has been the lack of clarity regarding legal and financial requirements for different housing recovery approaches and

programs within CDBG-DR. For example, the distinction was unclear between rehabilitation programs that provide funds for repairs or reconstruction projects as opposed to compensation programs that disburse funds directly to homeowners regardless of whether they plan to repair or rebuild (GAO, 2009). The study also noted jurisdictions' confusion regarding the use of CDBG-DR funds in relation to other disaster-related federal funds.

Design Clarity and Applicant Decisions

These capacity issues appeared to shape the level of confusion and delay for eligible beneficiaries as well. The Government Accountability Office (GAO) (1996) noted early in CDBG-DR's history the confusion around eligibility requirements. A study from the RAND Gulf States Policy Institute found significant delays in receiving payment for Louisiana's post-Katrina programs; on average, homeowners waited about 250 days for grants with many waiting over a year (Eden and Boren, 2008). The report found that delays compounded as applications moved through each segment of multi-tiered application and review processes.

Responses to beneficiary satisfaction questions in the 2011 study's survey showed that 31 percent of Louisiana respondents noted having at least one problem with the CDBG-DR-funded program, including delays in getting the application accepted and receiving program funds; problems reaching program staff; problems determining what paperwork to bring in; and delays in completing damage assessments (Turnham et al., 2011). Contextual factors such as the availability of contractors, the clarity of construction requirements (in this case, new elevation requirements), construction permitting, and zoning changes all delayed rebuilding. Naturally, the quantity and quality of local home remodelers and builders before, during, and after disasters clearly contribute to delays, as well.

Household-level factors are also associated with other reasons for rebuilding and with the quality of rebuilding. Owners who did not rebuild cited insufficient funds to pay for rebuilding as a primary reason. This funding gap manifested from the combination of a lack of liquid assets, inability to acquire financing or inability (or continued waiting or confusion) in acquiring disaster assistance. Turnham et al. (2011) also noted that many owners had not rebuilt because they were still waiting to see the overall development among their neighbors, in their schools and infrastructure, and their jurisdiction's overall economy. Many respondents to that study's survey noted other non-financial reasons for rebuilding delays, including the inability to access affordable flood insurance after the disaster, which contributed to financial gaps. The personal indecision around whether to rebuild has also been associated with mental health and other post-disaster psychological dimensions (Bolin, 1985).

Finally, property owners' decisions to insure their properties appropriately played a major role in rebuilding rates; the presence of property insurance and the extent of property damage from the disaster were the two strongest predictors of rebuilding outcomes (Turnham et al., 2011). The 2011 study noted that properties which had been insured before the hurricanes were 37 percent more likely to have been rebuilt than uninsured properties. Properties with damage so extensive that the property had been demolished or condemned were 39 percent less likely to rebuild.

Public and Media Perceptions

With the paucity of scholarship, the authors also reviewed popular media to uncover other factors that may contribute to recovery speed. Public perceptions of CDBG-DR (or, more exactly, any government-led recovery program) are colored by the generally exclusive coverage of massive catastrophes and their inherently longer and more complex recoveries. Combined with scholarly and governmental attention on issues within the CDBG-DR program, widespread media attention has focused on the challenges, benefits, and efficiencies of program spending.

Ultimately, much of the public perception of the housing recovery programs funded by CDBG-DR has been provided by anecdotes of implementation challenges and bureaucratic bottlenecks as reported by local media outlets. For example, the media rarely report on the physical quality of the homes that were successfully rebuilt or repaired. The researchers found few articles citing satisfaction surveys of grantees and recipients of assistance. Overall, the coverage assumed an idealized immediate recovery timeframe like the expectations of disaster victims desperate for a return to normalcy and to the elected officials concerned for their constituencies' wellbeing. The media's depiction of CDBG-DR and disaster recovery in housing mainly focused on four major themes: (1) the perceived lack of preparedness and coordination between government agencies and state and local officials; (2) alleged inflexible and bureaucratic processes for receiving benefits; (3) disparities in benefit awards and; (4) issues of politicization and corruption.

In the wake of a disaster, the media typically describes national and local government agencies as lacking coordination in their delegation of responsibilities. For instance, following Hurricane Katrina, response and relief in the wake of this disaster were portrayed as a public failure of communication between levels of government (Mosendz, 2015). Many outlets also blamed the politicking nature of federal and local lawmakers for impeding the process for approval and distribution of federal assistance. Concerns that were aired during relief and response efforts often transferred over to recovery despite different agencies' involvement.

Critics also pointed to the perceived slow and inadequate responsiveness of a grantee's administration. The bureaucracy of the process in Louisiana's Road Home Program, for example, earned it a reputation as a convoluted and confusing service (Buettner and Chen, 2014). The HUD-funded Build It Back Program in New York was plagued by the same coverage early in its implementation. The City of New York's Department of Investigation said the Build It Back Program was "a confusing, multi-layered application process, among other issues, [having] caused bottlenecks that delayed the application process and critical assistance from reaching homeowners" (NYC Department of Investigation, 2014). The Build It Back Program struggled at launch, with many residents having withdrawn from the program due to delays or ineligibility (Nonko, 2016; Chan, 2018). Stories of lost paperwork, staff turnover, and persistent delays have been noted in these major disasters' recovery efforts, typically during the programs' first years (Palmer and Otis, 2016).

Many media sources contributed to the storyline around the CDBG-DR program's disproportionate disadvantaging of low-income and minority community members in New Orleans (Mock, 2015; Alvarez, 2015). At the 10-year anniversary of Hurricane Katrina, the Road Home Program received a great deal of press noting that thousands of homeowners were still displaced because many could not adequately establish eligibility, did not receive enough money from the program, or were the victims of contractor fraud (McClendon, 2015). Similar coverage was featured after Hurricane Sandy regarding the displacement of lower-income renters (*The New York Times* Editorial Board, 2016; Kende, 2016).

Lastly, issues concerning corruption have been addressed in media coverage of large disaster recovery efforts. Whether explicitly tied to CDBG-DR programs or not, the effect of this coverage in many cases was to conflate private contractor fraud with governmental mismanagement and lack of oversight (Frontline, 2016). One reporter reviewed a study by Louisiana State University that found over 9,000 households reported being victims of home-repair fraud since Hurricane Katrina (Warner, 2015). Similarly, a representative from a charity organization interviewed by *Newsweek* claimed that 80 percent of the residents she helped were victims of contractor fraud (Mosendz, 2015).

Much like the conflation of disaster recovery programs with the quality of disaster relief and response efforts, many of these news articles also erroneously connected fraud associated with private insurance and other federal recovery resources, such as the National Flood Insurance Program, with local CDBG-DR programs.

Factors that Shape Housing Recovery

The literature, staff interviews, and the media review discussed in previous sections noted several factors as having contributed qualitatively to the timing of housing recovery in specific disaster scenarios (usually high-severity disasters like Hurricanes Katrina and Sandy), and those factors likely play a role in other disasters' recovery timing. In summary, the critical factors likely impacting the speed of recovery with CDBG-DR funding fall into three categories:

- **External Factors Beyond the Control of HUD or Grantees.** Where and when disasters strike and who is impacted, in any given year, is completely unknown. CDBG-DR is not an authorized program with set rules about how much to fund, who to fund, when to fund them, and what requirements the program will have. These decisions depend on congressional action that has varied substantially from year-to-year. When Congress does act, the on-the-ground conditions for eligible grantees vary widely, including the economic conditions prior to and following the disaster, local construction-market supplies and costs, and local leadership—including changes to that leadership during the recovery period.
- **Federal and Local Choices about CDBG-DR Program Design.** The flexibility of CDBG-DR is both its most powerful asset and its greatest liability. By not being a preset program, it must be built from the ground up, in trying circumstances. This flexibility presents an opportunity to transform communities for the better through thoughtful program design. The literature and HUD leadership show that this flexibility could be better used through improved grantee—
 - understanding of CDBG-DR goals and eligible activities.
 - awareness and understanding of CDBG-DR regulations.
 - access to data and support with analyzing those data.
 - knowledge of prior CDBG-DR programs and the applicability of those models for other disaster recovery efforts.
- **Grantee Capacity.** Observations by HUD staff and the literature review find that grantee ability to implement disaster recovery programs varies widely. No grantee can begin implementation immediately, but some are faster than others. Some observed reasons for faster launch include:
 - the fiscal strength of the grantee prior to the disaster.
 - prior experience with CDBG and CDBG-DR.

- the flexibility of the grantee to tap existing staff and administrative systems.
- the capacity of the grantee to provide prompt service and offer case management for potential and approved beneficiaries.
- grantees' communications and clarity to potential beneficiaries, especially CDBG-DR activities' interaction with other resources such as private insurance, Small Business Administration (SBA) loans, Federal Emergency Management Agency (FEMA) -provided programs, and other local programs.

These factors, informed by the changing federal disaster framework, shape how CDBG-DR will work in practice and how quickly recovery will occur after a disaster.

Modeling the Factors

To build the evidence base for explaining CDBG-DR grantees' housing recovery pace and quality beyond the factors identified through discussions with HUD leadership staff and the literature, the research team reviewed the policy framework by which CDBG-DR operates; collected and analyzed HUD-provided administrative data on housing activities over grants' reporting periods through completion; and conducted a series of primary interviews and site visits with a sample of CDBG-DR grantees. The mixed-methods research design and study methods are discussed in appendix A and the study findings are presented throughout this report.

Through the exploration of past studies and conversations about housing recovery timeframes, several subjects surfaced as being potential contributors to delay or acceleration, including contextual factors such as local capacity or the federal appropriation processes. Many of the factors emerge when looking at the descriptive statistics presented in the previous section. Modeling these factors at the grant and activity level assist in evaluating which of the factors appear to shape time-to-completion.

Exhibit 21 displays the results of a multivariate regression analysis at the grant level. This analysis is intended to isolate the effect of each variable while controlling for other characteristics. Time ratios, rather than coefficients, are presented for ease of interpretation. A time ratio of one suggests no relationship. Time ratios between zero and one indicate a characteristic associated with *shorter* times to complete, while time ratios greater than one indicate characteristics associated with *longer* times to complete.

A fundamental observation that this exploration shares with the previous section’s analysis is that the pace of recovery appears to be improving. This improvement appears to be across different disasters and grantees. Estimates show the time between funding allocation and completion has declined steadily over time. The analysis also suggests that the number of disasters experienced by a grantee in the 10 years prior to the disaster in question has very little effect—that is, the places that faced repeated disaster damage whose recovery was funded by CDBG-DR did not reduce their completion times more than reductions experience by all grantees.

EXHIBIT 21. GRANT LEVEL ACCELERATED FAILURE TIME ESTIMATES

	Funding Allocation to Complete	
	Time Ratio	p-Value
Total Funds (Grant)	1.000**	0.006
Number of Activities	1.002*	0.037
Quarters between Disaster and Funding Allocation	0.957***	0.001
Number of Grants to Date (by Grantee)	1.071	0.107
Start Year	0.946**	0.002
Local Self-Administered	0.836	0.112
State Grantee with Subgrants	0.976	0.796
Disasters in the Past 10 years	0.999	0.414
Number of Activities	1.002	0.037
Population Controls		YES
Activity Type Controls		YES
Observations		85

Notes: p-values based on heteroskedastic robust standard errors. Stars represent $p < 0.5$ (*), $p < 0.01$ (**), and $p < 0.001$ (***). Population controls include income, unemployment rate, homeownership rate, and percent non-White. Activity type controls account for the percent of activities within each grant that are for affordable rental housing, construction of housing, homeowner assistance, relocation assistance, rental assistance, and home rehabilitation, with the acquisition of property omitted. Three grants (B-05-DJ-06-0001, B-05-DJ-24-0001, and B-08-DF-27-0001) are excluded due to incomplete ZIP-Code level population data. Complete results appear in appendix D, exhibit 30.

Source: HUD Disaster Recovery Grants Reporting data for grants funded FY2006–FY2015

Controlling for grant size and the number and mix of activities, the model does not find a statistically significant relationship between the type of grantee and grant administrator, and the length of time from funding allocation and completion. This presents an important contrast to the descriptive findings presented in figure 13 that show that past grants awarded to and administered by local governments generally took longer to complete than grants awarded to and administered by states. Alternatively, the duration model results suggest that local governments spend CDBG-DR funds faster than states (16.6 percent less time) after adjusting for other factors such as activity type and local population though, again, this margin is not statistically significant. The administration types,

then, have inconclusive effects on timing. The combination of the two competing findings suggest that further work is needed to factor out other factors that the study may not have envisioned, as well as expand the study to include more grant instances such that the power of the analysis is stronger.

A similar analysis was repeated at the activity level. Exhibit 22 presents the time ratios for each activity type from funding allocation to completion. Acquisition of property is used as the reference activity type, against which all others can be compared. Exhibit 30 in appendix D includes the complete results for models of time from funding allocation to completion and from first expenditure to completion.

Controlling for other factors, home rehabilitation takes about 11 percent longer than property acquisition projects from funding allocation to completion. Notably, this difference is statistically significant at the 0.1-percent confidence level. In contrast, the model shows that homeowner compensation activities are completed 22 percent faster than the acquisition of property or about one-third faster than home rehabilitation. With only 14 homeowner compensation activities, however, the estimated relationship between this activity type and time to completion is not statistically significant at the 5-percent level.

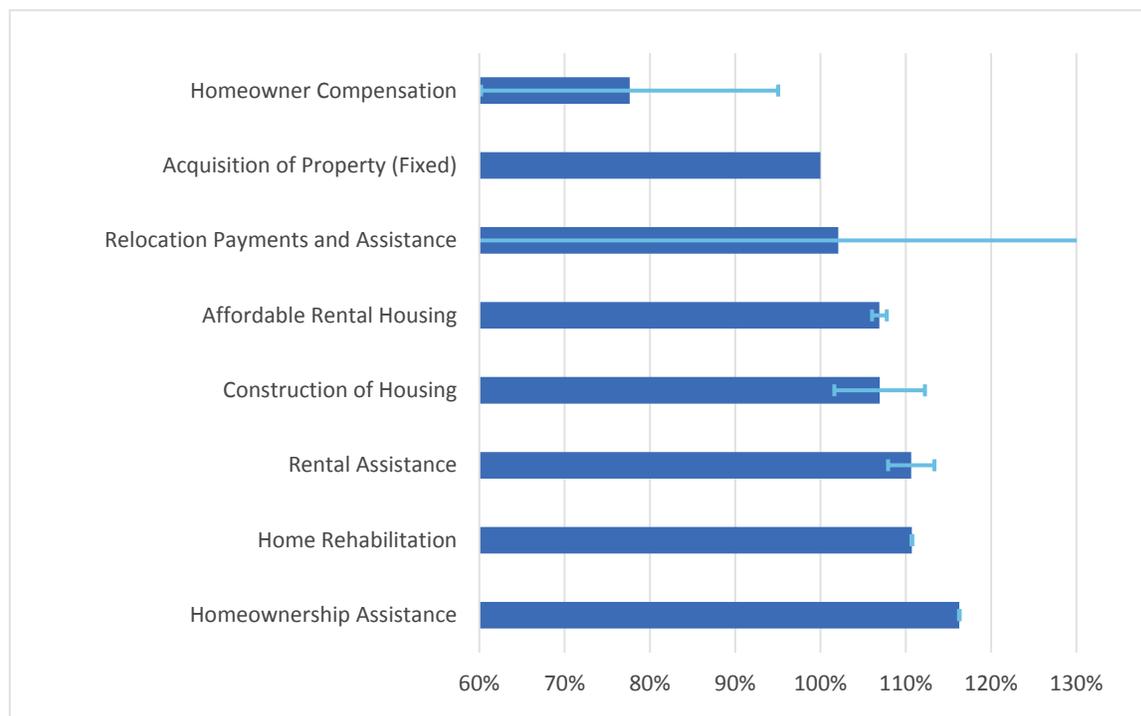
The model also confirms that, as shown in the summary data in exhibit 20, homeownership assistance takes the longest to complete. Here we find that after controlling for other factors these activities take 16 percent longer than property acquisition. Affordable rental housing activities fall toward the middle of our estimates and take 6.9 percent longer than property acquisition projects from funding allocation to completion.

Other relationships that were noted in the literature and cited anecdotally do not emerge strongly. For example, disaster severity was assumed to shape the time between funding allocation and completion—that is, a more severe disaster could either increase the urgency of recovery (and the funding to do so) or, alternatively, increase the complexity and volume of recovery at hand. Neither is the case per the study's analysis, regardless of whether disaster severity was measured as the total damage controlling for housing value or the ratio of total damage to housing value.

Both the grant- and activity-level models include variables to account for differences in the affected population (appendix D, exhibits 29 and 30). We find statistically significant effects predominantly at the activity level. The relationship between household income and the speed of recovery is negligible. We find, however, that a 1-percent increase in unemployment is associated with a 1-percent increase in the time between funding allocation and completion and a 2-percent increase in the time it takes to move from first expenditure to completion. The model also shows that a 1-

percent increase in the percent of the affected population that is non-White is associated with a 0.5-percent increase in the amount of time it takes to move from funding to completion. Additionally, higher homeownership rates are associated with longer time from funding to completion, even after adjusting for the type of activity performed. These relationships are all statistically significant at the 1-percent level. Because this model cannot identify causal relationships, it is not possible to identify the mechanism or pathways through which differences in the affected population increase or decrease the speed of recovery.

EXHIBIT 22. ESTIMATES OF THE RELATIVE SPEED OF ACTIVITIES BY TYPE



Notes: Estimates are relative to the speed of Acquisition of Property activities. Calculations are based on an activity-level duration model of the time from funding allocation to complete. Error bars are calculated from *p*-values based on heteroskedastic robust standard errors. The error for Relocation Assistance is greater than 100 percent. The model controls for total funds, number of activities, quarters between disaster and funding allocations, number of prior grants during the sample period, start year, administration type, number of disasters in the prior 10 years, income, unemployment rate, homeownership rate, and percent non-White. Activities from four grants (B-05-DJ-06-0001, B-05-DJ-24-0001, B-08-DF-27-0001, and B-13-US-17-0001) were excluded due to incomplete disaster or ZIP-Code level population data. Complete results appear in appendix D, exhibit 31.

Source: HUD Disaster Recovery Grants Reporting data for grants funded FY2006–FY2015

Additional specifications measure local capacity based on the assumption that this shapes recovery. None of the measurements of local government capacity are statistically significant, although the study did find that grantees in locations with higher concentrations of employment in the construction industry can administer their grants more quickly.

Finally, when isolating specific disaster groupings in relation to these contributing factors, CDBG-DR grants following Hurricanes Katrina, Rita, and Wilma took the longest to complete. Associated grants took 35.1 percent more time between funding allocation and completion. The shortest time to complete is associated with Hurricane Sandy.

Additional details and results for these specifications appear in appendix D (exhibit 31). Yet, given the limitations of the sample size, additional research is needed. Another limitation comes from the lack of available data for some of the factors that have been speculated in the past, such as the impact of varying skill sets across local program staff or the effect of federal regulations. For this line of inquiry, qualitative research methods were employed.

Exploring the Factors

The Urban research team explored a range of factors that may have contributed to challenges and delays in housing recovery efforts as identified in past studies and in interviews with HUD staff. This section identifies the key factors. Here, the main findings from the conversations are illustrated, as well as whether the topic contributed to major challenges or delays. The team also highlights differences across the sites based on the key attributes discussed previously (that is, disaster severity, grant administration, and jurisdiction type), if any.

Staff Expertise and Program Management

First, the researchers explored the grantee staff's level of expertise and program management as potential sources of program challenges and time delays. Most grantees were burdened by staff inexperience and capacity gaps in their housing recovery efforts. Staff turnover was also a challenge for most grantees, although some grantees anticipated this challenge in a timely fashion. The development and implementation of management systems proved to be a major problem for nearly all grantees, a common source of delays in the housing recovery process.

Staff Experience and Capacity

A lack of staff experience and capacity was an issue for all grantees but one. Many groups had persistent shortages of staff, often due to predisaster funding limitations and organizational hiring challenges. For grantees that had little or no experience with past disasters, inexperience hindered their ability to quickly hire staff to manage the volume of the CDBG-DR grant. Overall, grantees

reported feeling pressure to use grant funds immediately, which led to challenges in hiring the appropriate number of staff members needed.

Although several grantees had CDBG-DR experience, many staff were unfamiliar with the CDBG-DR regulations or did not leverage their jurisdiction's staff who did. Lack of experience with HUD and CDBG-DR was mentioned as an issue across multiple jurisdictions. Disaster recovery experience was limited to a smaller number of staff. One grantee said staff had experience with FEMA disaster recovery, but the experience did not translate well to CDBG-DR, which led to delays in learning and coordination. Consequently, there were also limitations in operating the Disaster Recovery Grants Reporting (DRGR) system that HUD requires grantees to use for data management and reporting. The single grantee in which no respondents reported challenges with staff experience or capacity highlighted the experience and professionalism of their disaster recovery staff regarding HUD's Office of Community Planning and Development programs. This level of experience in a housing recovery unit was unique among the CDBG-DR grant recipients interviewed.

Grantees stressed challenges around the expertise and capacity to design post-disaster housing recovery efforts, especially for jurisdictions that rarely experienced disasters. Respondents commented on the challenge of examples or precedents for their design decisions: "a lot of times during the design phase you're making your best guess estimates, and a lot of times you don't understand the challenges or barriers you might run into until you try to implement them." The main solution proposed to improve staff capacity was more training. Most grantees did not have thorough onboarding and training programs, particularly jurisdictions that experienced non-severe disasters, citing insufficient training as a gap in preparation to manage the CDBG-DR grant. One stakeholder, however, referenced an extensive training plan for onboarding new staff members that was developed internally, with some pieces extracted from the HUD Exchange, noting that this was helpful to build staff capacity and skill.

Staff Turnover

Most grantees reported staff turnover as a hindrance and delay to housing recovery. Causes for turnover included burnout, the temporary nature of disaster recovery work, and political transitions. Stakeholders said significant staff turnover was a characteristic of the disaster recovery profession. Interviewees also mentioned that HUD appropriations could not support a permanent team, which led to constant transitions in disaster recovery positions depending on where grantees were in their planning, implementation, and wrap-up efforts. Another challenge that was noted was the tendency for experienced staff to move to other disaster recovery efforts within and outside the jurisdiction.

Political transitions also caused turnover, particularly in leadership positions. For some, this significantly hindered grantees' capacity to execute their action plans. Transitions often led to the persistent reorganization of disaster recovery staff.

All interviewees involved with severe disaster grants listed staff turnover as a challenge, but most of the non-severe grantees did not find turnover to be an issue. Many grantees in this latter group reported being able to anticipate the issue and manage accordingly even when they experienced this short-lived issue in the early stages of their grant, and often they did not have staffing needs as robust as severe disaster grantees.

Management Systems

All grantees but one faced challenges in developing a management system, which invariably caused delays. Interviewees said the process of setting up management systems, including both case management and grant management systems, was time-intensive. Early systems often did not support the needs of the housing recovery units, requiring years of improvement. Interviewees repeatedly suggested a standard case management system from HUD, including an "off-the-shelf" system.

Many grantees faced pressure to implement housing recovery programs immediately. Without a management system at the ready, grantees struggled with simultaneously creating and operating one. Interviewees said challenges with case and grant management systems were often exacerbated by staff turnover and loss of institutional knowledge. They referenced the DRGR system, but most found the system antiquated and ill-suited for disaster recovery needs. Challenges with management systems were widespread and no apparent differences by grantee characteristics were found.

Grant Administration

The second category of challenges explored are the issues with subgrantees and contractors. The selection and contracting of subgrantees and contractors was a challenge for grantees across jurisdiction-type and across different levels of disaster severity. Most grantees struggled with contractor qualifications as well. Procurement processes proved to be another significant challenge for the grantees, as was the process of oversight and monitoring of the subgrantees and contractors. These introduced delays for most grantees. However, one aspect that did not contribute to delays in housing recovery was the process of disbursing funds to subgrantees or contractors.

CONTRACTOR SELECTION AND QUALIFICATIONS

Most grantees reported contractor selection issues, and this challenge was common across various jurisdiction types, disaster severity levels, and administration approaches. Grantees often hired two distinct types of contractors: those who would support program management, and construction contractors who would repair or build homes.

A major concern for hiring program management support is the limited pool of potential national contractors providing program administration support, which runs counter to requirements for multi-bidder procurements: “Procedure favors a number of organizations that are larger for-profit entities that may not have as much of a background in community development work, but they can get together the proposals, and they can meet the deadlines, and put together the teams, so there end[s] up being a handful of these organizations that run around and get most of the grants [contracts].” This interviewee also pointed out that favoring larger organizations is problematic because it limits engagement among smaller local entities with valuable expertise and connections to local communities and history. Some grantees struggled with the fact that HUD could not officially recommend program management contractors, making it difficult to consider past performance in the selection process.

This low level of competition also applied to construction contracts, with interviewees attributing selection issues to the tight timing of the procurement process. One grantee elaborated: “I don’t necessarily know the reasons [for low levels of contractor competition for CDBG-DR grants], but I suspect it had to do with [the] timing of procurement and location.” Furthermore, interviewees noted the general lack of qualified construction contractors to carry out the work. Most grantees struggled with building contractor qualifications, especially in areas that rarely experienced severe disasters. Interviewees reported poor contractor quality, and many faced cases of fraud. They noted the lack of competition, insufficient vetting process, and pressure to hire building contractors immediately contributing to this issue. Grantees requested more HUD guidance in the contractor vetting process.

Other grantees hoped to use construction contractors that they had already procured for other work (for example, for affordable housing development in non-disaster times), but were unable to tailor their contracts to CDBG-DR specifications. Interviewees cited a lack of clear contractor requirements during the procurement process as a driving force behind issues of contractor management capacity and performance later, noting that they needed a deeper understanding of the procurement rules.

PROCUREMENT PROCESSES AND RELATED COORDINATION

Respondents in most grantee sites struggled with effective contractor procurement and subgrantee coordination. Grantees cited internal, existing procurement rules as a slow and complex process. Many CDBG-DR grantees were unprepared to handle the nuances of this process in relation to new regulations and requirements. Challenges in contractor procurement ultimately led to delays in procurement approval. For some larger grantees, multiple agencies were responsible for procurements, which created challenges in coordination. Other grantees had large bureaucratic processes to navigate, which caused delays, as one interviewee stated: “In fact, having a government entity, like the city of [jurisdiction name], makes it more difficult in a lot of respects. Because you’ve got multiple different layers that you have to go through.” Thus, procurement created bureaucratic steps that caused delays.

Contractor approval was another source of internal and external delay. For instance, grantees spoke about needing to go through an internal approval process and then wait for subgrantees to complete their own processes. Some grantees faced procurement systems that were misaligned with the grant timeline, introducing another challenge. For instance, processing contracts within a jurisdiction may take more time than the grant timeline allotted, creating a delay and a need for revisions. The single grantee that did not struggle with jurisdictional support was a state that emphasized pushing control of procurements to its administering localities.

DISBURSING FUNDS TO SUBGRANTEES OR SUBRECIPIENTS

Most of the grantees did not experience delays with fund disbursement; some stakeholders commented, however, on the necessity of technical assistance (TA) to reduce the burden of grant disbursement. Severe disaster grantees noted that disbursing funds to subgrantees or subrecipients created an undue burden. Stakeholders cited that issues with management systems were often the main source of the burden regarding funds disbursement. Some grantees struggled with the labor-intensive documentation requirements with funds disbursement. Grantees reported benefiting from later TA on the complexity of the process or ways to improve on it, and they wished they had received that assistance earlier.

Overall, most grantees did not find funds disbursement to be much of a delaying factor. One stakeholder commented that while the process incited delays initially, putting systems in place supported an efficient process. Interviewees that provided explanations for a lack of issue with funds disbursement cited grantees’ experience in managing subgrantees and efficient management systems.

OVERSIGHT AND MONITORING

Most grantees said subgrantee oversight and monitoring was a delaying factor for grant implementation, and one needing more HUD guidance. Additionally, many interviewees indicated that this task was largely overlooked in the initial stages of grant management, and often did not arise until 1 year following grant allocation. Most of the non-severe disaster grantees did not find subgrantee oversight and monitoring to be a delaying factor, but all the severe disaster grantees experienced challenges. These grantees delegated various aspects of the work to subcontractors and struggled to ensure the subcontractors had the capacity to handle the delegated activities due to the vast volume of the grant. Especially in cases where grantees struggled in subcontractor selection, further challenges were discovered in identifying gaps in later capacity.

One state-level grantee created a system to improve monitoring through risk ranking guidelines. Grantees noted needing additional guidance from HUD and opportunities for annual training to improve monitoring and oversight processes, as monitoring guidelines helped grantees streamline the process and focus oversight.

Recipient Outreach, Application, and Case Management

The third category of issues had to do with recipient application processes. The number of applications from eligible households was a significant challenge to most grantees. Another issue discussed was the lack of clarity in application requirements and documentation, which was a challenge cited by most interviewees. The level of their own service or attention to individual household applicants was not viewed as a delaying challenge by most grantees.

QUANTITY AND QUALITY OF MARKETING OR OUTREACH

Issues with marketing did not emerge as a significant challenge for any grantee, regardless of jurisdictional attribute or disaster type. However, general misinformation owing to the rapid nature of planning and delivering programs post-disaster was a noted factor. Additionally, some grantees, particularly those serving rural areas, faced challenges in trying to physically reach people. Overall, however, the quantity and quality of marketing were secondary to other application issues.

Larger grantees reported having trouble reaching people slightly more often than other grantees. One interviewee highlighted the importance of deploying the 311 system as a “front-door for the program,” helping to direct people appropriately and raise awareness of available services. For some grantees, their constituents’ comfort interfacing with the government was also mentioned as an issue in terms of marketing; some eligible households were weary of government-delivered services,

especially if their homes had been affected by previous disasters. Respondents acknowledged that there was not much to be done to overcome issues related to government mistrust. In general, these grantees thought that their public sessions to advertise programs were well-attended and that web-based resources worked well.

Some respondents added that certain groups were “always going to be more challenging to reach,” including first-time homebuyers and older residents. While targeting of such groups could have been better, respondents agreed that it would have been difficult to know who to target beforehand.

Across all grantees, respondents agreed that coordinating multimedia campaigns—spanning radio, television, and print media—was difficult, but seemed successful. Most grantees used existing platforms to market and raise awareness of programs; local neighborhood groups, councils of government, and faith leaders were often tapped to support these ends. Because they did not tend to receive feedback on this facet of disaster recovery specifically, grantees assumed households were adequately aware and marketing was sufficiently effective.

VOLUME AND RATE OF APPLICATIONS FROM ELIGIBLE HOUSEHOLDS

The rate of applications received from eligible households at different points during the application process was not as significant of an issue for jurisdictions as the sheer amount of applications received in total, which was described as “more than could effectively be processed” by more than one grantee. Respondents often remarked that they did not have a solution for this larger problem, as limited capacity, resources, and need to adjust to rules shifting throughout the life of programs, all combined to make the massive number of applications very challenging.

There was no consensus on whether the rush of applications at the beginning of open periods or the major uptick in applications as deadlines approached were more challenging; both were mentioned in equal frequency. In general, grantees agreed that need often far exceeded allotted CDBG-DR grant funding and, therefore, some households were not served through the program, and delays in receiving funds from HUD could create bottlenecks in the application review process.

Severe disaster grantees also discussed the advantages of contracting out the application review process to build capacity around case management. Without robust case management, applicants were left without guidance, which was especially harmful given the low- to middle-income communities that programs were trying to serve. As one respondent detailed, “Having someone there with that case management role, in my opinion, would have allowed us to qualify more applicants, rather than just relying on them to come back to us after they had gathered all the necessary documentation.” A handful of respondents agreed that building more robust case management

training for contractors reviewing applications could help to standardize the rate at which applications are received.

CLARITY OF APPLICATION REQUIREMENTS AND DOCUMENTATION, INCLUDING INCOME AND DAMAGE ELIGIBILITY

The clarity of application requirements was mentioned as a challenge and source of delays by every grantee, although to different degrees. Typically, federal register notices specify income eligibility. Some grantees described the regulations as “moving targets” in terms of requirements and documentation for housing programs—this sentiment came mainly from grantees that received multiple appropriations for the same disaster with varying requirements and related to changes to the documentation required by HUD to comply with various regulations. The application process became more burdensome as regulations changed and more documentation was required, and grantees struggled with losing credibility with their constituents as they were repeatedly approached for more information to complete an application. Often, communicating the differences between program options required multiple points of contact with eligible households, but respondents more often blamed capacity issues than application clarity for this issue.

At the local level, respondents lamented state-level decision-making that created delays, “but more so, caused frustration,” when local administrators would have to return to the same household many times for the same documents. “Every change required more documentation, which was done in good faith by the state, but also frustrated households a great deal,” remarked one local respondent. In non-severe disasters, many respondents were confused about what could be eligible, which stemmed from unfamiliarity with the rules and regulations that HUD published through Federal Register Notices. This was not as big of an issue for severe disaster grantees, who were well versed in interpreting Federal Register Notices and providing clear rules for eligibility. For these grantees, clarifying income requirements and calculating low- or moderate-income (LMI) eligibility were still onerous facets of the application. One grantee mentioned that this improved as the grantee became more experienced: now, they use a third-party vendor to gain access to household tax information quickly.

No significant differences were found between those grantees that employed subgrantees or administered the programs themselves in terms of this factor—grantees agreed that the lack of clarity around eligibility up front and changing rules throughout the recovery process delayed housing delivery. In terms of solutions, most agreed that a streamlined or standardized eligibility process would greatly improve the speed with which housing could be delivered. Additionally, many grantees remarked that managing household expectations was a key part of easing the frustration that

accompanied changing eligibility requirements. Communicating how long it would take from submitting an application to getting a house built, when grantees could give an accurate estimate, helped to build trust between grantee staff and residents and made for a smoother process in the long run.

CAPACITY TO REVIEW APPLICATIONS

The capacity to review applications was an issue for most severe-disaster and large grantees, but most pointed to larger issues having to do with capacity and information technology (IT) systems and cast the capacity to review applications as minor. Among state grantees, respondents most often agreed that applications should be reviewed at the local level. Most local jurisdictions hired contractors to review applications so they did not face capacity issues.

If there were delays, respondents rarely suggested solutions specific to application review capacity, except with regards to IT systems that were not ready to operate in time with the start of application review. One solution that was raised by multiple grantees and HUD staff was to build a standardized IT system for disaster recovery into which grantees could input data immediately as programs are being set up.

LEVEL OF SERVICE OR ATTENTION TO INDIVIDUAL HOUSEHOLD APPLICANTS

For many grantees, subcontractors handled the brunt of customer service, so very few respondents characterized this issue as a major factor leading to delays. Some respondents also cited the size of the housing programs as a reason why some applicants did not receive a response to application inquiries in a timely manner. In general, respondents did not find TA around services helpful, if any was available.

Regulations and Program Requirements

Every grantee reported significant issues with CDBG-DR-related regulations and program requirements. Regardless of jurisdictional type, these issues created delays in housing recovery. The environmental review process presented a significant burden for the grantees, as did the duplication of benefits documentation. Stakeholders described certain requirements as moving targets, discussing instances where guidance would change just as staff figured out how to address them. Some grantees reported making changes to their programs to avoid running afoul of regulations or program requirements—changes that often affected the quality of service they delivered.

ENVIRONMENTAL REVIEW PROCESSES

The burden of completing environmental reviews was one of the most significant regulatory burdens mentioned by respondents as leading to delays and challenges. Although acknowledging its importance in non-disaster scenarios, respondents in jurisdictions that experienced a severe disaster detailed the myriad sticking points that emerged during the environmental review process. Interviewees noted that the reviews prevent staff from changing household assistance in a timely manner and cause programs to expend limited grant funds with each successive review. Grantees also commented that the lost momentum from delays can be costly in terms of requiring longer-term outreach with applicants.

Severe disaster grantees were more likely to raise environmental reviews as a source of delays. These jurisdictions often had their own environmental regulations to contend with and having to comply with HUD's review process on top of it proved especially burdensome in terms of administering programs in a timely manner. Severe disaster grantees did, however, applaud HUD for adopting FEMA's environmental reviews, but still desired a more streamlined process with better tools to automate reviews where possible.

Both self-administered and subgrantee-administered grantees agreed that environmental regulations were far too stringent. Even more fundamental than delays in delivery and money wasted, the burden of environmental reviews has changed how programs are designed. Grantees often raised the tradeoff of being able to serve their communities in the most appropriate ways and designing programs to avoid environmental review and "save everyone the frustration."

Grantee staff commonly remarked that the TA they received from HUD staff around the environmental review process was not helpful. Even those grantees with robust processes for completing environmental reviews spoke of the challenges they faced in messaging delays caused by complicated environmental reviews: "the public doesn't understand it but see delays and grow increasingly frustrated." The available TA could "rarely provide straight answers," which drove grantees to switch to compensation and lump sum models in more than one jurisdiction.

DUPLICATION OF BENEFITS CALCULATION DOCUMENTATION

The duplication of benefits calculations and required documentation were often raised as a significant time sink. Most respondents, regardless of jurisdictional type, detailed the extensive back-and-forth that occurred between program administrators and applicants to collect receipts and other documents for the duplication of benefits review. Respondents agreed that while they did receive useful TA, the

guidance did not keep pace with changing duplication of benefit (DOB) rules, which made triangulating processes with the updated requirements even more difficult.

Benefits and their documentation simply do not always occur at points convenient to grant requirements. Duplication, therefore, became a constant concern. Respondents pointed out the varying timeframes across post-disaster funding resources. Respondents noted that data sharing between the Federal Emergency Management Agency (FEMA), the Small Business Administration (SBA), and HUD could reduce this issue. The most common suggestion was a centralized database so that program administrators could look at FEMA, SBA, and other sources of benefits at any point during the program open period.

Self-administering and severe disaster grantees also complained that changing rules greatly delayed the process. Without updated TA that could provide a clear understanding of which rules were to be followed at any given time, grantees were often left to interpret requirements while trying to make sure applicants adhered to them. One key suggestion was for HUD to provide a set standard for DOB calculations when they published the Notices of Funding Availability.

CDBG-DR PROGRAM REQUIREMENTS

Along with the specific requirements mentioned previously, every grantee expressed concern about CDBG-DR procedures changing over time. Adhering to the requirements required extensive documentation, including staff time and legal fees. In addition, grantees felt compelled to interpret requirements conservatively, to avoid problems that might require them to repay funds down the road. Compliance concerns pushed grantees to be risk-averse and may have prevented them from deploying more impactful programs.

For more sophisticated grantees, additional requirements around procurement and prevailing wage rates were burdensome because they already had their own guidelines in place for both. Being able to use contractors that clearly went through competitive procurement processes but did not have CDBG contract specifications would have greatly sped up processes. In the same vein, marrying HUD's prevailing wage laws with existing requirements in areas with already high prevailing wages was difficult and better TA was requested.

A lack of clarity around Uniform Relocation Assistance and Real Property Acquisition Policies Act (URA) requirements—a federal law established in 1970 establishing minimum standards for federally funded programs that require the acquisition of real estate or displace people—was a factor for many grantees, regardless of size or disaster type. This was an issue that not only led to delays but also affected program design: one grantee recounted rolling back its program offerings so as “not to risk

being in violation,” given the lack of understanding around the URA. One respondent from another grantee spoke of the “disincentive to touch existing buildings” created by the URA requirement, and how this requirement “wasn’t advancing an overall effort to get more people back who previously lived there. It was paperwork that slowed the program down.”

Finally, Affirmatively Furthering Fair Housing (AFFH) regulations—which state that federal agencies and grantees must further the purposes of the Fair Housing Act by prohibiting discrimination and fostering inclusive communities, were frequently cited as an area of much confusion, particularly for less severe disaster grantees with limited experience in disaster recovery. Such grantees lamented needing to contract AFFH assistance out, because “having the expertise in-house could have better unified” some larger goals for the disaster recovery money. The same went for Americans with Disabilities Act requirements in these jurisdictions, where investing in greater capacity for the program administrators could increase the synergy around disaster recovery spending.

Jurisdictional Collaboration and Data Sharing

Collaboration with federal agencies proved to be a delaying factor for most grantees. Intra-jurisdictional collaboration also presented hefty challenges for grantees, particularly those that did not have prior relationships with the involved agencies. Finally, collaboration with other jurisdictions, across the state- and the local-levels, introduced challenges for most of the grantees.

FEDERAL AGENCY COLLABORATION

Respondents recommended more standardized communication at the federal level, across HUD, FEMA, and SBA, to clarify expectations and decrease tension across jurisdictions. Grantees reported challenges with juggling different datasets regarding services provided to their households and competing regulatory frameworks for the different agencies. They also noted inconsistent messaging to households regarding the type of funding available to them having been provided by earlier federal programs; for instance, some residents took out SBA loans and were not aware that they would have access to CDBG-DR grants, complicating both the households and the grantees’ calculations of duplicate benefits.

Grantees also struggled to acquire information from federal agencies. Stakeholders especially mentioned challenges in accessing data and information from FEMA to corroborate CDBG-DR applications. A few stakeholders commented on the coordination and timeline challenges associated with the damage assessment data collected by FEMA’s National Flood Insurance Program claims.

INTRA-JURISDICTIONAL COLLABORATION

Agencies within jurisdictions impacted by a disaster must work together to ensure effective recovery. Stakeholders repeatedly mentioned challenges with collaboration with other agencies within the jurisdiction when relationships between agencies were not established before the disaster. One stakeholder commented, “There was a lot of butting of heads. I think once we realized it was an issue, we invested tremendous resources in forming strong partnerships and relationships.” Additionally, some interviewees attributed collaboration challenges to disagreements regarding which organization would execute the CDBG-DR grants. For instance, some stakeholders noted issues when the grant was not managed by the CDBG office and instead was executed by another office.

Among those jurisdictions that did not face internal collaboration issues, the mitigating factor was prior relationships. One grantee stated: “We have a small community; we have relationships already built... I think that’s probably a key to our recovery.” Strong relationships with other agencies supported recovery grantees, and grantees without those relationships in place commonly experienced delays.

INTERJURISDICTIONAL COLLABORATION

All but two grantees noted collaboration with other jurisdictions as an issue causing a delay. Jurisdictions from both the local and state level found problems coordinating with their counterparts in disaster recovery. States often felt that local municipalities struggled to effectively execute work plans with their allocated funding, while local jurisdictions struggled to reconcile the priorities of states that extended beyond disaster recovery.

Coordination between local jurisdictions and their respective state jurisdictions warranted tension due to conflicting priorities. Collaboration issues were further heightened by misaligned priorities across jurisdictions. State jurisdictions may choose to address political and economic goals within the housing recovery initiatives, which obstructs effective collaboration in housing recovery needs with other jurisdictions. One stakeholder shared an experience where economic development interests on the state level interfered with local disaster recovery efforts. The misaligned priorities between local- and state-level grantees increased tension around the disaster recovery initiative.

Political Transitions

Political transitions caused significant delays for staff and, in turn, grant implementation. Three grantees mentioned challenges in housing recovery due to political transitions stemming from instability. This lack of certainty added additional stress for grantee staff. As one HUD staff person

noted, "...individuals who are doing the grunt work, the day-to-day work, who were administering the grants, they become victimized at certain points by politics and political activity that makes them either have to change course, modify things, or really just view them as obstacles that prolong the implementation of the programs they're trying to implement."

Grantees that experienced program delays due to political issues felt that HUD could have played a larger role in reinforcing the necessity of new political leaders to focus on disaster recovery: "Without HUD getting involved, and pushing back on the local politicians or state politicians.... you're essentially at the mercy of whoever your boss is, the governor or mayor, or whoever is pushing back on you and you have to get started."

How Can Timing be Further Improved?

Recommendations from grantees, contracted technical-assistance (TA) providers, and HUD staff for reducing potential bottlenecks and streamlining certain operational decisions in CDBG-DR activity were also uncovered. The agents for implementing these improvements range from the grantees, through TA and HUD's operations, and to the overall federal emergency management framework. More in-depth opportunities for the first group—the CDBG-DR grantees—are discussed in a guidebook to be published in the HUD Exchange set of grantee resources to accompany this report, but all potential areas for improvement are discussed here regardless of the responsible agent.

Grantee Opportunities

Stakeholders suggested improvements for each of the activities identified in the previous chapter as qualitative contributors to housing recovery's timing. The sole exception is the area of regulatory requirements and interpretations, over which grantees have little to no control. Five improvement areas are highlighted.

Staff Capacity

The researchers noted core problems for grantees in being able to recruit and retain the expertise and capacity necessary to design, implement, and manage post-disaster housing recovery efforts. After all disasters, local public capacity is hampered. Combined with the urgency to launch and ramp up recovery activities, local staff are often on new programming ground for which neither traditional emergency managers nor housing and community development specialists are prepared to tread. This challenge is seen even in jurisdictions that have received repeated CDBG-DR grants and must rebuild staffing capacity due to frequent turnover and the parameters of a new disaster.

To this concern, fortunately, a few CDBG-DR grantees have developed intensive position documentation while implementing grants so that playbooks and job descriptions can be used for future disaster scenarios, and intensive onboarding, training, and learning can occur between position holders. Rather than lose these trained staff after the completion of a grant, other grantees have successfully transitioned these temporary workers into permanent department staff, thereby keeping that knowledge base and experience in-house should another disaster strike. Other grantees tapped into their staff's existing knowledge base across agencies to piece together the needed knowledge base; for example, harnessing the knowledge of the entitlement CDBG grant manager along with their

emergency manager's familiarity with transitions between relief and recovery. A few grantees have also efficiently pulled resources from outside their borders by recruiting staff from neighboring jurisdictions with CDBG-DR experience, replicating job descriptions from past CDBG-DR grantees, or simply maintaining lists of active consultants and contractors who can be brought on board quickly.

Additional HUD support related to procurement could help grantees address capacity challenges by relying on consultants and contractors more effectively. Improvements to HUD's CDBG-DR program management—including permanent statutory authorization and more staff—would also help mitigate challenges related to local capacity.

Grant Administration

Numerous grantees reported delays in fundamental procurement and subgranting practices due to the volume of funds that were being exchanged as well as the unique requirements of CDBG-DR for ensuring compliance with normal federal procurement laws despite operating in emergency conditions. Several grantees employed their knowledge of CDBG procurement rules quickly to ensure that recovery program staff anticipated processes in the early implementation of the grant. Others chose to form bridges between agencies with program-related expertise (such as housing finance or environmental regulation) while centralizing CDBG-DR compliance. Such partnerships included civil- and private-sector entities as well as other subgranted jurisdictions and agencies within the grantee's jurisdiction; in these cases, partnerships included intensive training and toolkits to ensure that all parties were familiar with administrative processes and obligations.

Occasionally, capacity assessments beyond contracting specifications were employed (such as between a state grantee and a county or municipal subgrantee), although post-disaster conditions limited instances of this strategy. A few repeat grantees have notably expanded these types of training and transparent disclosures during the waning months of current grants and prior to potential new disasters to anticipate issues that may arise after.

Recipient Outreach

Recruiting, communicating, and sustaining relationships with household beneficiaries has been a constant source of perceived delays across CDBG-DR grantees of all types, particularly when programs are launched before many details around documentation and case management have been finalized. Hard-to-serve populations are special challenges as grantees attempt to provide one-size-fits-all designs for their communities.

Several grantees have learned to tailor the application and assistance process from the end-user's perspective, establishing a clear point of application with all potential requests for documentation and accessible instructions and eligibility screens early on—and only once—in the process. A few grantees have also learned to provide a single point of contact within the program to serve as the face and advocate for the applicant household. These contacts have been in existing, nonprofit organizations within the communities to provide even more direct and accessible service.

In nearly all cases, grantees have learned that developing public documents that clearly describe program procedures and requirements have helped reduce later confusion and time lags—even when it took longer to pin down details and develop that guidance. An early investment of time prior to program launch was perceived as a factor that contributed positively to reducing later time delays, confusion, attrition, and negative perceptions.

Case Management

Much like outreach and application processes, staying in constant contact with beneficiaries to provide them with updates and assistance was described as a helpful way to reduce perceived delays as well as expedite the resolution of problems that were actual causes of delays (such as incomplete paperwork). Having both the institutional capacity (such as the appropriate information technology [IT]-assisted case management records systems) and personal channels (for example, case managers), however, was viewed as a cause of many delays before launch or, in some cases, of tweaks that led to delays afterward.

A few grantees applied the same strategy for case management practices as for recruitment and outreach by reaching out to other agencies in their jurisdiction (such as social service providers) for guidance on the appropriate types of case-management software, on integrating the CDBG-DR grant's data with those of other relevant agencies (like building or environmental departments), and on using the networks of public- and civil-sector staff as case managers. Although not observed in the study, the opportunity exists to transfer these systems from the high-capacity grantees that have been able to harness and develop them to assist other grantees.

Data Management

Similarly, the challenge of managing all the various sources and types of data involved in a CDBG-DR grant has proven to add cost, time, and skill needs to grantees. In every case, these data include the original Federal Emergency Management Agency (FEMA) applicant data through to internal case

monitoring, contracting and financial accounting, and HUD reporting data—each of which follow different data codebooks and requirements.

Repeat grantees have been able to develop standardized data sharing agreements over time between various agencies, subgrantees, and contractors. Rather than piecing together different data systems, many grantees invested in the development of their own management systems just for CDBG-DR, although these systems often ran the risk of being too customized for a single disaster grant. Grantees who undertook this investment either developed their own in-house IT staffing capacity or contracted it out partially or entirely, both of which required some additional time and resources.

HUD Technical-Assistance Opportunities

In general, feedback regarding HUD-provided TA varied widely in terms of the type of TA they requested to be included in a new guidebook. Some grantees, who have been frequently awarded CDBG-DR allocations in the past decade and have now built up in-house capacity and expertise, did not express a need for a guidebook. In fact, many of these jurisdictions have developed policy manuals and training materials for their own use to maintain institutional knowledge within their organizations as they cycle through disaster recovery staff. Across grantees, the bulk of the specific requests were for extra assistance navigating CDBG-DR-specific requirements, and for more templates or materials they could use or adapt, without recreating such resources each time.

Nearly all CDBG-DR grantee respondents mentioned regular communication with their HUD staff contact during the housing program planning and implementation. In some cases, this contact occurred daily, particularly as grantees engaged in the Action Plan development process and as they were in the initial implementation phase of the grant. In other cases, HUD staff and grantees held weekly or bi-weekly check-in calls to talk through issues that had arisen in the intervening time. In general, HUD staff were described as readily available to answer questions and provide support as needed. Grantee respondents also noted that HUD staff played a key role in program monitoring, including conducting monitoring visits to grantee sites.

Quality of Technical Assistance

Nearly all grantees spoke with appreciation about their corresponding HUD staff and noted how accessible they were. Some HUD staff were described as “very dialed into our success,” going above and beyond the regular course of their duty to walk the grantee through each step of the process.

Many grantees praised staff's flexibility and willingness to learn about CDBG-DR housing recovery and adapt alongside the grantee as the grant progressed, especially for HUD field office staff with limited or no prior experience in this area. Generally, the level of interaction between HUD staff and grantee staff varied based on grantee's experience (or lack thereof) with disaster recovery, and CDBG-DR funding. Grantees who had previously been allocated multiple CDBG-DR awards tended to rely less on HUD support due to their built up in-house capacity; newer grantees more frequently contacted HUD.

Both grantee staff and HUD staff recognized the potential tension with HUD serving two roles: (1) providing TA and (2) monitoring grants. The extent to which the relationship centered on one aspect versus the other depended on the grant and the HUD staff person assigned. Some grantees reported feeling hesitant to ask HUD for TA on something for which they could be monitored. Other grantees, typically those with prior CDBG-DR experience and already established relationships with HUD, spoke of having open relationships with HUD as key to the success of their grant work. On the other hand, some HUD staff expressed feeling underutilized by the grantee. Some grantees appeared to be too overwhelmed to request and digest significant training or TA outside of being walked step-by-step through the process.

Grantees often described the TA received from HUD as reactive, rather than proactive, and some expressed a desire for more up-front guidance. Although the informal, open, and often communication between grantee and HUD staff worked well for some grantees, others wished for a more formalized relationship. Some grantees even said that it was better to make decisions internally and justify it to HUD when asked, rather than preemptively asking HUD and waiting months for a response, only to have their recommendation rejected.

HUD field office staff often recognized they were ill-equipped to provide the same level of TA to their grantees as HUD headquarters staff, due to their own lack of knowledge of the CDBG-DR program and accompanying regulations, as well as their full workloads monitoring regular HUD programs. Some grantees that were assigned field office staff were frustrated by the lag times that often resulted from field office staff passing their questions up HUD's chain of command to the headquarters staff. The lag times between grantee questions and HUD responses were not only characteristic of HUD field office staff; other grantees who were staffed from HUD headquarters mentioned that the "decision tree and communication" played an important role in their work as well and that sometimes HUD staff did not feel empowered to make certain decisions without first confirming with more senior staff. Periods of political administration changes were described as

particularly frustrating, as one grantee talked about receiving conflicting advice from different HUD staff during this time of transition.

Beyond HUD staff, grantees who have received multiple allocations mentioned how the quality of HUD's formal technical-assistance providers have improved greatly over the years, particularly in the aftermath of Hurricane Sandy.

Medium of HUD Technical Assistance

In discussions about TA, grantees focused largely on their communication with HUD staff. Few grantees spoke of their experience receiving TA from HUD-contracted providers. Also, only some grantee staff appeared to be highly familiar with available TA resources on HUD Exchange. Consequently, many asked that HUD create a better guide to or provide an index of their existing assistance, and link to other resources that could be useful outside of HUD (for example, FEMA).

CURRENT CHANNELS

CDBG-DR training put on by HUD that brought together multiple grantees was especially appreciated by grantee staff. Grantees wished these training events could occur more often: perhaps an intensive training on the front end of an appropriation, or even yearly, given the high turnover typical of those in the disaster recovery field. HUD field office staff also expressed interest in attending training to be better equipped to assist grantees. Grantees also appreciated when face-to-face time was possible through TA and monitoring trips; HUD staff reported learning from these on-the-ground field visits too. Many expressed a wish for more resources to be allocated to such trips, or for the HUD staff person to be located within the jurisdiction throughout the planning and early implementation stages of the grant.

Grantees were enthusiastic about opportunities to learn more from their peers; this was especially true of jurisdictions that were new to the CDBG-DR program. Many hoped that HUD would facilitate collaborative learning for grantees. This could be as simple as facilitating peer-to-peer connections. If developed, this list of grantee contacts should contain attributes that would help grantees identify staff members of other grantees with similar experiences that they would find helpful. For example, how to best design a housing recovery program for tornado-damaged homes versus flood-damaged homes, or how to pair CDBG-DR funds with other funding sources to help ensure housing affordability.

ADDITIONAL GUIDEBOOK

Interviewees universally advocated for an interactive guidebook. They recommended that the guidebook be web-based, rather than paper-based, so that it is dynamic and can be adapted over time. Furthermore, respondents stated that the guidebook should be easily digestible with light text and heavier use of graphics, and the guidebook should contain informational components, as well as worksheets, checklists, flowcharts, and templates for grantees to work with.

Because of the amount of information grantees need to take in and comb through quickly in the aftermath of disasters, it is essential that the guidebook (and any other technical-assistance product) be easily absorbable and attention-grabbing. The audience would primarily focus on new grantees, although even jurisdictions who had previously implemented CDBG-DR housing programs acknowledged they could all continue to learn best practices. One interviewee also suggested a webinar to accompany the release of the guidebook to walk through its contents.

Technical-assistance providers recommended that the guidebook build on current resources posted on HUD Exchange. They also pointed out that some of the current materials on HUD Exchange are outdated, and it could be helpful to update these tools so they are more in line with current practices and regulations.

Along with feedback specific to guidebook content and format, stakeholders recommended the development of additional resources, tools, and systems. Although these aids are beyond the scope of the guidebook, they may inform future supports for CDBG-DR housing recovery work. For instance, a case or grant management system available to every single grantee was on the wish list of several grantee and HUD staff. Other large requests included HUD-funded permanent DR staff in disaster-heavy areas to preserve institutional knowledge from one grant to the next. Additionally, grantees recommended sending a HUD team out when the funding is allocated, to provide immediate-onsite support in the program development process. Lastly, stakeholders stressed the importance of a database that FEMA, SBA, and other federal partners could use to help streamline processes like duplication of benefits (DOB).

Topics

RULES AND REQUIREMENTS

The bulk of the TA asked for and received by grantees was centered around the rules and program requirements of the CDBG-DR program, and various technical components including Disaster Recovery Grants Reporting (DRGR) data entry and manual uploading. As previously discussed,

grantees mentioned changing Federal Register notices to be confusing and complicating to their work; consequently, many wished that HUD could better communicate any item new to the regulations upfront at the beginning of the grant, especially if major changes occur between appropriations. The same is true for common waivers available for grantees.

CDBG-DR's rules and requirements posed complications and time delays for many grantees, and consequently, many of the technical-assistance requests fell into this realm. Duplication of benefits and DRGR entry both came up several times, as did environmental regulations, Affirmatively Furthering Fair Housing, and the Uniform Relocation Assistance and Real Property Acquisition Act. Grantees wished for standardized training on how to conduct the DOB calculation, as well as sample forms and handouts explaining the requirements for potential program participants. Grantees also requested more guidance on how to navigate different federal agencies (for example, FEMA, SBA) with regards to these requirements, including points of contact at each agency, and explanations for how each agency might deal with a certain requirement differently, or when requirements can overlap.

STANDARDS AND FORMS

Grantees noted—and some HUD staff and technical-assistance providers affirmed—that templates and standardized forms could cut down the potential for error, and save time as they streamline their programs, particularly for the following: eligibility, intake, income verification, and waiver requests forms, as well as materials to help the public understand CDBG-DR housing recovery programs and communication guidelines with other high-level stakeholders (for example, elected officials).

Many grantees also expressed a desire for an action plan template they could fill out, instead of creating their own. They also pointed out a need for more standardized guidance and past examples around construction standards, complaint and appeal policies, fraud policies, and staff modeling structures. Advice on good working relationships between grantees and subgrantees and contractors was also brought up by several interviewees. This includes best practices on procurement; tips on managing contractor relationships; incentives for contractors; vetting contractors; standards for contractor documentation; and sample subrecipient agreements, contracts, or memorandums of understanding.

PROGRAM DESIGN

Many grantees—especially newer grantees—hoped for more assistance on program design. Common design decisions and tradeoffs that grantees requested include contractor managed housing recovery program versus individual homeowners choosing their own contractor; reconstruction versus buyout

versus rehabilitation programs; multifamily versus single-family; rental versus homeowner-assistance; and loans versus grant programs.

Technical-assistance providers also stressed the need for more concrete guidance from HUD on approaching decisions about whether recovery programs should be managed at the state or local level. Overall, technical-assistance providers also noted the importance of grantees understanding how to design programs that leverage CDBG-DR funds in innovative ways. For instance, one technical-assistance provider talked about the use of disaster recovery funds as a stimulus to support community development efforts.

HUD Administrative Opportunities

As noted previously, the time constraints after Congressional appropriation but prior to the first disbursement of funds to CDBG-DR grantees are under HUD's control. On average, HUD has successfully reduced this time. Other HUD-controlled activities after grant award, however, could contribute to the grantees' delays, such as grant reporting for HUD or compliance with related regulations and rules. These activities are required and the related time to perform them cannot be eliminated altogether. Some tweaks to these post-award actions, however, may result in improvements in the grantees' completion times.

CDBG-DR and Related Federal Data Systems

Immediately after a disaster, FEMA assembles data on damages, as well as applicants' financial assets and remaining gaps to recovery. This information is essential for recovery officials at HUD and for CDBG-DR grantees, and could potentially serve as the basis for many subsequent eligibility and aid determinations. Through a variety of interviews conducted by Urban researchers, the processes by which these data are collected and their quality is verified often varies from disaster to disaster. Developing a transparent, standard, and methodologically tested protocol for this critical data collection is imperative.

A similar strategy should be employed with FEMA Individual Assistance household data; these collections should collect all information, including income, housing tenure and title, and a wider set of demographic characteristics than are currently collected. These data may be needed by other federal agencies and CDBG-DR grantees for other purposes and assistance needs, such as HUD's enforcement of fair housing laws or grantees' case management systems.

In turn, grantees often struggle with acquiring data that are needed at program launch and for later monitoring and verification of applicants and program recipients. DRGR has undergone significant improvement in (1) categorizing different kinds of housing activity types that a grantee may potentially employ into standardized groupings, (2) training grantees about those assignments despite the wide breadth of activities that are allowed, (3) increasing grantees' capacity to submit data in a timely and accurate way, and (4) approving and posting those data.

DRGR could be further improved; for example, HUD could further ensure consistency across grantees' reporting by requiring accurate unit counts, prohibiting overwriting of previously submitted data and improper adjustments, and consolidating reporting at the activity type (for example, across all housing buyout programs). These steps will convert DRGR into a useful outcome database beyond its current monitoring function. When possible, HUD should seek high-capacity grantees' internal activity and output recording systems to verify past reporting and improve on DRGR formatting.

Alternatively, DRGR could be transformed in ways that mirror other robust HUD information systems, such as the Public and Indian Housing Inventory Management System (IMS; formerly known as PIC, the PIH Information Center). These systems standardize definitions and reporting taxonomies for activities and outcomes that are helpful to all users. Third-party vendors verify and input data in ways that limit the costs and expenses of later audits. However, establishing such a system requires agreed-upon definitions and resources for its development.

Ultimately, however, the ideal management system would be a single, unified disaster data system across all federal agencies and local authorities which could track damaged properties, households with unmet needs and their application, financial and demographic data, and the history of their interaction with all public-sector disaster aid sources. Having common data sharing agreements between federal entities and a common data platform could expedite data cleaning and transfers to local entities as well as allow for federal agencies to conduct monitoring for program efficiency and evaluate against other goals (such as fair housing law and related environmental justice guidance). The platform could start with the agencies traditionally involved in recovery (FEMA, SBA, and HUD), but could also be linked to the Internal Revenue Service and local housing, unemployment insurance, and insurance commissioner databases for easier verifications. Simultaneous to this report, HUD has moved forward with the development of a data portal with FEMA, and FEMA has recently established data-sharing agreements with individual states as well.⁹

⁹ At the time of writing, exploration of a unified database has been proposed in draft legislation, including the Disaster Recovery Reform Act in H.R.4 (FAA Reauthorization Act) which passed in the House on April 27, 2018.

CDBG-DR Operations

Many grantees expressed appreciation for the help they received directly from HUD staff for their local operations starting from the point of congressional appropriation. They noted, however, that HUD staff with extensive familiarity with CDBG-DR are often spread too thin. This scenario is exacerbated when there are multiple disasters with appropriations at a given time. Another challenge noted by grantees over the course of these studies was that the HUD staff that provide guidance to grantees are often in the position of monitoring grants as well, therefore making partnerships more guarded than may be desired. Training and reallocating HUD staff internally may loosen this bottleneck.

In many cases, however, grantees simply lack the capacity to undertake CDBG-DR both because of their post-disaster conditions and because of preexisting gaps in their capacity to undertake such large and expedited grants. The latter constraint is foreseeable and manageable. HUD might seek to more regularly perform organizational assessments of entitlement grantees of the traditional, non-DR CDBG program to keep tabs on grantees which appear unprepared for a disaster. Whenever possible, this assessment could extend beyond the jurisdiction's operations and consider the vulnerabilities of local housing markets (for example, location in a flood zone or structural age and strength), and supply of construction or remodeling providers. As one technical-assistance provider noted, this will ultimately be helpful for the grantees for identifying "blind spots" and to foster collaboration with HUD prior to a disaster.

Given the range of activities that are allowable under CDBG-DR, grantees also noted the importance of adding even more flexibility: (1) wrap-around services, including housing counseling; (2) the expansion or experimentation with housing programs for harder-to-serve households, particularly multifamily renters; and (3) using recovery funds for predisaster home mitigation activities, to better serve local assistance recipients now and in the future are some examples of activities that have been piloted under CDBG-DR and have potentially significant effects on outcomes. Experimentation and scope expansion, however, are not often desirable in a post-disaster scenario. HUD could consider funding these efforts with traditional CDBG funding before disasters so that they are in place afterward.

By far, however, the most important potential improvements to CDBG-DR involve its relationship with other federal recovery programs. Interagency coordination of many kinds during program operations was noted beyond the data and duplication of benefits issues noted previously. First, in cross-cutting program requirements (Davis Bacon, Fair Housing, and NEPA and other environmental

reviews), inconsistencies and in some cases conflicts between agencies' interpretations for the same grantees often yielded increased delays.

Environmental reviews, repeatedly noted in the qualitative study, are the fodder for a potential tweak in legislation around the current CDBG-DR program. Alternative, post-disaster environmental reviews that meet a fundamental technical threshold could suffice without requiring extensive, burdensome, and costly inspections and approvals that were noted by study grantees as being a primary driver of delays in program implementation. Another possible solution to this challenge includes a "first touch" rule, meaning that the interpretations of the first agency to interact with a grantee, household, or housing unit prevail. A precedent has already been made for this collaboration, with HUD having permitted grantees to adopt environmental reviews performed by other federal agencies.

Determining whether CDBG-DR funds can serve as a match to other federal funds is the source of many other grantee woes. CDBG-DR funds are often used as a non-federal match for individual mitigation and public assistance projects funded by FEMA.

Although providing grantees with the needed resources, the additional administration and documentation required by different agencies also adds a burden and, in turn, cost and time, to recovery. Consistency in rules about matching funds could reduce the need to combine funds as well.

Another potential area for improvement involves coordinated messages to individual households around the cascading order of benefits from FEMA, SBA, and HUD, unrelated to the calculation of their duplication. In some cases, inconsistencies have been reported in interpreting duplication and precedent. The most critical problem related to this issue, however, is the effect on beneficiaries. All study grantees (as well as much local media coverage) have noted the lack of awareness among citizens about where and when different sources of federal assistance come during their personal recovery timeframes. Households during recovery may take an SBA loan (typically offered before CDBG-DR appropriations are made and disbursed quickly after application) not knowing that a grant funded by CDBG-DR may be possible. For households undergoing disaster trauma, this confusion is unnecessary.

Finally, assuming the current CDBG-DR special authority framework remains, federal officials simply must coordinate more. CDBG-DR is the largest long-term recovery program in the federal government as measured by appropriations. CDBG-DR staff within HUD and, later, among grantees' designated coordinating offices, however, are often unable to become involved in early federal and local decisions and information-sharing immediately after disasters. Often, HUD's review of proposed

Action Plans could benefit from a better understanding of how other federal and state entities have already begun to deliver services. In some cases, CDBG-DR may be a more suitable funding source for grantees and may be in the best interests of citizens (for example, when FEMA Individual Assistance funds are used for permanent housing solutions that could be better addressed by CDBG-DR and potentially more efficiently implemented by a grantee's CDBG-familiar staff).

In many cases, this lack of coordination is caused by the fact that CDBG-DR may not have received the congressional appropriation for a given disaster at the time that the other disaster response functions are activated. Even when this has not been the case, HUD must wait until the dust settles and unmet needs are estimated before it can allocate funds accordingly. In all cases, however, this staging of functions leaves little room to integrate CDBG-DR applicants, rules, and regulations early enough to streamline state and local stakeholders' interaction with the federal government.

Opportunities within the Public Disaster Safety Net

A final set of improvements exists beyond CDBG-DR. The overall federal emergency management policy framework—from predisaster mitigation to long-term post-disaster recovery—has undergone sporadic and largely partial updating since the 1988 Robert T. Stafford Disaster Relief and Emergency Assistance Act, including the 2006 Post-Katrina Emergency Management Reform Act. Over this time, hazard events have become more frequent, the disasters they generate costlier, and the expectations of federal intervention in both relief and recovery more exorbitant. CDBG-DR's current use and outcomes are constrained by these challenges more than any other federal source of disaster assistance.

CDBG-DR Appropriations

Beyond coordination within agencies in the executive branch, some challenges to housing recovery can only be overcome by changing the CDBG-DR statutory framework. First on this list of challenges is the timing of congressional appropriations. This is particularly a challenge when an appropriation is issued for several disaster declarations including those that occurred up to a year before the appropriation, and when a declaration receives multiple appropriations over time (typically, the more severe disasters where needs are the largest).

These variations in appropriation timing are exacerbated by fluctuations in the appropriation value which are not necessarily tied to a specific damage assessment estimate or monetized recovery need. The inability to plan around a specific dollar value of federal assistance at a specific time typically

causes a significant amount of uncertainty and confusion for grantees and less than optimal housing recovery program designs. Modifications invariably occur after a program has already been launched when new appropriations are made or new allocations notices (often with new restrictions) are added to original grant awards.

This is particularly challenging when HUD issues waivers to compensate for omissions in appropriations. CDBG-DR applies the regulatory framework of regular CDBG (24 CFR 570), plus any special waivers as allowed by the appropriation, original allocation, and subsequent notices. Whole and partial waivers are commonplace due partly to the supplemental nature of the program's authority and ensuring allocations. In some cases, waivers are reasonable because disaster recovery requires different functions and fills different needs than non-disaster CDBG. Across grants, however, the inconsistent use of waivers has led to confusion, unintentional violations, and, in a few cases, undesired outcomes. Standardizing regulations would ensure that a permanent formal framework is in place for future disasters, reduce the volume of Federal Register notices and other informal forms of guidance for each disaster, and mitigate time delays in implementing assistance for future disasters.

Other legislative tweaks could clarify CDBG-DR's role within the disaster recovery framework and grantees' responsiveness to it. For example, Congress may also be able to provide some clarity around the funding prioritization between FEMA, SBA, and HUD resources in the determination of benefits. Congress could also require a standard financial management and procurement framework across assistance programs to avoid inconsistencies. Lastly, creating a standard requirement for serving low- and moderate-income households across federal assistance programs (HUD's are currently the most stringent, although often waived) will ensure that grantee governments prioritize their most challenged and vulnerable citizens.

Although such changes could increase CDBG-DR grantees' burden in the short term (particularly if they are accustomed to previous grant regulations), they would certainly provide more transparency and clarity. As noted in other portions of this report, the setting of known and clear expectations is helpful in a post-disaster scenario at all levels of government.

CDBG-DR Authority

Expectations of the federal government's role in individual recovery among disaster-affected citizens and those who may suffer from disasters in the future—that is, nearly all Americans—are an especially sensitive subject. It is one, however, that must be addressed by a sound policy that codifies fairness and proportionality before disaster strikes.

The primary policy recommendation that comes from this report is the need for a permanent CDBG-DR appropriation that allows HUD to be an integral component of the federal disaster response by statute so that it can more quickly collaborate with other emergency agencies and provide resources to disaster-affected communities rather than rely on interminable notices with varying requirements. Numerous federal programs within and outside of HUD have budgets that are only a fraction of what the federal government has spent in CDBG-DR special appropriations. A statutorily authorized program would avoid inconsistencies and delays from legislative action as described previously, as well as provide resources for HUD staffing and knowledge and ongoing TA and capacity building for grantees and potential grantees.

A consequence of HUD's lack of consistent authority is that grantees do not sustain the capacity to design and implement CDBG-DR funds efficiently and with substantial program experience like other Community Planning and Development programs in HUD. Grantees tend to ramp up with numerous consultants and contractors and rely on local development corporations and regional planning authorities to manage the one-time CDBG-DR grant—even if the grantee has been subjected to multiple disasters and received multiple grants over time. This implementation is likely not efficient or cost effective. Many grantees noted that while the help they received directly from HUD staff starting from congressional appropriation has dramatically improved over the past 5 years, there is still much room for improvement about when they can access it.

National Disaster Policy

With or without a permanent long-term disaster recovery function in government such as CDBG-DR, some centralization, consistency, and the perception of a seamless transition across the relevant federal programs is in order—at least from the disaster-affected citizen's perspective—whether it be through a single new federal entity charged with the disaster emergency continuum or the better coordination described previously. Acceptance of this continuum would break the traditional model of disaster interventions beyond the relief and response stages and link long-term community planning and development goals with disaster preparations based on accurate and scientifically produced evidence.

Communities would have better knowledge about existing housing, household conditions, and their local housing construction and rebuilding markets before a disaster. The advances in coordination that have occurred in the past decade, including HUD's guidance for using existing entitlement grant funds for disaster planning (HUD, 2017) and FEMA's guidance on disaster planning (FEMA, 2017), have built on the lessons learned from Hurricanes Katrina and Sandy. Yet, many lessons

can still be learned, particularly given the likely increases in future disaster rates because of climate change and increased urbanization.

There are also likely to be many financial gaps to be filled in recovery that necessitate more cost-effective solutions to be implemented in planning, preparation, and mitigation. Creating a national culture of preparedness is an integral component of community resilience, but one that can be grounded in policy and tangible interventions. Adding federal requirements for increased appropriate building codes; providing funds for housing mitigation retrofits, elevations, and planned buyouts; and standards for zoning and planning engagement with citizens help ensure that housing recovery is not merely home rebuilding. Devising equitable ways to share the costs of these preparations affordably will result in savings for the country and those same households during recovery (NIBS, 2018).

The increased expectation that the federal government will intervene during and after every disaster has generated unreasonable expectations about the speed and magnitude of response while disincentivizing individual agency at the community level (for example, to improve community infrastructure and invest in governmental planning and preparations) and among households (through the purchase of hazard insurance policies). This is especially so among communities and individuals with the knowledge and financial resources to act independent of federal intervention. Placing reasonable requirements on communities and households before a disaster, and then ensuring that effective resources are deployed for housing recovery (including more long-term housing assistance) after a disaster, will ensure that no American who has suffered through a disaster will slip through the cracks or wait too long for necessary assistance.

By focusing solely on improvements in the timing of CDBG-DR's disaster recovery programs, we lose sight of the potential to first, embrace mitigation and preparation before disaster strikes; and second, define the shared and equitable roles across government and citizens for mitigation and preparation that shape the cost-effectiveness and timeliness of housing recovery. If this study provides any notable finding, it is that the gaps in capacity and knowledge before a disaster strikes are likely to lead to longer chaos and suffering afterward.

Conclusion: Balancing Recovery Speed and Quality

What we know about the Community Development Block Grant program for Disaster Recovery (CDBG-DR) funded home recovery programs has been nearly as anecdotal and circumstantial as the disasters themselves. Not every disaster receives a presidential declaration, not every federally declared disaster gets special appropriations, and not every special appropriation includes HUD CDBG-DR. Regardless, although this study does not look at all housing recovery across every U.S. disaster, this report helps to build the evidence base about the CDBG-DR program.

The quantitative and qualitative studies that produced the findings noted in this report have provided key insights into the challenges that may lead to delays in CDBG-DR housing recovery programs' design, launch, and execution. Most of these challenges are operational and administrative and are focused on HUD's ability to build local grantee capacity through new guidance and tools that will supplement HUD's ongoing technical-assistance efforts.

Other challenges, however, do not lend themselves readily to HUD's TA to grantees. HUD processes and their coordination with other federal agencies, particularly in relation to data and information that could help grantees design programs more effectively, encompass one group of challenges for which solutions may be found through HUD operations. The literature and grantees also report challenges that exist beyond HUD's statutory authority, many of which deal with the underlying organization of the national emergency management framework. Many of these challenges have been noted in other reports, from internal reviews conducted by HUD (HUD, 2016) to formal audits (HUD: OIG, 2017), to external program assessments (Leicht, 2017). Challenges and corresponding recommendations in both categories are described in the following paragraphs.

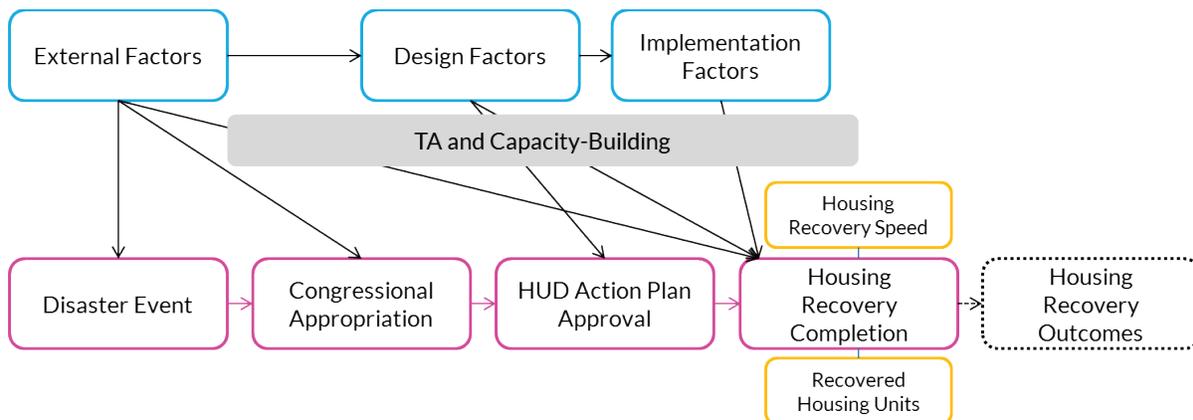
The research team conducted this study amid the historic hazard season of 2017. The implementation of CDBG-DR funds in the current context may suffer from many of the same capacity gaps and institutional challenges that caused delays in past housing recovery and potentially permitted needy disaster victims to slip through program cracks. We hope that this study's findings provide evidence for further improvement. Further, we expect the report to continue to shine a spotlight on the critical governmental function of disaster recovery—particularly as there is likely no end to catastrophic disasters in the United States.

Appendix A: Study Methods

The Urban Institute implemented a mixed-methods approach to describe housing recovery completion times and explore the underlying factors (both contextual and endogenous) that influence those times.

Our assessment design is motivated by the conceptual framework depicted graphically in exhibit 23. Specifically, the framework expresses our view of how contributing factors that are potentially affected by technical-assistance (TA) intervention, as well as other contributing factors, influence housing recovery outputs. The arrows between specific boxes in the model represent the expected influences among the factors. The assessment acknowledges numerous short- and long-term outcomes associated with these outputs, but those outputs are the focus of other studies and evaluations. The framework recognizes that it is not only the characteristics associated with the CDBG-DR program and individual grantees housing program designs that generate these outputs but also that contextual and grantee characteristics are influential factors.

EXHIBIT 23. CONCEPTUAL FRAMEWORK FOR CDBG-DR HOUSING RECOVERY SPEED RETROSPECTIVE ASSESSMENT



TA = technical assistance.

The work involved four core activities: preliminary review and field inquiry, descriptive analysis of completion timeframes for a sample of Community Development Block Grant program for Disaster Recovery (CDBG-DR) grants with relatively consistent data reporting and that cover a diversity of grants with regard to their underlying disaster severity, advanced quantitative analysis to explain timeframes while controlling for contributing factors, and qualitative data collection and analysis of contributing factors with potential opportunities or “best practices.” These are described later in detail around analytical methods.

Preliminary Review

To identify a comprehensive set of factors that may contribute to CDBG-DR housing recovery timeframes for incorporation into this study, the research team: (1) conducted an extensive literature review, (2) surveyed media and journalistic articles on CDBG-DR programs, and (3) interviewed HUD's CDBG-DR leadership. The findings from these inquiries are synthesized later.

Descriptive Quantitative Analysis

Using data from HUD, FEMA, and HUD grantee CDBG-DR action plans, we first outlined the major disasters and spending on CDBG-DR housing activities during the study period, FY2006–FY2015. We then examined time intervals associated with the following key steps: disaster event, appropriation, allocation, HUD award, first expenditure, and activity completion. Using a duration model, we isolated factors associated with the time intervals between allocation or first expenditure and activity completion.

We examined CDBG-DR spending at the appropriation, grant, and activity level. By appropriation, we are referring to CDBG-DR funds that are appropriated to HUD as part of specific, larger recovery legislation. For summary statistics at the appropriation level, we grouped the three appropriations for Hurricanes Katrina, Rita, and Wilma together. Grants refer to funding approved by HUD and distributed to state and local governments (grantees) through the CDBG-DR program. Activities, as reported in the Disaster Recovery Grant Reporting (DRGR) database, are collections of similar projects such as single-family home rehabilitations or payments such as those for homeowner assistance.¹⁰ Each grantee may have performed several activities, each with its own requirements, goals, and scope. Additionally, we classified housing activities into “types” such as rehabilitation, affordable rental housing, or homeownership assistance and noted whether the activity was administered by the HUD grantee or a subgrantee.

To understand the progress of each grant, we examined funds expended over time. We have four other key intervals that marked the length of time between disaster and activity completion: disaster declaration to activity completion, appropriation to activity completion, HUD funding allocation to activity completion, and HUD award to activity completion. As discussed, we defined an activity as

¹⁰ CDBG-DR regulation uses the term activity to refer, more granularly, to individual projects as identified by the grantee whose performance status is self-reported to HUD.

complete when 90 percent of its funds are expended. We also calculated the same metrics for entire grants, not just activities.

HUD's Office of Community Planning and Development developed the DRGR system to track grantee efforts under CDBG-DR. Grantees report DRGR data quarterly to HUD. The quarterly data include information on projects, activities, funding disbursed, number of households served, and, in some cases, property addresses. After assessing both financial and performance data, we determined that quarterly financial data was more complete and provided a better basis for comparison across different types of activities. The quarterly financial data track funds obligated, funds expended, grants disbursed, program income received, and program income disbursed.

The analysis presented here focuses on housing expenditures. We relied on activity classifications in the DRGR financial data, which are provided by the grantees, to determine which expenditures were associated with housing activities. We identified 17 housing activity types in the data and aggregated them into seven categories: acquisition of property, affordable rental housing, construction of housing, homeownership assistance, rehabilitation, relocation payments and assistance, and rental assistance. Costs related to administration are not included, due to our inability to determine if an administration activity was solely for housing purposes.

Because the DRGR data do not include information on when each grant or activity was complete (for example, when the homes were built), we estimated the time of activity completion as the quarter at which 90 percent of the funds were expended. Please note that throughout this report, the term "complete" refers to this 90 percent of funds expended marker. We elected to use 90 percent as a proxy for grant or activity completion because the last expenditure can often be small and lag many months beyond when the bulk of the spending occurred. This may be due, in part, to grantees reconciling accounts.

In some instances, the DRGR data show expenditures occurring prior to the HUD award date reported in the grantee's action plan.¹¹ In those instances, rather than counting the period between award and expenditure as negative time, we assume an award date during the quarter prior to the first expenditure.

¹¹ CDBG-DR grantees can incur certain eligible expenses prior to the HUD award. Some grantees reported these expenses in DRGR when they were actually incurred, while others reported them by the earliest date of funds draw.

Regression Analysis

To examine the factors that influence the speed of housing recovery, we used data from HUD's DRGR system, the Federal Emergency Management Agency (FEMA) housing archive, information from HUD grantee action plans, and local area data from the American Community Survey.¹² We used government revenue and expenditure data from state and local Comprehensive Annual Financial Reports as proxies for government capacity. We relied on the Bureau of Labor Statistics' Employment Location Quotient for the construction industry as a proxy for private rebuilding capacity. We also used local demographic data collected by the Census Bureau's American Community Survey.

At the grant level, the modelling includes total funds, the number of activities, the number of prior CDBG-DR grants given to the grantee, the time between the disaster and the first funding allocation, the start year for the grant, and dummy variables identifying grant administration (that is, which grants were given to counties or cities rather than to states or given to states but subgranted to local governments). The model also includes four contextual metrics that summarize the affected population at the grant level: income, unemployment rate, homeownership rate, and percent non-White. Data for the population metrics were drawn from the American Community Survey. Each of these statistics was weighted by the amount of disaster damage at the census tract level and aggregated to the grantee level. Finally, the analysis also controlled for the mix of activity types included in the grant using a set of variables showing the percent of activities within each grant that are of each type.

To model the timeframes at the activity level, the team used the same grant-level contributing factors as shown previously but included the total funds at the activity level and dummy variables for the activity types because the main interest in these activity-level regressions is the relative speed of each activity type.

We explored additional contributing factors at the grant level through six alternative specifications designed to isolate potentially interesting relationships. We used two models that provide estimates of the relationship between measures of storm severity and time to completion, a

¹² The DRGR system is primarily used by grantees to access funds and report performance and by HUD to review grant-funded activities, prepare reports, and monitor compliance. More information and data extracts are available at <https://www.hudexchange.info/programs/drgr/>. The FEMA housing archive contains aggregated, non-PII data generated by FEMA's Enterprise Coordination & Information Management (ECIM) reporting team describing the number of applicants and severity of damage at the county and ZIP-Code levels. More information and downloadable data are available at <https://www.fema.gov/media-library/assets/documents/30714>.

model that examines the relationship between disaster appropriations and completion, and two models estimating the relationship between local capacity and completion.

The model utilizes a Weibull accelerated failure time (duration) design. An accelerated failure time model estimates the effects of covariates on “survival time”—the time between two events. Here, we estimated the time between the first HUD funding allocation or the first expenditure and activity (or grant) completion based on analysis of 2,346 recovery activities and 85 recovery grants.

Accelerated failure time models have many similarities with hazard models which estimate the effects of covariates on the probability of an event occurring. Because this study is focused on the length of time to activity completion, rather than the probability of completion at any given time, we preferred to use the accelerated failure time model over a hazard model. However, it is important to note that the estimates obtained from Weibull and exponentially accelerated failure time and hazard models are equivalent; that is, estimates can be converted from one form to another post-estimation.

Defining T_i as the time to complete, X_i as a set of individual disaster, grantee, activity, and community characteristics, and μ_i as an idiosyncratic “error” term, our Weibull accelerated failure time model assumes the form:

$$T_i = \exp(X_i\beta) \times (\sigma\mu_i)$$

The coefficients, β , and the shape parameter, σ , are estimated. Our estimates assumed that the error terms, μ_i , are heteroskedastic because there is not a clear or preferred level at which to model within-cluster correlation. Time ratios, the relative difference in time to complete when a covariate changes by 1 unit, are calculated as $TR = \exp(\beta)$. We estimated a Cox proportional hazard model, and both exponential and lognormal accelerated failure time models as robustness checks. The Weibull model has the best fit based on Akaike information criterion and Bayesian information criterion metrics.

Time ratios produced using this model can be interpreted as a percent difference in duration, for example, a coefficient of 0.958 associated with quarters between Disaster and Funding Allocation suggests that, after accounting for other factors, a grant that was funded one quarter later than another would reach the 90 percent of funds expended milestone in 95.5 percent of the time, or 4.2 percent more quickly. Put another way, each quarter of time between the disaster and funding is associated with a 4.2-percent decrease in the time it takes to administer a grant. It is, however, very important to note that the modeling exercise produces results that are correlational, but it is unclear

whether they are causal. That is, a delay in allocation may be associated with thorough action plan development, but a delay in allocation might not, in and of itself, improve grant administration.

Qualitative Analysis

Urban conducted structured interviews with stakeholders involved with eight CDBG-DR grants. The research team selected a purposive sample of grantees, representing diverse characteristics across the following key attributes: disaster severity (severe compared with non-severe), grant administration (whether the eligible grantee administered the grant or subgranted for the program implementation), and jurisdiction (state or local grantee). Exhibit 24 shows sampled grantees by key attributes.

EXHIBIT 24. QUALITATIVE STUDY SAMPLE GRANTEE KEY ATTRIBUTES

Grantee	Disaster Event	Disaster Severity	Grant Administration	Jurisdiction Type
New York City, NY	Hurricane Sandy	Severe	Self	Local
Texas	Hurricanes Ike and Dolly	Severe	Subgrantees	State
Louisiana	Hurricanes Rita, Dolly, and Katrina	Severe	Self	State
Joplin, MO	Tornado	Non-Severe	Self	Local
Iowa	Midwest Floods	Non-Severe	Subgrantees	State
Illinois	Hurricane Ike	Non-Severe	Self	State
Cook County, IL	Floods	Non-Severe	Self	Local
Nashville, TN	Storms	Non-Severe	Self	Local

Interviews took place both in person during site visits and over the phone. Interviews were used to examine the causes of challenges and delays in housing recovery efforts, identify potential solutions to increase the efficiency of recovery following disasters, and seek feedback to inform future technical-assistance resources. In total, the research team conducted 61 interviews, including 13 with HUD staff and 48 with CDBG-DR grantee staff. Urban coded interview transcripts using NVivo software to identify themes and conducted further analysis to identify core themes.

Appendix B. CDBG-DR Grantee Population

EXHIBIT 25. SUMMARY OF CDBG-DR GRANTEES

Grantee	Disaster	Grant Number	Appropriation Number	Total Population	Housing Activities Responsible Organization	Disaster Declarations in Previous 10 Years
California	Wildfires	B-05-DJ-06-0001	PL 108-324	34,871,843	Subgrantee (County & Indian Tribe)	24
Florida	Hurricane Ivan	B-05-DJ-12-0001	PL 108-324	17,004,085	Subgrantee (Counties)	55
Maryland	Hurricane Isabel	B-05-DJ-24-0001	PL 108-324	5,440,389	Self-Administered	8
Ohio	Severe Storms and Flooding	B-05-DJ-39-0001	PL 108-324	11,434,788	NA	14
Pennsylvania	Hurricane Ivan	B-05-DJ-42-0001	PL 108-324	12,374,658	Subgrantees (Counties, Towns)	15
Virginia	Hurricane Isabel	B-05-DJ-51-0001	PL 108-324	7,286,873	Subgrantees (County, Cities, Town)	22
Puerto Rico	Hurricane Jeanne	B-05-DJ-72-0001	PL 108-324	3,826,000	Subgrantees (Municipalities)	9
Alabama	Hurricane Katrina	B-06-DG-01-0001	PL 109-148	4,530,729	Subgrantees (Counties, Cities)	28
Alabama	Hurricane Katrina	B-06-DG-01-0002	PL 109-234	4,530,729	Subgrantees (Counties, Cities)	28
Florida	Hurricane Katrina	B-06-DG-12-0001	PL 109-148	17,415,318	Subgrantees (Counties)	56
Florida	Hurricane Katrina	B-06-DG-12-0002	PL 109-234	17,415,318	Subgrantees (Counties)	56
Louisiana	Hurricane Katrina	B-06-DG-22-0001	PL 109-148	4,552,238	Self-Administered	14
Louisiana	Hurricane Katrina	B-06-DG-22-0002	PL 109-234	4,552,238	Self-Administered	14
Mississippi	Hurricane Katrina	B-06-DG-28-0001	PL 109-148	2,889,010	Self-Administered	14
Mississippi	Hurricane Katrina	B-06-DG-28-0002	PL 109-234	2,889,010	Self-Administered	14
Texas	Hurricane Rita	B-06-DG-48-0001	PL 109-148	22,394,023	Subgrantees (Counties)	48
Texas	Hurricane Rita	B-06-DG-48-0002	PL 109-234	22,394,023	Subgrantees (Counties)	48
Illinois	Midwest Floods	B-08-DF-17-0001	PL 110-252	12,695,866	Subgrantees (Cities & Counties)	14
Indiana	Midwest Floods	B-08-DF-18-0001	PL 110-252	6,379,599	Subgrantees (Cities & Counties)	17
Iowa	Midwest Floods	B-08-DF-19-0001	PL 110-252	2,999,212	Subgrantees (Cities & Counties)	11
Maine	Severe Storms and Flooding	B-08-DF-23-0001	PL 110-252	1,327,040	Subgrantee (Town)	22
Minnesota	Midwest Floods	B-08-DF-27-0001	PL 110-252	5,207,203	Subgrantee (City)	15
Missouri	Midwest Floods	B-08-DF-29-0001	PL 110-252	5,887,612	Subgrantees (Cities & Counties)	20
Oklahoma	Storms, Tornadoes, Flooding	B-08-DF-40-0001	PL 110-252	3,634,349	Subgrantee (City Housing Authority)	54
West Virginia	Storms, Tornadoes, Flooding	B-08-DF-54-0001	PL 110-252	1,834,052	Subgrantees (County, City)	16
Wisconsin	Midwest Floods	B-08-DF-55-0001	PL 110-252	5,610,775	Subgrantees (Cities & Counties)	11
Louisiana	Hurricane Katrina	B-08-DG-22-0003	PL 110-116	4,552,238	Self-Administered	14

Grantee	Disaster	Grant Number	Appropriation Number	Total Population	Housing Activities Responsible Organization	Disaster Declarations in Previous 10 Years
Arkansas	Storms, Tornadoes, Flooding	B-08-DI-05-0001	PL 110-329	2,849,000	Subgrantees (Counties)	18
California	Wildfires	B-08-DI-06-0001	PL 110-329	36,250,311	Subgrantees (Cities & Counties)	96
Florida	Tropical Storm Fay	B-08-DI-12-0001	PL 110-329	18,367,842	Subgrantees (Counties)	65
Georgia	Severe Storms and Tornadoes	B-08-DI-13-0001	PL 110-329	9,349,988	Subgrantees (Cities)	65
Illinois	Severe Storms and Flooding	B-08-DI-17-0001	PL 110-329	12,695,866	Self-Administered	14
Indiana	Storms, Tornadoes, and Flooding	B-08-DI-18-0001	PL 110-329	6,379,599	Subgrantees (Cities & Counties)	17
Iowa	Storms, Tornadoes, and Flooding	B-08-DI-19-0001	PL 110-329	2,999,212	Subgrantees (Cities & Counties)	11
Kentucky	Hurricane Ike	B-08-DI-21-0001	PL 110-329	4,256,672	Subgrantees (Counties)	22
Louisiana	Hurricane Gustav	B-08-DI-22-0001	PL 110-329	4,375,581	Subgrantees (Parishes) Except Rental	19
Mississippi	Hurricane Gustav	B-08-DI-28-0001	PL 110-329	2,928,350	Subgrantees (Counties)	15
Missouri	Severe Storms and Flooding	B-08-DI-29-0001	PL 110-329	5,887,612	Subgrantees (Cities & Counties)	20
Tennessee	Storms, Tornadoes, and Flooding	B-08-DI-47-0001	PL 110-329	6,175,727	Subgrantees (Cities & Counties)	22
Texas	Hurricane Ike	B-08-DI-48-0001	PL 110-329	23,831,983	Subgrantees (Cities & Counties)	75
Wisconsin	Storms, Tornadoes, and Flooding	B-08-DI-55-0001	PL 110-329	5,610,775	Subgrantees (Cities & Counties)	11
Puerto Rico	Storms and Flooding	B-08-DI-72-0001	PL 110-329	3,783,000	Subgrantees (<i>Municipios</i>)	8
Kentucky	Flooding, Mudslide, and Tornadoes	B-10-DF-21-0001	PL 111-212	4,317,074	Subgrantees (Cities & Counties)	26
Rhode Island	Severe Storms and Flooding	B-10-DF-44-0001	PL 111-212	1,053,646	Subgrantees (Cities)	4
Cranston, RI	Flooding	B-10-MF-44-0001	PL 111-212	80,387	Self-Administered	3
Warwick, RI	Flooding	B-10-MF-44-0002	PL 111-212	82,672	Self-Administered	2
Nashville-Davidson, TN	Storms, Flooding, Straight-Line Winds, and Tornadoes	B-10-MF-47-0002	PL 111-212	668,347	Self-Administered	4
Shelby Co., TN	Storms, Flooding, Straight-Line Winds, and Tornadoes	B-10-UF-47-0001	PL 111-212	922,541	Self-Administered	6

Grantee	Disaster	Grant Number	Appropriation Number	Total Population	Housing Activities Responsible Organization	Disaster Declarations in Previous 10 Years
Alabama	Storms, Flooding, and Tornado	B-12-DT-01-0001	PL 112-55	4,785,161	Subgrantees (Cities & Counties)	21
Missouri	Storms, Tornadoes, and Flooding	B-12-DT-29-0001	PL 112-55	5,996,052	Subgrantees (Cities)	25
New Jersey	Hurricane Irene	B-12-DT-34-0001	PL 112-55	8,803,881	Self-Administered	15
North Dakota	Flooding	B-12-DT-38-0001	PL 112-55	674,530	Subgrantees (Counties)	18
Pennsylvania	Tropical Storm Lee	B-12-DT-42-0001	PL 112-55	12,712,014	Subgrantees (Cities & Counties)	12
Texas	Wildfires	B-12-DT-48-0001	PL 112-55	25,244,363	Self-Administered + Houston	84
Vermont	Tropical Storm Irene	B-12-DT-50-0001	PL 112-55	625,984	Self-Administered	12
Birmingham, AL	Storms, Flooding, and Tornadoes	B-12-MT-01-0001	PL 112-55	212,237	Self-Administered	11
Tuscaloosa, AL	Storms, Flooding, and Tornadoes	B-12-MT-01-0002	PL 112-55	90,468	Self-Administered	8
Joplin, MO	Storms, Tornadoes, and Flooding	B-12-MT-29-0001	PL 112-55	50,150	Self-Administered	10
Union, NY	Tropical Storm Lee	B-12-MT-36-0001	PL 112-55	13,392	Self-Administered	11
Minot, ND	Flooding	B-12-MT-38-0001	PL 112-55	40,888	Self-Administered	7
Jefferson County, AL	Storms, Flooding, Straight-Line Winds, and Tornadoes	B-12-UT-01-0001	PL 112-55	658,116	Self-Administered	11
Orange Co., NY	Hurricane Irene	B-12-UT-36-0001	PL 112-55	373,428	Self-Administered	15
Dauphin Co., PA	Tropical Storm Lee	B-12-UT-42-0001	PL 112-55	268,260	Self-Administered	6
Luzerne Co., PA	Tropical Storm Lee	B-12-UT-42-0002	PL 112-55	320,998	Self-Administered	6
Alabama	Storms, Flooding, and Tornadoes	B-13-DS-01-0001	PL 113-2	4,785,161	Self-Administered	21
Colorado	Flood, Mudslide, and Tornadoes	B-13-DS-08-0001	PL 113-2	5,191,731	Subgrantees (Cities, Counties)	29

Grantee	Disaster	Grant Number	Appropriation Number	Total Population	Housing Activities Responsible Organization	Disaster Declarations in Previous 10 Years
Connecticut	Hurricane Sandy	B-13-DS-09-0001	PL 113-2	3,593,541	Self-Administered	13
Louisiana	Hurricane Isaac	B-13-DS-22-0001	PL 113-2	4,575,381	Both Self-Administered and Subgrantee (Parishes)	20
Maryland	Hurricane Sandy	B-13-DS-24-0001	PL 113-2	5,844,171	Subgrantees (Counties)	10
Massachusetts	Hurricane Irene	B-13-DS-25-0001	PL 113-2	6,565,036	Subgrantees (Towns)	16
Missouri	Severe Storms, Tornado, and Flooding	B-13-DS-29-0001	PL 113-2	5,996,052	Subgrantees (Cities)	25
New Jersey	Hurricane Sandy	B-13-DS-34-0001	PL 113-2	8,842,934	Self-Administered	20
New York	Hurricane Sandy	B-13-DS-36-0001	PL 113-2	19,523,202	Self-Administered	33
North Dakota	Flooding	B-13-DS-38-0001	PL 113-2	674,530	Self-Administered	18
Oklahoma	Storms, Tornadoes, and Flooding	B-13-DS-40-0001	PL 113-2	3,817,679	Subgrantees (Cities)	106
Pennsylvania	Tropical Storm Lee	B-13-DS-42-0001	PL 113-2	12,712,014	Subgrantees (Cities, Counties)	12
Rhode Island	Hurricane Sandy	B-13-DS-44-0001	PL 113-2	1,051,856	Subgrantees (Cities)	8
Vermont	Hurricane Irene	B-13-DS-50-0001	PL 113-2	625,984	Subgrantees (Cities)	12
Birmingham, AL	Storms, Flooding, Straight-Line Winds, and Tornadoes	B-13-MS-01-0001	PL 113-2	212,237	Self-Administered	11
Tuscaloosa, AL	Storms, Flooding, and Tornadoes	B-13-MS-01-0002	PL 113-2	90,468	Self-Administered	8
Chicago, IL	Storms, Winds, and Flooding	B-13-MS-17-0001	PL 113-2	2,695,598	Self-Administered	5
Springfield, MA	Hurricane Irene	B-13-MS-25-0001	PL 113-2	153,060	Self-Administered	8
New York City, NY	Hurricane Sandy	B-13-MS-36-0001	PL 113-2	8,175,133	Self-Administered	41
Minot, ND	Flooding	B-13-MS-38-0001	PL 113-2	40,888	Self-Administered	7
Moore, OK	Storms, Tornadoes, and Flooding	B-13-MS-40-0001	PL 113-2	55,081	Self-Administered	19
Jefferson County, AL	Storms, Flooding, Winds, and Tornadoes	B-13-US-01-0001	PL 113-2	658,116	Self-Administered	11
Cook Co., IL	Storms, Winds, and Flooding	B-13-US-17-0001	PL 113-2	5,232,690	Self-Administered	5

Grantee	Disaster	Grant Number	Appropriation Number	Total Population	Housing Activities Responsible Organization	Disaster Declarations in Previous 10 Years
DuPage Co., IL Jefferson	Storms, Winds, and Flooding	B-13-US-17-0002	PL 113-2	927,997	Self-Administered	4
Parish, LA	Hurricane Isaac	B-13-US-22-0001	PL 113-2	435,716	Self-Administered	15

EXHIBIT 26. CDBG-DR GRANTEE FUNDING LEVELS

Grantee	Disaster	Grant Number	Total Housing Damage (FEMA) (Millions)	Total CDBG-DR Appropriation (Millions)	Total Grant Funding (Millions)	Total Number of Activities	Grant Funding, Housing Activities (Millions)	Number of Housing Activities
California	Wildfires	B-05-DJ-06-0001	(Incomplete Data)	\$150	\$10.4	8	\$1.1	1
Florida	Hurricane Ivan	B-05-DJ-12-0001	\$2,098.8	\$150	\$98.9	197	\$9.2	13
Maryland	Hurricane Isabel	B-05-DJ-24-0001	(Incomplete Data)	\$150	\$2.1	5	\$2.0	3
Ohio	Severe Storms and Flooding	B-05-DJ-39-0001	\$29.9	\$150	\$1.4	9	\$0.0	6
Pennsylvania	Hurricane Ivan	B-05-DJ-42-0001	\$140.0	\$150	\$2.4	22	\$2.3	11
Virginia	Hurricane Isabel	B-05-DJ-51-0001	\$8.9	\$150	\$5.2	20	\$3.6	9
Puerto Rico	Hurricane Jeanne	B-05-DJ-72-0001	\$282.9	\$150	\$8.0	22	\$7.7	21
Alabama	Hurricane Katrina	B-06-DG-01-0001	\$122.6	\$11,500	\$74.4	27	\$23.6	5
Alabama	Hurricane Katrina	B-06-DG-01-0002	\$122.6	\$5,200	\$21.2	9	\$13.0	3
Florida	Hurricane Katrina	B-06-DG-12-0001	\$552.8	\$11,500	\$82.9	87	\$63.9	37
Florida	Hurricane Katrina	B-06-DG-12-0002	\$552.8	\$5,200	\$100.1	95	\$74.0	51
Louisiana	Hurricane Katrina	B-06-DG-22-0001	\$4,689.3	\$11,500	\$6,210.0	519	\$4,458.7	76
Louisiana	Hurricane Katrina	B-06-DG-22-0002	\$4,689.3	\$5,200	\$4,200.0	252	\$2,956.4	109
Mississippi	Hurricane Katrina	B-06-DG-28-0001	\$2,198.2	\$11,500	\$5,058.2	511	\$2,443.3	93
Mississippi	Hurricane Katrina	B-06-DG-28-0002	\$2,198.2	\$5,200	\$423.0	25	\$368.0	15
Texas	Hurricane Rita	B-06-DG-48-0001	\$330.3	\$11,500	\$74.5	244	\$39.1	10
Texas	Hurricane Rita	B-06-DG-48-0002	\$330.3	\$5,200	\$428.7	49	\$337.8	21
Illinois	Midwest Floods	B-08-DF-17-0001	\$17.0	\$300	\$17.3	111	\$3.8	5
Indiana	Midwest Floods	B-08-DF-18-0001	\$60.9	\$300	\$67.0	424	\$13.0	25
Iowa	Midwest Floods	B-08-DF-19-0001	\$181.9	\$300	\$156.7	156	\$95.9	92
Maine	Severe Storms and Flooding	B-08-DF-23-0001	\$1.3	\$300	\$2.2	3	\$1.6	1
Minnesota	Midwest Floods	B-08-DF-27-0001	\$0.0	\$300	\$0.8	15	\$0.5	4
Missouri	Midwest Floods	B-08-DF-29-0001	\$15.8	\$300	\$11.0	47	\$4.4	7
Oklahoma	Severe Storms, Tornado, and Flooding	B-08-DF-40-0001	\$7.7	\$300	\$1.8	4	\$1.6	3
West Virginia	Severe Storms, Tornado, and Flooding	B-08-DF-54-0001	\$2.8	\$300	\$3.1	7	\$1.5	3
Wisconsin	Midwest Floods	B-08-DF-55-0001	\$56.4	\$300	\$24.1	92	\$4.7	22
Louisiana	Hurricane Katrina	B-08-DG-22-0003	\$4,689.3	\$3,000	\$3,000.0	35	\$2,828.4	4

Grantee	Disaster	Grant Number	Total Housing Damage (FEMA) (Millions)	Total CDBG-DR Appropriation (Millions)	Total Grant Funding (Millions)	Total Number of Activities	Grant Funding, Housing Activities (Millions)	Number of Housing Activities
Arkansas	Severe Storms, Tornado, and Flooding	B-08-DI-05-0001	\$27.7	\$6,500	\$90.5	251	\$10.1	13
California	Wildfires	B-08-DI-06-0001	\$39.0	\$6,500	\$54.5	80	\$8.1	7
Florida	Tropical Storm Fay	B-08-DI-12-0001	\$22.1	\$6,500	\$108.0	178	\$18.5	58
Georgia	Severe Storms and Tornado	B-08-DI-13-0001	\$5.7	\$6,500	\$5.2	22	\$1.0	9
Illinois	Severe Storms and Flooding	B-08-DI-17-0001	\$88.9	\$6,500	\$193.7	340	\$60.3	77
Indiana	Severe Storms, Tornado, and Flooding	B-08-DI-18-0001	\$116.1	\$6,500	\$372.5	849	\$72.4	209
Iowa	Severe Storms, Tornado, and Flooding	B-08-DI-19-0001	\$181.9	\$6,500	\$734.2	529	\$524.6	215
Kentucky	Hurricane Ike	B-08-DI-21-0001	\$4.2	\$6,500	\$3.7	27	\$0.6	3
Louisiana	Hurricane Gustav	B-08-DI-22-0001	\$365.7	\$6,500	\$1,093.2	746	\$169.5	102
Mississippi	Hurricane Gustav	B-08-DI-28-0001	\$12.8	\$6,500	\$11.7	25	\$2.1	4
Missouri	Severe Storms and Flooding	B-08-DI-29-0001	\$43.2	\$6,500	\$97.6	176	\$10.4	24
Tennessee	Severe Storms, Tornadoes, Straight-Line Winds, and Flooding	B-08-DI-47-0001	\$16.5	\$6,500	\$92.5	155	\$10.7	11
Texas	Hurricane Ike	B-08-DI-48-0001	\$863.9	\$6,500	\$3,113.5	1519	\$1,207.9	80
Wisconsin	Severe Storms, Tornado, and Flooding	B-08-DI-55-0001	\$56.4	\$6,500	\$115.5	251	\$36.0	52
Puerto Rico	Severe Storms and Flooding	B-08-DI-72-0001	\$22.3	\$6,500	\$30.0	128	\$7.1	40
Kentucky	Severe Storms, Flooding, Mudslides, and Tornadoes	B-10-DF-21-0001	\$25.5	\$100	\$13.0	30	\$0.1	1
Rhode Island	Severe Storms and Flooding	B-10-DF-44-0001	\$36.7	\$100	\$8.9	31	\$0.9	6
Cranston, RI	Flooding	B-10-MF-44-0001	\$7.2	\$100	\$1.3	4	\$1.3	2

Grantee	Disaster	Grant Number	Total Housing Damage (FEMA) (Millions)	Total CDBG-DR Appropriation (Millions)	Total Grant Funding (Millions)	Total Number of Activities	Grant Funding, Housing Activities (Millions)	Number of Housing Activities
Warwick, RI	Flooding	B-10-MF-44-0002	\$5.7	\$100	\$2.8	5	\$0.8	1
Nashville-Davidson, TN	Severe Storms, Flooding, Straight-Line Winds, and Tornadoes	B-10-MF-47-0002	\$110.0	\$100	\$33.1	75	\$17.5	58
Shelby County, TN	Severe Storms, Flooding, Straight-Line Winds, and Tornadoes	B-10-UF-47-0001	\$8.5	\$100	\$3.7	16	\$1.1	1
Alabama	Severe Storms, Flooding, Straight-Line Winds, and Tornadoes	B-12-DT-01-0001	\$197.7	\$400	\$24.7	31	\$11.2	15
Missouri	Flooding	B-12-DT-29-0001	\$77.0	\$400	\$8.7	23	\$0.6	1
New Jersey	Hurricane Irene	B-12-DT-34-0001	\$257.5	\$400	\$15.6	35	\$10.4	21
North Dakota	Flooding	B-12-DT-38-0001	\$125.3	\$400	\$11.8	10	\$10.7	1
Pennsylvania	Tropical Storm Lee	B-12-DT-42-0001	\$190.9	\$400	\$27.1	66	\$13.7	15
Texas	Wildfires	B-12-DT-48-0001	\$97,152.8	\$400	\$31.3	22	\$19.0	2
Vermont	Tropical Storm Irene	B-12-DT-50-0001	\$31.4	\$400	\$21.7	51	\$11.5	7
Birmingham, AL	Severe Storms, Flooding, Straight-Line Winds, and Tornadoes	B-12-MT-01-0001	\$20.4	\$400	\$6.4	6	\$1.9	2
Tuscaloosa, AL	Severe Storms, Flooding, Straight-Line Winds, and Tornadoes	B-12-MT-01-0002	\$22.5	\$400	\$16.6	13	\$2.8	4
Joplin, MO	Severe Storms, Tornado, and Flooding	B-12-MT-29-0001	\$44.8	\$400	\$45.3	16	\$31.3	6
Town of Union, NY [Endicott-CAFR]	Flooding	B-12-MT-29-0001	\$44.8	\$400	\$45.3	16	\$31.3	6
	Tropical Storm Lee	B-12-MT-36-0001	\$19.5	\$400	\$10.1	45	\$4.0	5

Grantee	Disaster	Grant Number	Total Housing Damage (FEMA) (Millions)	Total CDBG-DR Appropriation (Millions)	Total Grant Funding (Millions)	Total Number of Activities	Grant Funding, Housing Activities (Millions)	Number of Housing Activities
Minot, ND	Flooding	B-12-MT-38-0001	\$112.4	\$400	\$67.6	33	\$42.0	10
Jefferson County, AL	Severe Storms, Flooding, Straight-Line Winds, and Tornadoes	B-12-UT-01-0001	\$48.7	\$400	\$7.8	31	\$0.8	3
Orange County, NY	Hurricane Irene	B-12-UT-36-0001	(Incomplete Data)	\$400	\$11.4	(Incomplete Data)	\$1.2	(Incomplete Data)
Dauphin County, PA	Tropical Storm Lee	B-12-UT-42-0001	\$10.4	\$400	\$6.4	31	\$0.8	5
Luzerne County, PA	Tropical Storm Lee	B-12-UT-42-0002	\$25.3	\$400	\$15.7	51	\$12.0	38
Alabama	Severe Storms, Flooding, Straight-Line Winds, and Tornadoes	B-13-DS-01-0001	\$201.0	\$15,180	\$49.2	53	\$8.3	23
Colorado	and Tornadoes	B-13-DS-08-0001	\$60.4	\$15,180	\$320.3	456	\$54.7	115
Connecticut	Hurricane Sandy	B-13-DS-09-0001	\$51.5	\$15,180	\$159.3	65	\$94.6	43
Louisiana	Hurricane Isaac	B-13-DS-22-0001	\$191.6	\$15,180	\$64.4	72	\$3.8	39
Maryland	Hurricane Sandy	B-13-DS-24-0001	\$3.9	\$15,180	\$28.6	41	\$7.3	7
Massachusetts	Hurricane Irene	B-13-DS-25-0001	\$8.6	\$15,180	\$7.2	45	\$0.8	1
Missouri	Severe Storms, Tornado, and Flooding	B-13-DS-29-0001	\$77.0	\$15,180	\$11.8	25	\$0.6	2
New Jersey	Hurricane Sandy	B-13-DS-34-0001	\$964.4	\$15,180	\$4,174.4	1262	\$2,007.6	349
New York	Hurricane Sandy	B-13-DS-36-0001	\$47,218.6	\$15,180	\$4,416.9	522	\$2,046.0	87
North Dakota	Flooding	B-13-DS-38-0001	\$125.3	\$15,180	\$6.6	9	\$3.8	2
Oklahoma	Severe Storms, Tornado, and Flooding	B-13-DS-40-0001	\$39.8	\$15,180	\$93.7	119	\$6.1	11
Pennsylvania	Tropical Storm Lee	B-13-DS-42-0001	\$190.9	\$15,180	\$30.0	24	\$8.8	14
Rhode Island	Hurricane Sandy	B-13-DS-44-0001	\$1.7	\$15,180	\$19.9	72	\$3.6	10
Vermont	Hurricane Irene	B-13-DS-50-0001	\$31.4	\$15,180	\$17.9	52	\$7.7	17
Birmingham, AL	Severe Storms, Flooding, Straight-	B-13-MS-01-0001	\$23.7	\$15,180	\$17.5	17	\$8.0	4

Grantee	Disaster	Grant Number	Total Housing Damage (FEMA) (Millions)	Total CDBG-DR Appropriation (Millions)	Total Grant Funding (Millions)	Total Number of Activities	Grant Funding, Housing Activities (Millions)	Number of Housing Activities
Tuscaloosa, AL	Line Winds, and Tornadoes Severe Storms, Flooding, Straight-Line Winds, and Tornadoes	B-13-MS-01-0002	\$22.5	\$15,180	\$43.9	95	\$3.5	4
Chicago, IL	Severe Storms, Flooding, Straight-Line Winds, and Flooding	B-13-MS-17-0001	\$37.4	\$15,180	\$63.1	46	\$4.3	14
Springfield, MA	Hurricane Irene	B-13-MS-25-0001	\$1.9	\$15,180	\$21.9	21	\$3.1	8
New York City, NY	Hurricane Sandy	B-13-MS-36-0001	\$1,472.6	\$15,180	\$4,213.9	181	\$3,018.1	62
Minot, ND	Flooding	B-13-MS-38-0001	\$112.4	\$15,180	\$35.1	35	\$19.4	20
Moore, OK	Severe Storms, Flooding, Straight-Line Winds, and Tornado, and Flooding	B-13-MS-40-0001	\$24.2	\$15,180	\$52.2	84	\$16.0	10
Jefferson County, AL	Severe Storms, Flooding, Straight-Line Winds, and Tornadoes	B-13-US-01-0001	\$51.6	\$15,180	\$9.1	37	\$0.8	3
Cook County, IL	Severe Storms, Straight-Line Winds, and Flooding	B-13-US-17-0001	\$94.5	\$15,180	\$83.6	42	\$24.1	23
DuPage County, IL	Severe Storms, Straight-Line Winds, and Flooding	B-13-US-17-0002	\$17.7	\$15,180	\$31.5	37	\$5.2	10
Jefferson Parish, LA	Hurricane Isaac	B-13-US-22-0001	\$19.8	\$15,180	\$16.5	14	\$10.9	2

EXHIBIT 27. CDBG-DR GRANTEE TIMELINES

Grantee	Disaster	Grant Number	Disaster Incident Start (Most Severe Incident)	Congressional Appropriation (Public Law) Date	HUD Funding Allocation Date	HUD Award Date	Grant Start Date	Grant Completion Date
California	Wildfires	B-05-DJ-06-0001	10/21/2003	10/13/2004	12/15/2004	6/1/2006 (Incomplete Data)	4/1/2006	4/1/2009
Florida	Hurricane Ivan	B-05-DJ-12-0001	9/13/2004	10/13/2004	12/15/2004	7/1/2005 (Incomplete Data)	10/1/2005	4/1/2009
Maryland	Hurricane Isabel	B-05-DJ-24-0001	9/18/2003	10/13/2004	12/15/2004	7/1/2005 (Incomplete Data)	10/1/2005	7/1/2007
Ohio	Severe Storms and Flooding	B-05-DJ-39-0001	8/27/2004	10/13/2004	12/15/2004	8/5/2005 (Incomplete Data)	10/1/2007	4/1/2009
Pennsylvania	Hurricane Ivan	B-05-DJ-42-0001	9/17/2004	10/13/2004	12/15/2004	2/18/2005	10/1/2005	10/1/2005
Virginia	Hurricane Isabel	B-05-DJ-51-0001	9/18/2003	10/13/2004	12/15/2004	7/6/2005	4/1/2006	4/1/2009
Puerto Rico	Hurricane Jeanne	B-05-DJ-72-0001	9/14/2004	10/13/2004	12/15/2004	4/28/2006	4/1/2006	7/1/2010
Alabama	Hurricane Katrina	B-06-DG-01-0001	8/29/2005	12/30/2005	2/13/2006	4/20/2007	7/1/2006	10/1/2009
Alabama	Hurricane Katrina	B-06-DG-01-0002	8/29/2005	6/15/2006	10/30/2006	7/1/2007	7/1/2007	7/1/2010
Florida	Hurricane Katrina	B-06-DG-12-0001	8/24/2005	12/30/2005	2/13/2006	8/30/2006	1/1/2007	10/1/2013
Florida	Hurricane Katrina	B-06-DG-12-0002	8/24/2005	6/15/2006	10/30/2006	1/21/2007	4/1/2008	1/1/2014
Louisiana	Hurricane Katrina	B-06-DG-22-0001	8/29/2005	12/30/2005	2/13/2006	5/9/2006	7/1/2006	4/1/2014
Louisiana	Hurricane Katrina	B-06-DG-22-0002	8/29/2005	6/15/2006	10/30/2006	6/7/2007	7/1/2007	1/1/2014
Mississippi	Hurricane Katrina	B-06-DG-28-0001	8/29/2005	12/30/2005	2/13/2006	4/3/2006	7/1/2006	1/1/2010
Mississippi	Hurricane Katrina	B-06-DG-28-0002	8/29/2005	6/15/2006	10/30/2006	7/24/2007	4/1/2008	10/1/2014
Texas	Hurricane Rita	B-06-DG-48-0001	9/23/2005	12/30/2005	2/13/2006	6/9/2006	7/1/2006	1/1/2010
Texas	Hurricane Rita	B-06-DG-48-0002	9/23/2005	6/15/2006	10/30/2006	5/9/2007	7/1/2007	1/1/2011

Grantee	Disaster	Grant Number	Disaster Incident Start (Most Severe Incident)	Congressional Appropriation (Public Law) Date	HUD Funding Allocation Date	HUD Award Date	Grant Start Date	Grant Completion Date
Illinois	Midwest Floods	B-08-DF-17-0001	6/1/2008	6/30/2008	12/19/2008	1/15/2010	1/1/2010	4/1/2011
Indiana	Midwest Floods	B-08-DF-18-0001	5/30/2008	6/30/2008	9/11/2008	1/1/2009	4/1/2009	7/1/2015
Iowa	Midwest Floods	B-08-DF-19-0001	5/27/2008	6/30/2008	9/11/2008	2/15/2009	10/1/2008	7/1/2016
Maine	Severe Storms and Flooding	B-08-DF-23-0001	4/28/2008	6/30/2008	12/19/2008	7/8/2009	7/1/2009	1/1/2011
Minnesota	Midwest Floods	B-08-DF-27-0001	6/6/2008	6/30/2008	12/19/2008	9/24/2009	10/1/2009	1/1/2012
Missouri	Midwest Floods	B-08-DF-29-0001	6/1/2008	6/30/2008	12/19/2008	5/27/2009	7/1/2009	1/1/2012
Oklahoma	Severe Storms, Tornado, Flooding	B-08-DF-40-0001	5/10/2008	6/30/2008	12/19/2008	7/6/2011	7/1/2011	10/1/2013
West Virginia	Severe Storms, Tornado, Flooding	B-08-DF-54-0001	6/3/2008	6/30/2008	12/19/2008	1/22/2010	10/1/2009	4/1/2013
Wisconsin	Midwest Floods	B-08-DF-55-0001	6/5/2008	6/30/2008	9/11/2008	7/22/2009	7/1/2009	7/1/2012
Louisiana	Hurricane Katrina	B-08-DG-22-0003	8/29/2005	11/13/2007	12/11/2007	1/15/2008	4/1/2008	10/1/2016
Arkansas	Severe Storms, Tornado, Flooding	B-08-DI-05-0001	3/18/2008	9/30/2008	2/13/2009	10/15/2009	4/1/2010	10/1/2012
California	Wildfires	B-08-DI-06-0001	11/13/2008	9/30/2008	8/14/2009	3/30/2010	10/1/2010	10/1/2014
Florida	Tropical Storm Fay	B-08-DI-12-0001	8/18/2008	9/30/2008	2/13/2009	11/24/2009	4/1/2010	10/1/2015
Georgia	Severe Storms and Tornado	B-08-DI-13-0001	5/11/2008	9/30/2008	2/13/2009	5/30/2009	4/1/2010	1/1/2013
Illinois	Severe Storms and Flooding	B-08-DI-17-0001	6/1/2008	9/30/2008	2/13/2009	9/10/2009	1/1/2010	7/1/2014
Indiana	Severe Storms, Tornado, Flooding	B-08-DI-18-0001	5/30/2008	9/30/2008	2/13/2009	3/16/2009	4/1/2009	4/1/2016
Iowa	Severe Storms, Tornado, Flooding	B-08-DI-19-0001	5/25/2008	9/30/2008	2/13/2009	3/1/2009 (Incomplete Data)	7/1/2009	1/1/2016
Kentucky	Hurricane Ike	B-08-DI-21-0001	9/12/2008	9/30/2008	2/13/2009		1/1/2011	7/1/2013
Louisiana	Hurricane Gustav	B-08-DI-22-0001	9/1/2008	9/30/2008	2/13/2009	4/27/2009	7/1/2009	1/1/2015

Grantee	Disaster	Grant Number	Disaster Incident Start (Most Severe Incident)	Congressional Appropriation (Public Law) Date	HUD Funding Allocation Date	HUD Award Date	Grant Start Date	Grant Completion Date
Mississippi	Hurricane Gustav	B-08-DI-28-0001	8/28/2008	9/30/2008	2/13/2009	10/15/2009	4/1/2010	1/1/2016
Missouri	Severe Storms and Flooding	B-08-DI-29-0001	3/17/2008	9/30/2008	2/13/2009	11/30/2009	1/1/2010	1/1/2014
Tennessee	Severe Storms, Tornadoes, Straight-Line Winds, And Flooding	B-08-DI-47-0001	2/5/2008	9/30/2008	2/13/2009	3/15/2010	1/1/2011	1/1/2017
Texas	Hurricane Ike	B-08-DI-48-0001	9/7/2008	9/30/2008	2/13/2009	3/31/2009	4/1/2009	4/1/2016
Wisconsin	Severe Storms, Tornado, Flooding	B-08-DI-55-0001	6/5/2008	9/30/2008	2/13/2009	11/25/2009	10/1/2009	1/1/2014
Puerto Rico	Severe Storms and Flooding	B-08-DI-72-0001	9/21/2008	9/30/2008	2/13/2009	5/15/2010	7/1/2010	7/1/2016
Kentucky	Severe Storms, Flooding, Mudslides, and Tornadoes	B-10-DF-21-0001	5/1/2010	7/29/2010	11/10/2010	11/10/2010	4/1/2012	10/1/2014
Rhode Island	Severe Storms and Flooding	B-10-DF-44-0001	3/12/2010	7/29/2010	11/10/2010	11/10/2010	10/1/2011	7/1/2014
Cranston, RI	Flooding	B-10-MF-44-0001	3/12/2010	7/29/2010	11/10/2010	11/10/2010	4/1/2012	7/1/2014
Warwick, RI	Flooding	B-10-MF-44-0002	3/12/2010	7/29/2010	11/10/2010	11/10/2010	10/1/2011	4/1/2013
Nashville-Davidson, TN	Severe Storms, Flooding, Straight-Line Winds, and Tornadoes	B-10-MF-47-0002	4/30/2010	7/29/2010	11/10/2010	11/10/2010	4/1/2011	7/1/2015
Shelby County, TN	Severe Storms, Flooding, Straight-Line Winds, and Tornadoes	B-10-UF-47-0001	4/30/2010	7/29/2010	11/10/2010	11/10/2010	1/1/2012	1/1/2014

Grantee	Disaster	Grant Number	Disaster Incident Start (Most Severe Incident)	Congressional Appropriation (Public Law) Date	HUD Funding Allocation Date	HUD Award Date	Grant Start Date	Grant Completion Date
Alabama	Severe Storms, Flooding, Straight-Line Winds, and Tornadoes	B-12-DT-01-0001	4/15/2011	11/18/2011	4/16/2012	8/8/2012	10/1/2012	4/1/2016
Missouri	Severe Storms, Tornado, Flooding	B-12-DT-29-0001	4/19/2011	11/18/2011	4/16/2012	10/15/2012	10/1/2012	1/1/2017
New Jersey	Hurricane Irene	B-12-DT-34-0001	8/27/2011	11/18/2011	4/16/2012	10/22/2012	10/1/2012	7/1/2016
North Dakota	Flooding	B-12-DT-38-0001	5/10/2011	11/18/2011	4/16/2012	8/15/2012	10/1/2012	10/1/2015
Pennsylvania	Tropical Storm Lee	B-12-DT-42-0001	9/3/2011	11/18/2011	4/16/2012	11/18/2012	10/1/2012	10/1/2016
Texas	Wildfires	B-12-DT-48-0001	8/30/2011	11/18/2011	4/16/2012	11/15/2012	10/1/2012	4/1/2014
Vermont	Tropical Storm Irene	B-12-DT-50-0001	8/27/2011	11/18/2011	4/16/2012	11/15/2012	10/1/2012	4/1/2016
Birmingham, AL	Severe Storms, Flooding, Straight-Line Winds, and Tornadoes	B-12-MT-01-0001	4/15/2011	11/18/2011	4/16/2012	7/15/2012	10/1/2012	1/1/2016
Tuscaloosa, AL	Severe Storms, Flooding, Straight-Line Winds, and Tornadoes	B-12-MT-01-0002	4/15/2011	11/18/2011	4/16/2012	8/15/2012	10/1/2012	4/1/2014
Joplin, MO	Severe Storms, Tornado, Flooding	B-12-MT-29-0001	5/9/2011	11/18/2011	4/16/2012	11/15/2012	7/1/2012	4/1/2016
Town of Union, NY [Endicott-CAFR]	Tropical Storm Lee	B-12-MT-36-0001	9/7/2011	11/18/2011	4/16/2012	(Incomplete Data)	10/1/2012	7/1/2015
Minot, ND	Flooding	B-12-MT-38-0001	5/10/2011	11/18/2011	4/16/2012	8/15/2012	7/1/2012	4/1/2015

Grantee	Disaster	Grant Number	Disaster Incident Start (Most Severe Incident)	Congressional Appropriation (Public Law) Date	HUD Funding Allocation Date	HUD Award Date	Grant Start Date	Grant Completion Date
Jefferson County, AL	Severe Storms, Flooding, Straight-Line Winds, and Tornadoes	B-12-UT-01-0001	4/15/2011	11/18/2011	4/16/2012	8/15/2012	7/1/2012	10/1/2014
Orange County, NY	Hurricane Irene	B-12-UT-36-0001	8/26/2011	11/18/2011	4/16/2012	11/15/2012	(Incomplete Data)	1/1/2014
Dauphin County, PA	Tropical Storm Lee	B-12-UT-42-0001	9/3/2011	11/18/2011	4/16/2012	11/15/2012	10/1/2012	1/1/2017
Luzerne County, PA	Tropical Storm Lee	B-12-UT-42-0002	9/3/2011	11/18/2011	4/16/2012	9/30/2012	10/1/2012	1/1/2017
Alabama	Severe Storms, Flooding, Straight-Line Winds, and Tornadoes	B-13-DS-01-0001	4/15/2011	1/29/2013	5/29/2013	2/15/2014	1/1/2014	4/1/2017
Colorado	Severe Storms, Flooding, Mudslides, and Tornadoes	B-13-DS-08-0001	9/11/2013	1/29/2013	12/16/2013	4/26/2014	7/1/2014	4/1/2017
Connecticut	Hurricane Sandy	B-13-DS-09-0001	10/27/2012	1/29/2013	3/5/2013	7/15/2013	10/1/2013	4/1/2017
Louisiana	Hurricane Isaac	B-13-DS-22-0001	8/26/2012	1/29/2013	5/29/2013	11/14/2013	1/1/2014	4/1/2016
Maryland	Hurricane Sandy	B-13-DS-24-0001	10/26/2012	1/29/2013	3/5/2013	7/25/2013	1/1/2014	4/1/2017
Massachusetts	Hurricane Irene	B-13-DS-25-0001	8/27/2011	1/29/2013	5/29/2013	12/12/2013	4/1/2014	7/1/2016
Missouri	Severe Storms, Tornado, Flooding	B-13-DS-29-0001	4/19/2011	1/29/2013	5/29/2013	1/1/2014	7/1/2014	10/1/2016
New Jersey	Hurricane Sandy	B-13-DS-34-0001	10/26/2012	1/29/2013	3/5/2013	5/13/2013	4/1/2013	1/1/2017

Grantee	Disaster	Grant Number	Disaster Incident Start (Most Severe Incident)	Congressional Appropriation (Public Law) Date	HUD Funding Allocation Date	HUD Award Date	Grant Start Date	Grant Completion Date
New York	Hurricane Sandy	B-13-DS-36-0001	10/27/2012	1/29/2013	3/5/2013	5/14/2013	7/1/2013	4/1/2015
North Dakota	Flooding	B-13-DS-38-0001	2/14/2011	1/29/2013	5/29/2013	1/15/2014	1/1/2014	10/1/2016
Oklahoma	Severe Storms, Tornado, Flooding	B-13-DS-40-0001	5/18/2013	1/29/2013	12/16/2013	3/30/2014	7/1/2014	7/1/2017
Pennsylvania	Tropical Storm Lee	B-13-DS-42-0001	9/3/2011	1/29/2013	5/29/2013	6/10/2015	7/1/2015	4/1/2017
Rhode Island	Hurricane Sandy	B-13-DS-44-0001	10/26/2012	1/29/2013	3/5/2013	7/1/2013	10/1/2013	7/1/2016
Vermont	Hurricane Irene	B-13-DS-50-0001	8/27/2011	1/29/2013	5/29/2013	12/10/2013	1/1/2014	4/1/2016
Birmingham, AL	Severe Storms, Flooding, Straight-Line Winds, and Tornadoes	B-13-MS-01-0001	4/15/2011	1/29/2013	5/29/2013	11/1/2013	1/1/2014	1/1/2016
Tuscaloosa, AL	Severe Storms, Flooding, Straight-Line Winds, and Tornadoes	B-13-MS-01-0002	4/15/2011	1/29/2013	5/29/2013	12/16/2013	1/1/2014	1/1/2017
Chicago, IL	Severe Storms, Straight-Line Winds, and Flooding	B-13-MS-17-0001	4/16/2013	1/29/2013	12/16/2013	2/10/2015	4/1/2015	7/1/2016
Springfield, MA	Hurricane Irene	B-13-MS-25-0001	8/27/2011	1/29/2013	5/29/2013	12/13/2013	1/1/2014	4/1/2017
New York City, NY	Hurricane Sandy	B-13-MS-36-0001	10/27/2012	1/29/2013	3/5/2013	8/16/2013	7/1/2013	10/1/2016
Minot, ND	Flooding	B-13-MS-38-0001	2/14/2011	1/29/2013	5/29/2013	1/6/2014	1/1/2014	1/1/2017

Grantee	Disaster	Grant Number	Disaster Incident Start (Most Severe Incident)	Congressional Appropriation (Public Law) Date	HUD Funding Allocation Date	HUD Award Date	Grant Start Date	Grant Completion Date
Moore, OK	Severe Storms, Tornado, Flooding	B-13-MS-40-0001	5/18/2013	1/29/2013	12/16/2013	5/5/2014	1/1/2015	7/1/2015
Jefferson County, AL	Severe Storms, Flooding, Straight-Line Winds, and Tornadoes	B-13-US-01-0001	4/15/2011	1/29/2013	5/29/2013	1/20/2014	1/1/2014	10/1/2016
Cook County, IL	Severe Storms, Straight-Line Winds, and Flooding	B-13-US-17-0001	4/16/2013	1/29/2013	12/16/2013	6/1/2014	4/1/2015	1/1/2017
DuPage County, IL	Severe Storms, Straight-Line Winds, and Flooding	B-13-US-17-0002	4/16/2013	1/29/2013	12/16/2013	8/1/2014	10/1/2014	4/1/2017
Jefferson Parish, LA	Hurricane Isaac	B-13-US-22-0001	8/26/2012	1/29/2013	5/29/2013	4/1/2014	4/1/2014	4/1/2012

Appendix C: CDBG-DR Grantees and Associated Disaster Declarations

EXHIBIT 28. CDBG-DR GRANTEE AND DISASTER DECLARATIONS

Grantee	Grant Number	FEMA Disaster Numbers	Most Severe Disaster	Disaster Grouping
California	B-05-DJ-06-0001	1498, 1505, 1529	1498	CA Wildfires 2003
Florida	B-05-DJ-12-0001	1539, 1545, 1551, 1561	1551	Hurricane Ivan
Maryland	B-05-DJ-24-0001	1492	1492	Hurricane Isabel
Ohio	B-05-DJ-39-0001	1507, 1519, 1556	1556	OH Severe Storm 2004
Pennsylvania	B-05-DJ-42-0001	1497, 1538, 1555, 1557	1557	Hurricane Ivan
Virginia	B-05-DJ-51-0001	1491, 1502, 1525, 1544	1491	Hurricane Isabel
Puerto Rico	B-05-DJ-72-0001	1501, 1552	1552	Hurricane Jeanne
Alabama	B-06-DG-01-0001	1605	1605	Hurricane Katrina
Alabama	B-06-DG-01-0002	1605	1605	Hurricane Katrina
Florida	B-06-DG-12-0001	1602, 1609	1602	Hurricane Katrina
Florida	B-06-DG-12-0002	1602, 1609	1602	Hurricane Katrina
Louisiana	B-06-DG-22-0001	1603, 1607	1603	Hurricane Katrina
Louisiana	B-06-DG-22-0002	1603, 1607	1603	Hurricane Katrina
Mississippi	B-06-DG-28-0001	1604	1604	Hurricane Katrina
Mississippi	B-06-DG-28-0002	1604	1604	Hurricane Katrina
Texas	B-06-DG-48-0001	1606	1606	Hurricane Rita
Texas	B-06-DG-48-0002	1606	1606	Hurricane Rita
Illinois	B-08-DF-17-0001	1771	1771	Midwest Floods
Indiana	B-08-DF-18-0001	1766	1766	Midwest Floods
Iowa	B-08-DF-19-0001	1763	1763	Midwest Floods
Maine	B-08-DF-23-0001	1755	1755	ME Severe Storm 2008
Minnesota	B-08-DF-27-0001	1772	1772	Midwest Floods
Missouri	B-08-DF-29-0001	1760, 1773	1773	Midwest Floods
Oklahoma	B-08-DF-40-0001	1756	1756	OK Severe Storm 2008
West Virginia	B-08-DF-54-0001	1769	1769	WV Severe Storm 2008
Wisconsin	B-08-DF-55-0001	1768	1768	Midwest Floods
Louisiana	B-08-DG-22-0003	1603, 1607	1603	Hurricane Katrina
Arkansas	B-08-DI-05-0001	1744, 1751, 1793, 1804	1751	TN/MO/AR Severe Storm 2008
California	B-08-DI-06-0001	3287-EM, 1810	1810	CA Wildfires 2008
Florida	B-08-DI-12-0001	1785, 1806, 3288, 3293	1785	Tropical Storm Fay
Georgia	B-08-DI-13-0001	1750, 1761	1761	GA Severe Storm 2008
Illinois	B-08-DI-17-0001	1747, 1771, 1800	1771	Midwest Floods

Grantee	Grant Number	FEMA Disaster Numbers	Most Severe Disaster	Disaster Grouping
Indiana	B-08-DI-18-0001	1740, 1766, 1795	1766	Midwest Floods
Iowa	B-08-DI-19-0001	1763	1763	Midwest Floods
Kentucky	B-08-DI-21-0001	1746, 1757, 1802	1802	Hurricanes Ike & Gustav
Louisiana	B-08-DI-22-0001	1786, 1792	1786	Hurricanes Ike & Gustav
Mississippi	B-08-DI-28-0001	1753, 1764, 1794	1794	Hurricanes Ike & Gustav
Missouri	B-08-DI-29-0001	1742, 1748, 1749, 1760, 1773, 1809	1749	TN/MO/AR Severe Storm 2008
Tennessee	B-08-DI-47-0001	1745	1745	TN/MO/AR Severe Storm 2008
Texas	B-08-DI-48-0001	1780, 1791	1791	Hurricanes Ike & Gustav
Wisconsin	B-08-DI-55-0001	1768	1768	Midwest Floods
Puerto Rico	B-08-DI-72-0001	1798	1798	PR Severe Storm 2008
Kentucky	B-10-DF-21-0001	1912	1912	Severe Storms TN/KY 2011
Rhode Island	B-10-DF-44-0001	1894	1894	RI 2010 Floods
Cranston, RI	B-10-MF-44-0001	1894	1894	RI 2010 Floods
Warwick, RI	B-10-MF-44-0002	1894	1894	RI 2010 Floods
Nashville-Davidson, TN	B-10-MF-47-0002	1909	1909	Severe Storms TN/KY 2011
Shelby County, TN	B-10-UF-47-0001	1909	1909	Severe Storms TN/KY 2011
Alabama	B-12-DT-01-0001	1971	1971	AL Severe Storms 4/2011
Missouri	B-12-DT-29-0001	1980, 4012	1980	MO Severe Storms 5/2011
New Jersey	B-12-DT-34-0001	4021	4021	Hurricane Irene
North Dakota	B-12-DT-38-0001	1981	1981	ND Flooding 2011
Pennsylvania	B-12-DT-42-0001	4025, 4030	4030	Tropical Storm Lee
Texas	B-12-DT-48-0001	4029	4029	TX Wildfires 2011
Vermont	B-12-DT-50-0001	1995, 4001, 4022	4022	Hurricane Irene
Birmingham, AL	B-12-MT-01-0001	1971	1971	AL Severe Storms 4/2011
Tuscaloosa, AL	B-12-MT-01-0002	1971	1971	AL Severe Storms 4/2011
Joplin, MO	B-12-MT-29-0001	1980	1980	MO Severe Storms 5/2011
Town of Union, NY [Endicott-CAFR]	B-12-MT-36-0001	4031	4031	Tropical Storm Lee
Minot, ND	B-12-MT-38-0001	1981	1981	ND Flooding 2011
Jefferson County, AL	B-12-UT-01-0001	1971	1971	AL Severe Storms 4/2011

Grantee	Grant Number	FEMA Disaster Numbers	Most Severe Disaster	Disaster Grouping
Dauphin County, PA	B-12-UT-42-0001	4030	4030	Tropical Storm Lee
Luzerne County, PA	B-12-UT-42-0002	4025, 4030	4030	Tropical Storm Lee
Alabama	B-13-DS-01-0001	1971, 4052, 4082	1971	AL Severe Storms 4/2011
Colorado	B-13-DS-08-0001	4133; 4134; 4145	4145	CO Severe Storm 2013
Connecticut	B-13-DS-09-0001	1958, 4023, 4046, 4087, 4106	4087	Hurricane Sandy
Louisiana	B-13-DS-22-0001	4015, 4041, 4080	4080	Hurricane Isaac
Maryland	B-13-DS-24-0001	4034, 4038, 4075, 4091	4091	Hurricane Sandy
Massachusetts	B-13-DS-25-0001	1959, 1994, 4028, 4051, 4097	4028	Hurricane Irene
Missouri	B-13-DS-29-0001	1961, 1980, 4012	1980	MO Severe Storms 5/2011
New Jersey	B-13-DS-34-0001	1954, 4021, 4033, 4039, 4048, 4070, 4086	4086	Hurricane Sandy
New York	B-13-DS-36-0001	1957, 1993, 4020, 4031, 4085, 4111, 4129	4085	Hurricane Sandy
North Dakota	B-13-DS-38-0001	1981, 1986	1981	ND Flooding 2011
Oklahoma	B-13-DS-40-0001	4109, 4117	4117	OK Severe Storm 2013
Pennsylvania	B-13-DS-42-0001	4025, 4030	4030	Tropical Storm Lee
Rhode Island	B-13-DS-44-0001	4027, 4089, 4107	4089	Hurricane Sandy
Vermont	B-13-DS-50-0001	1995, 4001, 4022, 4043, 4066	4022	Hurricane Irene
Birmingham, AL	B-13-MS-01-0001	1971, 4052	1971	AL Severe Storms 4/2011
Tuscaloosa, AL	B-13-MS-01-0002	1971	1971	AL Severe Storms 4/2011
Chicago, IL	B-13-MS-17-0001	4116	4116	IL Severe Storms 2013
Springfield, MA	B-13-MS-25-0001	1959, 1994, 4028, 4051	4028	Hurricane Irene
New York City, NY	B-13-MS-36-0001	4085	4085	Hurricane Sandy
Minot, ND	B-13-MS-38-0001	1981, 1986	1981	ND Flooding 2011
Moore, OK	B-13-MS-40-0001	4109, 4117	4117	OK Severe Storm 2013
Jefferson County, AL	B-13-US-01-0001	1971, 4052	1971	AL Severe Storms 4/2011
Cook County, IL	B-13-US-17-0001	4116	4116	IL Severe Storms 2013
DuPage County, IL	B-13-US-17-0002	4116	4116	IL Severe Storms 2013
Jefferson Parish, LA	B-13-US-22-0001	4041, 4080	4080	Hurricane Isaac

Appendix D: Model Estimates

The complete baseline estimates from the duration model at the grant level are displayed in exhibit 29. Most importantly, the pace of recovery is improving over time. After controlling for number, size, and type of activities, cities and counties administer grant funds more quickly than states. We find no relationship between grant size and time to completion.¹³ These results also support the idea that CDBG-DR funds are distributed more quickly after longer periods between the disasters and the funding allocation. These results were discussed in detail in the section titled “How Can Timing be Further Improved?”.

EXHIBIT 29. GRANT LEVEL ACCELERATED FAILURE TIME ESTIMATES (BASELINE)

	Funding Allocation to Complete		First Expenditure to Complete	
	Time Ratio	p-Value	Time Ratio	p-Value
Grant Characteristics				
Total Funds (Grant)	1.000**	0.006	1.000*	0.041
Number of Activities	1.002*	0.037	1.004*	0.017
Quarters Between Disaster and Funding Allocation	0.957**	0.001	0.926**	0.001
Number of Grants to Date (by Grantee)	1.071	0.107	1.101	0.073
Start Year	0.946**	0.002	0.928***	0.000
City or County Grantee	0.836	0.112	0.701	0.080
State Grantee With Subgrants	0.976	0.796	0.838	0.236
State Grantee Without Subgrants	(Omitted)			
Disasters in Past 10 Years	0.999	0.414	0.998	0.216
Number of Activities	1.002*	0.037	1.004*	0.017
Grant-Level Population Measures				
Income	1.000	0.327	1.000	0.762
Unemployment Rate	1.010	0.162	1.003	0.826
Homeownership Rate	0.992	0.137	0.979*	0.047
Percent Non-White	0.998	0.438	0.994	0.230
Controls for Mix of Activity Types				
		Yes		
Constant	55.981***	0.000	168.385***	0.000
Shape Parameter	0.233***	0.000	0.375***	0.000
Observations		85		85

Notes: Values for constant and shape parameter are not time ratios. p-values based on heteroskedastic robust standard errors. Stars represent $p < 0.5$ (*), $p < 0.01$ (**), and $p < 0.001$ (***). Three grants (B-05-DJ-06-0001, B-05-DJ-24-0001, and B-08-DF-27-0001) are excluded due to incomplete ZIP-Code level population data.

Source: HUD Disaster Recovery Grants Reporting data for grants funded FY2006–FY2015

¹³ While the coefficient is statistically significant, we find that a difference of \$1 million in funding corresponds to a change in duration of less than one tenth of 1 percent.

Activity level results appear in exhibit 30. At the activity level, experience with additional CDBG-DR grants is associated with quicker times from funding allocations to completion (but longer times from expenditure to completion). Because the time frames of CDBG-DR grants overlap, it is not possible to determine whether this increase in speed during planning and action plan development and slower pace of expenditures is driven by experience with CDBG-DR or the added burden of managing multiple grants at a time.

EXHIBIT 30. ACTIVITY LEVEL ACCELERATED FAILURE TIME ESTIMATES

	Funding Allocation to Complete		First Expenditure to Complete	
	Time Ratio	p-Value	Time Ratio	p-Value
Grant Characteristics				
Total Funds (Grant)	1.000***	0.000	1.000*	0.036
Number of Activities	1.000*	0.023	0.999*	0.010
Quarters Between Disaster and Allocation	1.017*	0.015	0.988*	0.361
Number of Grants to Date (by Grantee)	0.997	0.770	1.137***	0.000
Start Year	0.931***	0.000	0.842***	0.000
City or County Grantee	1.191***	0.000	0.995	0.946
State Grantee With Subgrants	1.095***	0.000	0.989	0.837
State Grantee Without Subgrants	(Omitted)			
Disasters in Past 10 Years	1.001**	0.007	1.002*	0.106
Grant-Level Population Measures				
Income	1.000***	0.000	1.000*	0.038
Unemployment Rate	1.008***	0.000	1.022***	0.000
Homeownership Rate	1.020***	0.000	0.991	0.076
Percent Non-White	1.005***	0.000	0.991***	0.001
Activity Characteristics				
Total Funds (Activity)	1.000***	0.000	1.001*	0.158
Affordable Rental Housing	1.069**	0.009	0.895*	0.031
Construction of Housing	1.069	0.053	1.092	0.200
Homeowner Assistance	1.163***	0.000	1.184*	0.042
Homeowner Compensation	0.776	0.174	0.581*	0.027
Relocation Assistance	1.021	0.544	0.975	0.723
Rental Assistance	1.106*	0.027	0.808	0.102
Home Rehabilitation	1.107***	0.000	1.037	0.444
Acquisition of Property	(Omitted)			
Constant	5.508***	0.000	65.927***	0.000
Shape Parameter	0.347***	0.000	0.632***	0.000
Observations	2353		2353	

Notes: Values for constant and shape parameter are not time ratios. p-values based on heteroskedastic robust standard errors. Stars represent p<0.5 (*), p<0.01 (**), and p<0.001(***). Three grants (B-05-DJ-06-0001, B-05-DJ-24-0001, and B-08-DF-27-0001) are excluded due to incomplete ZIP-Code level population data.

Source: HUD DRGR data for grants funded FY2006–FY2015

At the activity level, we found stronger population effects. With regards to measures of the affected population, the relationship between household income and speed of recovery is negligible. However, we found that a 1-percent increase in unemployment is associated with a (statistically significant) 1-percent increase in time between funding allocation and completion and a 2-percent increase in the time it takes to move from first expenditure to completion. Higher homeownership rates are associated with a longer time from funding to completion, even after adjusting for the type of activity performed. A 1-percent increase in the percent of the affected population that is non-White is associated with a 0.5-percent increase in the amount of time it takes to move from funding to completion. Because this model cannot identify causal relationships, it is not possible to identify the mechanism or pathways through which differences in the affected population increase or decrease the speed of recovery.

Exhibit 31 shows the results of two specifications designed to focus on measures of severity and one which includes a dummy variable for each appropriation. As with grant funds available, we found no relationship between disaster severity and time between first expenditure and completion, whether we used total damage and control for housing value or used the ratio of total damage to housing value. We also found similar results (not shown) for a model of time from first funding allocation and completion. Relative to grants distributed following the multiple disasters in 2003, we found that CDBG-DR grants following Hurricanes Katrina, Rita, and Wilma were 35.1-percent slower between first funding expenditure and completion. The shortest time to complete is associated with Hurricane Sandy and Multiple Disasters (other disasters funded through the same allocations).

Exhibit 31 displays has two additional models that include variables for local capacity. As proxies for local government capacity, “local capacity 1” includes the total revenue and expenditure of the government entity that received the CDBG-DR grant, as reported in Comprehensive Annual Financial Reports. In these specifications, we also control for the population of the state, county, or city. None of these measures of capacity are statistically significant. To account for the local private capacity to carry out disaster recovery activities, “local capacity 2” further adds the statewide or metropolitan level employment location quotient for the construction industry and finds a strong relationship between capacity in the construction industry and the speed of recovery.¹⁴

¹⁴ This metric is unavailable for Puerto Rico.

EXHIBIT 31. GRANT LEVEL ACCELERATED FAILURE TIME ESTIMATES RELATIONSHIP BETWEEN DISASTER OR SEVERITY AND FIRST EXPENDITURE TO COMPLETE

	Severity 1		Severity 2		Disaster	
	Time Ratio	p-Value	Time Ratio	p-Value	Time Ratio	p-Value
Grant Characteristics						
Total Damage	1.000***	0.000				
Housing Value	1.000	0.902				
Damage/Housing Value			0.956*	0.081		
Multiple Disasters 2003					(omitted)	
Hurricanes Katrina, Rita, and Wilma					1.351*	0.013
Hurricanes Ike and Gustav					1.283	0.057
Midwest Floods 2008					1.298*	0.037
Severe Storms and Flooding 2010					0.875	0.196
Multiple Disasters 2011					0.917	0.378
Hurricane Sandy, Multiple Disasters 2011–13					0.767***	0.001
Total Funds (Grant)					1.000	0.268
Number of Activities	1.002*	0.036	1.002	0.052	1.002	0.156
Number of Grants to Date (by Grantee)	1.044	0.230	1.054	0.143	1.052	0.113
Start Year	0.950**	0.003	0.940***	0.001		
City or County Grantee	0.822	0.141	0.846	0.131	0.868	0.177
State Grantee With Subgrants	1.050	0.613	1.039	0.686	0.950	0.509
State Grantee Without Subgrants	(omitted)					
Disasters in Past 10 Years	0.999	0.691	0.998	0.262	0.999	0.711
Number of Activities Controls for Population Measures	1.002*	0.036	1.002	0.052	1.002	0.156
Controls for Mix of Activity Types	Yes		Yes		Yes	
	Yes		Yes		Yes	
Constant	43.55***	0.000	55.71***	0.000	28.27***	0.000
Shape Parameter	0.243***	0.000	0.247***	0.000	0.217***	0.000
Observations	85		85		85	

Notes: Values for constant and shape parameter are not time ratios. *p*-values based on heteroskedastic robust standard errors. Stars represent $p < 0.5$ (*), $p < 0.01$ (**), and $p < 0.001$ (***). Three grants (B-05-DJ-06-0001, B-05-DJ-24-0001, and B-08-DF-27-0001) are excluded due to incomplete ZIP-Code level population data.

Source: HUD DRGR data for grants funded FY2006–FY2015

EXHIBIT 32. GRANT LEVEL ACCELERATED FAILURE TIME ESTIMATES RELATIONSHIP BETWEEN RESPONSIBLE ORGANIZATION OR LOCAL CAPACITY AND FIRST EXPENDITURE TO COMPLETE

	Local Capacity 1		Local Capacity 2	
	Time Ratio	p-Value	Time Ratio	p-Value
Grant Characteristics				
Government Revenue	1.000	0.813	1.000	0.786
Government Expenditure	1.000	0.639	1.000	0.828
Population	1.000	0.344	1.000	0.992
Employment Location Quotient for Construction Industry			0.573**	0.002
Total Funds (Grant)	1.000**	0.010	1.000	0.106
Damage/Housing Value	0.981	0.722	0.948	0.127
Number of Grants to Date (by Grantee)	1.099	0.052	1.130***	0.001
Start Year	0.931*	0.017	0.949	0.108
City or County Grantee	0.856	0.289	0.810	0.187
State Grantee With Subgrants	0.964	0.696	0.942	0.522
State Grantee Without Subgrants				
Disasters in Past 10 Years	1.000	0.961	1.000	0.948
Quarters Between Disaster and Funding Allocation	1.002*	0.044	1.002	0.083
Controls for Population Measures	Yes		Yes	
Controls for Mix of Activity Types	Yes		Yes	
Constant	79.582***	0.000	103.062***	0.000
Shape Parameter	1.000	0.961	1.000	0.948
Observations	85		83	

Notes: Values for constant and shape parameter are not time ratios. p-values based on heteroskedastic robust standard errors. Stars represent p<0.5 (*), p<0.01 (**), and p<0.001(***). Three grants (B-05-DJ-06-0001, B-05-DJ-24-0001, and B-08-DF-27-0001) are excluded due to incomplete ZIP-Code level population data. Both grants to Puerto Rico (B-05-DJ-72-0001 and B-08-DI-72-0001) are excluded from Local Capacity 2 because the Employment Location Quotient is unavailable.

Source: HUD DRGR data for grants funded FY2006–FY2015

Appendix E: Related Readings

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