

Understanding the Adaptation Provisions of the Sandy Disaster Relief Appropriations Act (H.R. 152)

Will state and local governments be able to use disaster relief funds to adapt to public facilities when rebuilding after Sandy?

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SUMMARY

On January 29, 2013, [*the Disaster Relief Appropriations Act, 2013 \(H.R. 152\)*](#) was signed into law, which provides funding to support emergency response and recovery for states and communities affected by Hurricane Sandy (Sandy Relief Act).¹ Through the Sandy Relief Act, Congress appropriated \$50.7 billion in disaster relief funding to affected communities. Division B of the Act, entitled the “Sandy Recovery Improvement of Act of 2013” (Sandy Improvement Act), included key reforms to the primary statute that governs disaster relief funds—the Robert T. Stafford Disaster Relief and Emergency Assistance Act (Stafford Act). These reforms are a first and important step in allowing communities to rebuild in a way that will build long-term resilience to climate change. This report analyzes these reforms and the opportunities and remaining barriers to using disaster relief funding to rebuild communities to be resilient to future impacts.

Disaster relief funding presents a key opportunity for state and local governments to rebuild in a manner that anticipates and responds to future changes in the climate. This report analyzes whether state and local governments can spend these funds to adapt to impacts, such as sea-level rise, increased precipitation, and increased storm frequency and intensity. The answer partially depends on whether adaptation is permitted under the laws that govern disaster relief funding. Applicable laws include: (1) legislation appropriating funding to disaster relief programs (here the Sandy Relief Act), (2) the Stafford Act, and (3) additional statutes that create other programs funded through disaster relief appropriations (listed below).

In this report, we focus our analysis on the programs funded by the Sandy Relief Act that will reimburse state and local governments to rebuild impacted public facilities (such as roads, bridges, hospitals, and public transit). These programs include:

- \$11.5 billion to the Disaster Relief Fund administered by the Federal Emergency Management Agency (FEMA) pursuant to the Stafford Act,² to support the long-term rebuilding of public facilities and hazard mitigation projects, among other things.
- \$16 billion to the Community Development Fund administered by the Department of Housing and Urban Development (HUD) for long-term recovery, restoration of infrastructure, and economic revitalization in the most impacted and distressed areas.³
- \$2 billion to Emergency Relief Program administered by the Federal Highway Administration (FHWA) to support the repair of damage to federal-aid highways.⁴

¹ Disaster Relief Appropriations Act of 2013, Pub. L. No. 113-2, 127 Stat. 4 (H.R. 152, 113th Cong., Jan. 29, 2013) [hereinafter “Sandy Relief Act”] (West 2013). Note: Not all subtitles and Sections of the Sandy Relief Act are included in this analysis, only those with provisions that could create, limit, or affect state and local adaptation efforts.

² Sandy Relief Act, tit. 10, ch. 6, 127 Stat. at 29.

³ *Id.*, tit. 10, ch. 9, 127 Stat. at 38.

- \$10.9 billion to the Public Transportation Emergency Relief Program administered by the Federal Transit Administration (FTA) for public transportation emergency relief.⁵
- \$607.7 million to the Environmental Protection Agency (EPA) for capitalization grants to State Revolving Funds created by the Clean Water Act and Safe Drinking Water Act for eligible projects designed to “reduce flood damage risk or to enhance resiliency to rapid hydrologic change or a natural disaster” to wastewater and drinking water treatment facilities affected by Sandy.⁶

Other federal programs were also funded by the Sandy Relief Act, but are not analyzed in this report, including \$180 million to the Emergency Watershed Protection program administered by the U.S. Department of Agriculture (USDA) and U.S. Forest Service (USFS);⁷ \$3 million to the National Ocean and Atmospheric Administration (NOAA) to provide technical assistance to communities impacted by Sandy;⁸ and \$5.35 billion to the U.S. Army Corps of Engineers (Corps) for the repair and construction of projects to reduce “future flood risk in ways that will support the long-term sustainability of the coastal ecosystem and communities and reduce economic costs and risks associated with large-scale flood and storm events in areas along the Atlantic Coast.”⁹ Although these funds may also support adaptive rebuilding, we do not analyze these programs in this report because these funds will be primarily administered by federal agencies, not state and local governments.¹⁰

The Sandy Improvement Act also included key reforms to the Stafford Act. The reforms will provide FEMA with more flexibility to administer disaster relief funds. This report discusses the opportunities the reforms present for allowing for adaptation with Sandy funding.

- Section 1102 provides alternative procedures that allow communities to opt for up-front grants of disaster relief funds based upon estimates, rather than waiting to be reimbursed for the actual costs of rebuilding.
- Section 1102 removed a 10 percent penalty on reimbursement for communities that opt to take an “in lieu contribution” and direct funds to alternative projects, rather than rebuilding in place.
- Section 1104 allows FEMA to streamline the administration of hazard mitigation funding by allowing FEMA to consider multiple structures as a group when complying with environmental review and cost-effectiveness requirements. Section 1104 also allows states to administer HMGP funding.
- Section 1105 creates panels to arbitrate disputes between FEMA and state and local applicants.
- Section 1111 directs FEMA to develop a national strategy for reducing future losses associated with extreme disaster events.

From this analysis, we have identified the following potential opportunities for incorporating adaptation into the disaster recovery process at all levels of government:

⁴ *Id.*

⁵ *Id.*

⁶ *Id.* tit. 10, ch. 7, 127 Stat. at 30. The Clean Water State Revolving Funds are created by the Federal Water Pollution Control Act (33 U.S.C.A. § 1384) and section 1452 of the Safe Drinking Water Act (42 U.S.C.A. § 300j-11).

⁷ Sandy Relief Act, tit. 10, ch. 1, 127 Stat. at 18. The Emergency Watershed Protection Program is created by 16 U.S.C. § 2203.

⁸ *Id.*, tit. 10, ch. 2, 127 Stat. at 19.

⁹ *Id.*, tit. 10, ch. 4, 127 Stat. at 22.

¹⁰ This does not represent a comprehensive list of all programs that were funded by the Sandy Relief Act. In this analysis we focused on funds that will be used to reimburse state and local governments for permanent recovery and rebuilding. We also focused on pots of money that will support the long-term rebuilding of public facilities and funding that has potential for supporting activities to adapt to future changes in the climate. We do not include an analysis of funds appropriated to federal agencies to rebuild federal facilities or funds that were appropriated to reimburse federal, state and local agencies for immediate emergency response (such as funds to support emergency evacuations and debris removal, etc.).

- FEMA could use its authority to “modify” eligible costs or to allow for hazard mitigation under the Stafford Act to more specifically allow for improvements to public facilities that will increase their long-term resilience to impacts from climate change.
- FEMA and FHWA could change their method of calculating “cost-effectiveness” to greater account for the long-term threats to facilities posed by climate change.
- FEMA could consider how climate change will increase the long-term risks to the nation posed by extreme weather events in its report to Congress required by Section 1111 of the Sandy Relief Act.¹¹
- Other federal agencies administering disaster relief funds could follow the example being employed by HUD, which is requiring communities to assess the long-term vulnerabilities of projects that will be funded by the CDBG program through plans required by the Sandy Relief Act.
- FHWA and FTA could consider the entire design life of a facility when reimbursing state and local governments, which may permit these agencies to reimburse state and local governments for rebuilding “comparable facilities” with improvements that will strengthen the resilience of transportation and transit facilities.
- FHWA could reimburse state and local governments for “betterments” to facilities that will reduce the facility’s long-term vulnerability to impacts.
- State and local governments could use CDBG funds or Hazard Mitigation Grant Program (HMGP) funds to make up the cost difference needed to adapt facilities.
- State and local governments can use State Revolving Funds to fund improvements to wastewater and drinking water treatment facilities.
- State and local governments can prepare for future disasters by incorporating consideration of climate change in hazard mitigation plans, and by updating state codes that govern the construction of public facilities.

This report also identifies the actions that federal agencies are *already* taking to promote adaptation. President Obama through an Executive Order established the Hurricane Sandy Rebuilding Task Force (Sandy Task Force) with representatives from federal agencies that administer disaster relief funding. These federal agencies with the direction of the Sandy Task Force and of their own initiative have taken important steps to ensuring that affected communities are rebuilt to be more resilient to future impacts. The Task Force issued guidance requiring that structures rebuilt with Sandy Relief funding be elevated to one foot above the most up-to-date federal flood guidance (including updated flood maps that were rolled out by FEMA shortly after the storm). Similarly, HUD is requiring that grantees of CDBG funding consider the long-term sustainability of recovery projects in action plans required by the Sandy Relief Act. HUD is also requiring that reconstruction projects incorporate green building standards.

INTRODUCTION

Timeline of Events

Hurricane Sandy made landfall around Atlantic City, New Jersey on October 29, 2012 as a Category 1 hurricane. The storm hit at high tide, which amplified Sandy’s 9-foot storm surge.¹² In New Jersey the

¹¹ *Id.*, § 1111, 127 Stat. at 49-50 [Sec. 1111 directs FEMA, no later than 180 days after enactment, to “submit to Congress recommendations for the development of a national strategy for reducing future costs, loss of life, and injuries associated with extreme disaster events in vulnerable areas of the United States.”].

¹² Nat’l Oceanic and Atmospheric Administration (NOAA), National Climatic Data Center, *Sandy Storm Surge & Wind Summary* (Oct. 2012), <http://www.ncdc.noaa.gov/sotc/national/2012/10/supplemental/page-7/>.

storm damaged or destroyed 72,000 homes and business and destroyed beachfront boardwalks.¹³ In New York, the storm overtopped sea walls in Manhattan flooding tunnels, the subway system, electrical substations, and hospitals. Approximately 8 million people lost power across the Eastern seaboard, and some were without power for weeks after the storm.

On January 29, 2013, the Disaster Relief Appropriations Act, 2013 (H.R. 152, hereinafter “Sandy Relief Act”) was signed into law, which provides funding to support emergency response and recovery for states and communities affected by Hurricane Sandy. The Act took several months to pass Congress and went through several iterations. On December 7, 2012, the President requested \$60.4 billion in disaster relief funding.¹⁴ In the 112th Congress, on December 28, 2012, the Senate passed a Sandy relief package of \$60.4 billion as an amendment to House Bill 1 (H.R. 1). The amendments to H.R. 1 included key reforms to the Stafford Act.¹⁵ The House, however, failed to take up the bill before the end of the 112th Congress. Thus, a new Sandy relief package had to be resurrected in the 113th Congress. This effort was initiated in the House through H.R. 152. Some of the Senate reforms to the Stafford Act included in H.R. 1 did not make it into the new bill that was ultimately passed by the 113th Congress on January 28, 2013.¹⁶ However, H.R. 152 did include some key reforms that will provide federal agencies and state and local governments with more flexibility to use disaster relief funding to rebuild adaptively.

On December 7, 2012, President Obama also issued an Executive Order establishing the Hurricane Sandy Rebuilding Task Force. The Task Force is chaired by the Secretary of HUD and includes representatives from all federal agencies charged with administering Sandy relief funding including DHS, DOT, EPA, and the U.S. Army Corps of Engineers. The Task Force is charged with identifying and working to “remove obstacles to resilient rebuilding in a manner that addresses existing and future risks and vulnerabilities and promotes the long-term sustainability of communities and ecosystems.”¹⁷ The Executive Order calls on the agencies to ensure that rebuilding efforts increase the region’s resilience to future impacts.

Adaptation and Disaster Relief

Although called a “Superstorm,” Sandy was not the worst-case scenario for the region. Scientists anticipate that the mid-Atlantic coast will see more frequent and intense storm events in the future as the climate warms and sea levels rise. Recognizing these risks, several officials, including New York Governor Cuomo and President Obama, stressed the need in the wake of the storm for communities to rebuild differently in light of anticipated climate changes.

Disaster relief money provides a critical window of opportunity to allow communities to rebuild in manner that prepares them for future impacts from climate change. Adaptation can include relocating damaged structures inland when rebuilding; elevating or retrofitting structures; or protecting structures with a sea wall or other engineered structures. Many state and local governments are already struggling to maintain aging infrastructure in an era of persistent federal and state budget shortfalls, which makes it difficult for

¹³ Eric Sagara, *Hurricane Sandy's destruction: Aerial assessment shows nearly 72K buildings damaged in N.J.* STAR LEDGER (November 18, 2012), http://www.nj.com/news/index.ssf/2012/11/hurricane_sandys_destruction_a.html.

¹⁴ Letter from the Office of Mgmt. & Budget to The Honorable John Boehner, Speaker of the House of Representatives (Dec. 7, 2012), http://www.whitehouse.gov/sites/default/files/supplemental_december_7_2012_hurricane_sandy_funding_needs.pdf.pdf. This request also included a \$9 billion authorization to raise the borrowing authority for the National Flood Insurance Program to pay insurance claims resulting from Sandy. This authorization was passed by Congress through separate legislation, Pub. L. No. 113-1, 127 Stat. 3 (Jan. 6, 2013).

¹⁵ 42 U.S.C. §§ 5121-5208 (2006).

¹⁶ For a comparison of the amounts of funding requested by the administration, the amounts appropriated by the Senate in amendments to H.R. 1, and the amounts that were ultimately appropriated through H.R. 152, see William L. Painter, CRS Report for Congress R42869, *FY2013 Supplemental Funding for Disaster Relief*, Table 1 (Feb. 2013).

¹⁷ Exec. Order No. 13632, *Establishing the Hurricane Sandy Rebuilding Task Force*, sec. 3, 77 Fed. Reg. 76339 (Dec. 7, 2012).

agencies to finance large-scale retrofits of existing facilities. Disaster relief funding often presents the only opportunity for communities to finance these types of adaptations. Given climate change projections, it may not be fiscally sustainable for these governments to continue to rebuild facilities *without* considering their long-term vulnerability to future climate impacts. Historically, inflexibility in the laws that govern disaster relief funding has presented barriers to state and local efforts to add resiliency when rebuilding. Because adapting facilities will often increase the costs of rebuilding, it is critical to determine whether state and local governments can be reimbursed for these activities with disaster relief funds. If not, communities may be discouraged from undertaking these efforts and disaster relief funding may be used to rebuild facilities in harm's way.

This report analyzes whether Sandy Relief funds can legally be used by communities to adapt to anticipated impacts from climate change: sea-level rise, increased precipitation, and more frequent or extreme weather events. This report focuses on public facilities, which include roads, bridges, hospitals, electrical substations, and wastewater treatment facilities, among other publicly and some privately owned assets.¹⁸ To answer this question, we analyze: (1) the appropriations bill (here the Sandy Relief Act), (2) the statute that governs disaster relief generally (the Stafford Act) and (3) the statutes creating other federal programs that were funded by the Sandy Relief Act. The Stafford Act governs the process by which the President can declare a disaster. Once a disaster is declared, Congress sometimes uses supplemental appropriations (such as the Sandy Relief Act) to fund state and local disaster recovery efforts through a variety of federal programs. The enabling statutes creating each program govern how these funds can be spent. These statutes will therefore govern whether and how these funds can be used to adapt public facilities.¹⁹ In this report we analyze the following federal programs that were funded by the Sandy Relief Act: the Public Assistance (PA) program and Hazard Mitigation Grant Program (HMGP) authorized by the Stafford Act and administered by FEMA; the Community Development Block Grant (CDBG) program administered by HUD; the Emergency Relief (ER) programs administered by FHWA and FTA; and State Revolving Loan programs administered by EPA.

Report Roadmap

In the first part of this memo, we provide a breakdown of the programs that were funded by the Sandy Relief Act, with a focus on appropriations that can be used to reimburse state and local governments for the long-term rebuilding of public facilities. For each program, we analyze what agencies are already doing to promote resilience during the Sandy recovery process. We also identify remaining barriers and other unexploited opportunities for using disaster relief funds to adapt. Our analysis looks at existing authorities at all levels of government to answer the following questions: (1) where do federal agencies have authority to reimburse state and local governments for adaptive rebuilding, (2) where can federal agencies use the incentive of disaster relief funding to encourage adaptive rebuilding, and (3) how can state and local governments prepare themselves to be able to adapt after a disaster?

In the second part of this memo, we discuss the administrative reforms that were passed in Division B of H.R. 152, the Sandy Improvement Act. Provisions in this section amended the Stafford Act and included key reforms that will streamline the administration of disaster relief funding.

Finally, we provide an analysis of reforms that were passed by the Senate in the 112th Congress through H.R. 1, but were not included in the bill that was ultimately signed into law (H.R. 152). Similar reforms to

¹⁸ Eligible applicants include state, local and tribal governments and certain private non-profit (“PNP”) facilities that are formed for a public purpose but do not constitute one of the other forms of local government specified in the Stafford Act. These PNP facilities include power facilities, water facilities, sewer and wastewater facilities, among others. Fed. Emergency Mgmt Agency (FEMA), PUBLIC ASSISTANCE PROGRAM GUIDE at Ch. 2 (2007), <http://www.fema.gov/pdf/government/grant/pa/paguide07.pdf>.

¹⁹ For a general discussion of the different mechanisms used to fund disaster relief see Edward A Thomas et al., Natural Hazard Mitigation Association, *Planning and Building Livable, Safe & Sustainable Communities: The Patchwork Quilt Approach* (2011), http://stormsmart.org/uploads/patchwork-quilt/patchwork_quilt.pdf

the Stafford Act could be considered in future legislation to provide state and local governments with more flexibility to adapt assets using disaster relief funds.

Through this analysis, we identified additional opportunities, at all levels of government, for promoting adaptation during the disaster recovery process. FEMA, HUD, DOT, and EPA have broad legal authority to reimburse state and local governments to rebuild to higher standards and to fund hazard mitigation, and have, in many cases, already begun using this authority to encourage resilience post-Sandy. State and local governments can also couple multiple funding streams (both disaster relief funding, regular federal appropriations, and other state and local funds) to make up any additional cost needed to rebuild public facilities to be more resilient to future impacts. Finally, state and local governments can ensure that they are prepared to rebuild with resilience by incorporating consideration of climate change in hazard mitigation plans and by adopting state standards or codes that require public facilities to be designed to higher standards, in advance of impacts. Congress could also consider reviving some of the reforms to the Stafford Act that the Senate included in H.R.1, but that did not make it into the final legislation, as well as other reforms that would provide agencies with greater flexibility to allow adaptation during disaster recovery efforts.

USING DISASTER RELIEF FUNDS FOR ADAPTATION

In this section, we provide a basic description of the programs that were funded by the Sandy Relief Act, focusing on the enabling statutes and the agency regulations implementing each program. For each, we describe the efforts being taken by federal agencies to promote resilience post-Sandy, and we also analyze remaining legal barriers and other opportunities for using Sandy relief funds to promote adaptation.

Executive Order 13514

As context for this analysis, it is important to note that President Obama issued Executive Order (EO) 13514 on October 5, 2009. The Order created the Interagency Climate Change Adaptation Task Force co-chaired by the Council on Environmental Quality (CEQ), Office of Science and Technology and NOAA. The Task Force also includes representatives from more than twenty federal agencies.²⁰ The Task Force issued policies implementing EO 13514 which directed all federal agencies to develop Climate Adaptation Action Plans. In their Adaptation Plans, federal agencies were required to identify how and where the agency could incorporate adaptation in their programs, policies, and regulations.²¹ Draft agency Adaptation Plans were released for public comment on February 7, 2013.²² FEMA is part of the Department of Homeland Security (DHS), which released its *Climate Change Adaptation Roadmap* as part of this effort. The DHS *Adaptation Roadmap* acknowledges some of the legal barriers analyzed in this report, including the limits presented by the use of historic data, and the barriers posed by DHS laws and policies that may limit their ability to fund adaptive rebuilding after a disaster declaration.²³ We hope that the analysis will help agencies figure out what they can do *now* with existing authority to help state and local governments implement policies that will allow them to rebuild resiliently after a disaster.

²⁰ Exec. Order No. 13514, *Federal Leadership in Environmental, Energy, and Economic Performance*, sec. 16, 74 Fed. Reg. 52117 (Oct. 5, 2009). For a discussion of the Interagency Task Force and federal agency adaptation planning see Robert Verchick and Abby Hall, *Adapting to Climate Change While Planning for Disaster: Footholds, Rope Lines, and the Iowa Floods*, 2011 B.Y.U. L. Rev. 2203, 2217-2222 (2011).

²¹ THE WHITE HOUSE COUNCIL ON ENVTL. QUALITY (CEQ), PROGRESS REPORT OF THE INTERAGENCY CLIMATE CHANGE ADAPTATION TASK FORCE 26-28 (2010) [hereinafter TASK FORCE REPORT], available at <http://www.whitehouse.gov/sites/default/files/microsites/ceq/Interagency-Climate-Change-Adaptation-Progress-Report.pdf>.

²² Each agency's Sustainability and Adaptation Plan can be accessed at <http://sustainability.performance.gov>.

²³ DEPARTMENT OF HOMELAND SECURITY (DHS), CLIMATE CHANGE ADAPTATION ROADMAP, 24-25 (June 2012) http://www.dhs.gov/sites/default/files/publications/Appendix%20A%20DHS%20FY2012%20Climate%20Change%20Adaptation%20Plan_0.pdf ["Currently, many [DHS] grant regulations and policies may not be flexible enough to incentivize sound development and re-building decisions—such as pre-and post-disaster land use—that account for changing conditions.]

The Stafford Act Generally

The Stafford Act authorizes the President to declare a major disaster²⁴ and makes funds available to state and local governments to help them respond to and recover after a catastrophe.²⁵ FEMA administers most of the authority that the statute grants to the President. Funding is made available through Congressional appropriations made to the Disaster Relief Fund (DRF). In particular, DRF funds can be disbursed through several Stafford Act programs, two of which have potential to be used to adapt public facilities: (1) the Public Assistance (PA) program which, among other things, reimburses state and local governments for the long-term rebuilding of public facilities, and (2) the Hazard Mitigation Grant Program (HMGP), which provides funding for state and local governments following a disaster to undertake projects to mitigate future damage. Through the Sandy Relief Act, Congress appropriated approximately \$17 billion to the DRF.²⁶

Programs Funded by the Sandy Relief Act

Public Assistance Program

A portion of the funds appropriated to the DRF will be used to reimburse state and local governments to rebuild public facilities under the PA program (Section 406 of the Stafford Act).²⁷ A major disaster declaration authorizes the President to provide funding to state and local governments to repair, restore or replace²⁸ damaged public facilities.²⁹ To be considered eligible for reimbursement, the damaged facilities must be repaired in accordance with the building codes and specifications in effect in the community prior to the disaster.³⁰ The federal share for disaster relief activities is 75 percent, state and local governments (called “applicants”) must come up with a 25 percent match.³¹

To apply for PA funds, applicants complete a project worksheet that documents the location, description of damage, scope of work, and cost estimate for each PA project. Project worksheets are used by FEMA to estimate its future obligations to reimburse the state or local applicant. FEMA then reimburses applicants for the *actual costs* of the work completed based upon the costs of time and materials, unit cost, or contracts.³² Historically, this process has only allowed applicants to be reimbursed *after* reconstruction

²⁴ A “major disaster” is defined as any natural or man-made catastrophe anywhere in the United States, which, in the determination of the President, causes damage “of sufficient severity and magnitude to warrant major disaster assistance to supplement the efforts and available resources of the States, local governments, and disaster relief organizations. 42 U.S.C. § 5122 (2006).

²⁵ Once the president declares a major disaster local governments may apply for federal assistance through a state agency, which forwards the request to FEMA. Following a request for reimbursement, FEMA inspectors or state officials prepare a project worksheet specifying damaged caused by the disaster and eligible costs. A panel of experts develops a range of costs (floor and ceiling cost estimates) that reflect the anticipated cost to restore the facilities. 44 C.F.R. §§ 206.200-206.228 (2012).

²⁶ Sandy Relief Act, tit. 10, ch. 6, 127 Stat. at 29.

²⁷ 42 U.S.C. § 5172. Another portion of this funding will go to provide individual assistance grants to impacted landowners (42 U.S.C.A. § 5174) and to the community disaster loan program (42 U.S.C.A. § 5184). Because these programs primarily benefit individuals and businesses, we do not analyze whether there are barriers to using these funds to adapt private facilities. This may be an area for future research.

²⁸ *Id.* §§ 5122, 5172(a)(1)(A).

²⁹ “Public facility means the following facilities owned by a State or local government: any flood control, navigation, irrigation, reclamation, public power, sewage treatment and collection, water supply and distribution, watershed development, or airport facility; any non-Federal aid, street, road, or highway; and any other public building, structure, or system, including those used for educational, recreational, or cultural purposes; or any park.” 44 C.F.R. § 206.221(h).

³⁰ 42 U.S.C. § 5172(e)(1)(A).

³¹ *Id.* § 5172(b).

³² FEMA, PUBLIC ASSISTANCE PROGRAM GUIDE at Ch. 3

work had already been completed. Reforms in the Sandy Improvement Act (discussed below) will allow communities to opt to for an up-front, lump-sum grant based upon project estimates.³³

In analyzing whether disaster relief funding can be used to adapt, it is important to note that the PA program was designed only to *supplement* state and local funding to rebuild public facilities—to help communities rebuild to where they were before the disaster struck. It was not designed to make communities completely whole or to allow communities to make improvements to their infrastructure. While nothing in the Stafford Act prohibits a state or local government from improving a facility with other funds,³⁴ they typically must come up with the additional funds needed to do so.³⁵ The added costs needed to adapt an asset and the uncertainty in reimbursement may discourage state and local governments from taking protective measures. Thus, to ensure that federal funds are not wasted, the historic design of the Stafford Act should be reconsidered to allow for improvements to facilities to allow for improvements to a facility that will ensure the long-term sustainability of the federal investment.

In this section we discuss the challenges in using PA program funds to adapt. Under the PA program, FEMA considers whether the project is an eligible cost and an eligible activity; both prongs of FEMA’s analysis present barriers to using PA funds for adaptation. However, the PA program also creates several alternative methods that FEMA could use to reimburse communities for any additional costs needed to adaptively rebuild. Additionally, reforms to the PA program included in the Sandy Improvement Act will give FEMA additional flexibility to allow adaptation.

Eligible Costs

The primary barrier to adaptation is the Stafford Act’s required method for calculating “eligible costs.” Eligible costs are the costs that an applicant may recoup to rebuild a public facility. Under the Stafford Act, FEMA is directed to determine eligible costs on the basis of the *pre-disaster design* of the facility and in conformity with codes, specifications and standards applicable at the time at which the disaster occurred.³⁶

The requirement that the facility be repaired to the *pre-disaster condition* limits the ability of applicants to use Stafford Act funding to rebuild a facility differently in anticipation of future impacts. Pre-disaster condition means the size or capacity of a facility as originally designed and constructed.³⁷ Adapting a facility to withstand future impacts from climate change will often require alterations in the size, capacity, or location of the facility. Such alterations may add costs, and these barriers in the Stafford Act may limit an applicant’s ability to recoup the extra costs needed to construct the facility to be resilient to future impacts.

State and local governments can also be reimbursed to rebuild a facility to updated codes or standards so long as they were “applicable at the time at which the disaster occurred.” This situation typically occurs when older facilities must be repaired in accordance with codes and standards that were adopted after the original construction.³⁸ FEMA regulations govern the reasonableness of incorporating changed codes.³⁹

³³ Jared T. Brown et al., CRS Report for Congress, *Analysis of the Sandy Recovery Improvement Act of 2013*, 9-10 (Mar. 2013) (estimates must be prepared by professionally licensed engineers and conform to FEMA regulations, policy and guidance.)

³⁴ FEMA, PUBLIC ASSISTANCE PROGRAM GUIDE at 110-11.

³⁵ FEMA, PUBLIC ASSISTANCE PROGRAM GUIDE at Ch. 3.

³⁶ Section 5172(e) of the Stafford Act provides that, in general, eligible costs shall be estimated as follows:

- (i) on the basis of the design of the facility as the facility *existed immediately before the major disaster*; and
- (ii) in conformity with codes, specifications, and standards (including floodplain management and hazard mitigation criteria required by the President or under the Coastal Barrier Resources Act (16 U.S.C. 3501 et seq.)) *applicable at the time at which the disaster occurred*.

³⁷ 44 C.F.R. § 206.201.

³⁸ FEMA, PUBLIC ASSISTANCE PROGRAM GUIDE at Ch. 2 [This can include federal requirements such as the Americans with Disabilities Act accessibility requirements.].

Standards that change the pre-disaster design must be formally adopted, uniformly applied to all similar types of facilities, apply to the type of repair work required, and must have been enforced at the time of the disaster.⁴⁰

Alternative calculations of eligible costs

Three provisions in Section 406 of Stafford Act also provide *alternative* mechanisms that may provide opportunities for FEMA to reimburse state and local governments for adaptive rebuilding.

Modifications: the Stafford Act gives FEMA discretion to allow for the “modification” of the eligible cost calculation where the *actual costs* of repairing the facility exceed the estimated costs for repair.⁴¹ Historically, FEMA has used this provision to authorize modifications to reimburse applicants for cost overruns from things such as additional labor or material costs that were not anticipated in the project worksheet. However, the Stafford Act does not define the term “actual costs,” nor does the Stafford Act limit the definition of actual costs in this manner. Applying a broader reading of this term, FEMA could reimburse applicants for the actual costs needed to rebuild facilities in a manner that will ensure the long-term resiliency of the facility. Although the authors believe that Section 406 provides FEMA some flexibility to modify its calculations of eligible costs, the process of using project worksheets to determine estimates may limit FEMA’s flexibility to implement this approach. Ultimately, the decision regarding whether to modify its methods of calculating reimbursement rates will require careful consideration of these provisions by DHS and FEMA officials and the Administration in coordination with state and local applicants.

406 Mitigation: FEMA has also interpreted its authority under Section 406 to allow for reimbursement for mitigation measures when required by the FEMA Regional Administrator as part of a PA project.⁴² Citing this provision, FEMA has reimbursed state and local governments for the costs of installing mitigation measures in conjunction with the repair of a disaster-damaged facility. 406 mitigation activities must be approved in advance and must be deemed to be cost-effective (discussed below).⁴³

In-Lieu Contributions: 2006 reforms to the Stafford Act provided state and local governments with flexibility to redirect disaster funds to other projects rather than rebuild by opting for an “in-lieu contribution.”⁴⁴ Applicants can redirect PA funds to other projects in lieu of restoring or repairing a facility in place.⁴⁵ Provisions in the Sandy Improvement Act (discussed in Section III below) removed a 10 percent penalty that was previously imposed on applicants that opted for the in-lieu contribution.⁴⁶

³⁹ 44 C.F.R. §§ 206.226(d), 206.221(i).

⁴⁰ *Id.* § 206.226(d).

⁴¹ “In any case in which the actual cost of repairing, restoring, reconstructing, or replacing a facility under this section is greater than the ceiling percentage established under [the method described above], the President may determine that the eligible cost includes a portion of the actual cost of the repair, restoration, reconstruction, or replacement **that exceeds the cost estimated...**” 42 U.S.C. § 5172(e)(2).

⁴² 44 CFR § 206.226 (e).

⁴³ FEMA, *Recovery Policy 9526.1, Hazard Mitigation Funding Under Section 406 (Stafford Act)* (Mar. 30 2010) http://www.fema.gov/pdf/government/grant/pa/9526_1.pdf.

⁴⁴ SAFE Port Act, Pub. L. No. 109-347, sec. 609, § 5172(c)(1), 120 Stat. 1884, 1924 (2006).

⁴⁵ Section 5172(c) of the Stafford Act provides:

[In-lieu] funds contributed to a State or local government under this paragraph may be used--
(i) to repair, restore, or expand other selected public facilities;
(ii) to construct new facilities; or
(iii) to fund hazard mitigation measures that the State or local government determines to be necessary to meet a need for governmental services and functions in the area affected by the major disaster.

⁴⁶ 42 U.S.C. § 5172(c)(1)(A) (2006), *amended by* Pub. L. No. 113-2, sec. 428, 127 Stat. 4, 39 (2013). Reimbursement was limited to 90 percent of eligible costs, meaning that FEMA can reduce 75 percent federal share by 10 percent where an applicant elects to take the PA funds in-lieu of repairing or restoring a facility in place.

Section 428 of Division B states that applicants can elect to receive an “in-lieu contribution, without reduction.”⁴⁷

Lump Sum Payments: Section 1102 of the Sandy Improvement Act also allows communities to voluntarily elect to receive a lump-sum grant from FEMA based upon fixed estimates. This provision is designed to expedite the allocation of PA funds and reduce administrative barriers. The downside is that communities that opt for lump-sum payment must agree to be responsible for any cost overruns if the actual costs of rebuilding exceed estimated costs.

Eligible Activities

A second barrier is FEMA’s method of establishing which *activities* are eligible for reimbursement. The Stafford Act allows for reimbursement for the “repair, restoration, reconstruction, or replacement of a public facility damaged or destroyed by a major disaster.”⁴⁸ The statute, on its face, does not prevent adaptation; however, FEMA’s regulations favor in-kind repair of the facility in the same location. Restoration and relocation are considered eligible activities only if the FEMA Administrator determines that damage to the facility is so great that repair is not “feasible.” The hierarchy between activities is as follows:

Repair: A facility is considered repairable when the damages are less than 50 percent of the cost of replacement.⁴⁹

Replace: If a damaged facility is not reparable, the facility may be *replaced* in the same location.⁵⁰

Relocate: Relocation may be allowed at the discretion of the FEMA Administrator but there is a strong presumption against relocation.⁵¹ Relocation is available if the facility is subject to repetitive heavy damage and relocation is cost effective.⁵²

- Codes and standards: Similar to eligible costs, federal, state or local standards may sometimes require relocation. For example, if local floodplain regulations prohibit critical facilities in special flood hazard areas (i.e., the 100-year floodplain), FEMA would allow for relocation of a damaged critical facility.
- Risk of repetitive damage: In cases where state or local laws do not require relocation, the applicant would be required to show that the facility is at risk of repetitive damage. FEMA’s method for determining a facility’s risk of future damage, however, does not involve consideration of how climate change may increase the probability of flooding and the extent of damage over time. Thus, the benefits of relocating a facility may be discounted. Even if FEMA allowed for the consideration of future conditions, applicants would have to prove the risk and cost of future damage under different climate-change scenarios, which may be difficult based upon existing data

⁴⁷ Sandy Relief Act, Pub. L. No. 113-2, sec. 428(e)(1)(B), 127 Stat. at 39 (Jan. 29, 2013).

⁴⁸ 42 U.S.C. § 5172(a)(1)(A).

⁴⁹ 44 C.F.R. § 206.226 (2012).

⁵⁰ *Id.* § 206.226(f)(2).

⁵¹ Where FEMA allows for relocation they will pay for the costs to demolish the old facility, acquire new lands, construct the new facility, conduct an environmental review of the project, and construct ancillary facilities such as roads and utilities. FEMA, PUBLIC ASSISTANCE PROGRAM GUIDE at Ch. 2.

⁵² *Id.* § 206.226(g). The cost-effectiveness or benefits of relocation are measured in terms of the damage prevented by moving away from the hazardous location. FEMA operates under a presumption that relocation is only “cost effective if the damage is severe enough that the facility qualifies for replacement (i.e., is greater than 50 percent damaged). FEMA, PUBLIC ASSISTANCE PROGRAM GUIDE at Ch. 2.

and models.⁵³ The risks associated with climate change are not always easy to estimate and it is not well understood how impacts will be experienced at a local level.⁵⁴

- Cost-effectiveness: FEMA’s method for determining whether a measure is “cost-effective” may also disfavor relocation of a facility. FEMA’s benefit-cost analysis (BCA) compares the risk and cost of repetitive damage in the same location to the long-term cost savings of moving the facility to a new location.⁵⁵ For a measure to be eligible for PA funding, the measure may not “cost more than the anticipated value of the reduction in both direct damages and subsequent negative impacts to the area if future disasters were to occur.”⁵⁶ The costs of a project are based upon an estimate of materials, labor, fees, contractor costs and management costs. The benefits of a project are estimated based upon losses avoided, including casualties, physical damages, loss of function, and emergency management costs.⁵⁷ One major problem⁵⁸ with FEMA’s BCA is that it does not calculate the risk of future damage in light of climate change. The probability of future loss is determined by reference to the community’s Flood Insurance Rate Map (FIRM) and Flood Insurance Study (FIS).⁵⁹ Both documents are based upon consideration of historical flood data, and do not account for how flood risks will change over time as sea levels rise and precipitation increases. FEMA’s methods of determining cost-effectiveness may not accurately value the benefits of adapting an asset during the rebuilding process and the costs of failing to do so.⁶⁰ However, FEMA does allow for consideration of “cost avoidance,” which values the damages avoided in the future due to mitigation measures.⁶¹ While this factor does not explicitly consider future impacts for climate change, it may provide flexibility to allow FEMA and applicants to account for increased risk of damage posed by reasonable, and scientifically supported projections of climate change.

It should also be noted that, in 2012, Congress amended the National Flood Insurance Act to allow FEMA to consider future sea-level rise on FIRMs.⁶² When these considerations are included on

⁵³ See Gary Yohe, *Addressing Climate Change through Risk Management*, Pew Benefits Workshop, May 2010, <http://www.c2es.org/docUploads/yohe-climate-change-risk-management.pdf> at 205.

⁵⁴ Center for Clean Air Pol’y and Envtl. and Energy Study Inst., *Climate Adaptation and Transp. - Identifying Info. and Assistance Needs* (May 2012).

⁵⁵ See Natalie Love, CRS Report for Congress R40471, *FEMA’s Hazard Mitigation Grant Program: Overview and Issues*, Mar. 25, 2009, at 12.

⁵⁶ 44 C.F.R. § 206.434.

⁵⁷ FEMA, *Supplement to the Benefit-Cost Analysis Reference Guide*, at 2-3 (June 2011) http://www.bchelpline.com/BCAToolkit/resource_files/BCA_Reference_Guide_Supplement.pdf. Costs include: Casualties: deaths, injuries and illnesses; physical damages: to buildings, their contents, infrastructure, landscaping, site contamination, vehicles and equipment; loss of function: displacement costs, loss of rental income, loss of business income, lost wages, disruption time of residents, loss of public services, loss of utility services, and the impact of road or bridge closures; and emergency management: costs for emergency operation centers, evacuations and rescues, security, temporary protective measures, and debris removal and clean up.

⁵⁸ FEMA’s BCA is also problematic because it does not account for indirect benefits that accrue to the state and local government from the activity, such as increased real estate values, environmental benefits, recreational benefits, and revenue generated from tourism. See Ass’n of State Floodplain Managers (ASFPM), *Use of Benefit/Cost Analysis for FEMA Programs* at 9 (2007) http://www.floods.org/PDF/ASFPM_White_Paper_BCA_0707.pdf.

⁵⁹ FEMA, *Supplement to the Benefit-Cost Analysis Reference Guide*, at 2-3; see also ASFPM, *supra* note 58 at 4.

⁶⁰ See Yohe, *supra* note 53 at 213 (discussion of how climate change could alter the return interval of flood events, which is not accounted for in current BCA).

⁶¹ FEMA, *Disaster Assistance Policy 9526.1, Hazard Mitigation Funding Under Section 406 (Stafford Act)* at Sec. B(3).

⁶² The Reform Act directs FEMA to include certain “Other Inclusions” when updating FIRMs, specifically: “any relevant information... relating to the best available science regarding future changes in sea levels, precipitation, and intensity of hurricanes.” Also listed other inclusions are: coastal inundation, stream flow, and relevant information on land subsidence and coastal erosion. The Biggert-Water Flood Insurance Reform Act of 2012, Pub. L. No: 112-141, H.R. 4348, Sec. 100216; see also Jessica Grannis, Georgetown Climate Center, *Analysis of How the Flood Insurance Reform Act of 2012 (H.R. 4348)*

future maps, this may provide a tool for FEMA and localities to calculate the risk of future impact given climate change scenarios. For a further discussion of these reforms, see the Georgetown Climate Center’s analysis of the [Biggert-Waters Flood Insurance Reform Act of 2012](#).

Opportunities for using PA funds to adapt

Federal agencies have made one significant step toward increasing resilience by requiring that all structures rebuilt with Sandy Relief Funds be elevated to one foot above the elevation recommended by the most recent available federal flood guidance, which may include advisory base flood elevations (ABFEs) from updated Flood Insurance Rate Maps (FIRMs).⁶³ Prior to Sandy, FEMA was updating FIRMs for many coastal communities in New Jersey and New York. These new FIRMs were provided to communities in early 2013, however the new maps have not been adopted by the local governments and, therefore, would not otherwise have legal effect. The BFE shown on the new maps are advisory in nature—advisory base flood elevations (ABFEs). In some communities, ABFEs are several feet higher than elevations shown on old maps because the maps had not been updated in 25 years. By requiring an additional foot of elevation, federal agencies are ensuring that rebuilt structures will have an extra margin of vertical protection from future flooding and storm surges (this margin of safety is called freeboard). Congress could strengthen this reform by including this requirement in future disaster relief appropriations or by amending the Stafford Act to both specifically require freeboard for structures rebuilt with federal disaster relief funds and to explicitly allow federal agencies to reimburse for the costs of rebuilding with freeboard.

State and local governments could also require additional resilience by enacting higher standards. To ensure that adaptive measures meet the eligible costs requirement, states and local governments will be in the best position where they have proactively enacted codes or design standards that require structures to be rebuilt to higher standards or that require consideration of climate projections in the design of infrastructure projects. For example, states could require that critical facilities be designed to withstand a 500-year flood event as opposed to 100-year flood event or could require the consideration of particular projections of sea-level rise in the design and construction of critical facilities. These changes, however, would need to be enacted before the disaster. State and local governments would also need to uniformly apply the codes and standards both pre- and post-disaster, which may add costs to the construction of public facilities generally and would need to be budgeted for.

Professional associations that develop model codes can also play a role. For example, for transportation facilities, the American Association of State Highway and Transportation Officials (AASHTO) works with state departments of transportation to devise design standards that are approved by FHWA and then used by state DOTs to guide the design and construction of transportation facilities. These standards are commonly referred to as the “green book.”⁶⁴ Were AASHTO to update the green book to require higher design standards, these standards could be adopted by state DOTs. The International Code Council (ICC)

May Affect State and Local Adaptation Efforts (Aug. 14, 2012), <http://www.georgetownclimate.org/tags/national-flood-insurance-program>.

⁶³ Press Release, Hurricane Sandy Rebuilding Task Force, *Federal Government Sets Uniform Flood Risk Reduction Standard for Sandy Rebuilding Projects* (Apr. 4, 2013) <http://portal.hud.gov/hudportal/HUD?src=/sandyrebuilding/FRRS>. “Base Flood” is defined as the flood having a one percent chance of being equaled or exceeded in any given year based upon historical flood data, also known as the 100-year flood. Base Flood Elevation (BFE) are the computed elevation to which floodwater is anticipated to rise during the base flood, and are shown on Flood Insurance Rate Map (FIRM). Advisory Base Flood Elevations (ABFEs) are elevations shown on updated FIRMs that are provided to communities, but that have yet to be formally adopted. Existing FIRMs for these areas are more than 25 years old. Updated FIRMs have not been finalized or adopted by the local communities and therefore would not be legally effective under current floodplain regulations in most areas. Federal agencies have determined that reconstruction efforts should use ABFEs to ensure that rebuilt structure can withstand future impacts. Additionally, as updated FIRMs are adopted and become legally effective, the BFE will determine insurance rates. Structures that are rebuilt below BFE may face significantly higher insurance premiums. The definitions above were adapted from the FEMA glossary, available at <http://www.fema.gov>.

⁶⁴ AASHTO, *GEOMETRIC DESIGN OF HIGHWAY AND STREETS* (2004), see also Federal Highway Administration (FHWA), *Design Standards*, <http://www.fhwa.dot.gov/programadmin/standards.cfm>.

also adopts model codes (I-Codes) for residential and commercial construction that are often adopted by reference in state and local codes. I-Codes often include higher design standards than the minimums required by other laws, such as the National Flood Insurance Program. State or local governments could adopt these codes, without amendment, and ensure that structures are rebuilt to the highest design standards.

For this to be an effective path, FEMA must also *recognize* higher state and local standards when making determinations on eligible costs. Even in states that have adopted higher standards, FEMA has refused to reimburse some states where higher standards require a degree of discretion in implementation. For example, before Tropical Storm Irene, Vermont adopted higher design standards for stream crossings and culverts underneath roads and bridges. Vermont’s standards required a site-specific hydrological, sediment transport, and aquatic organism passage assessment and required that crossings be designed in a way, “to maintain natural stream conditions and improve protection of roads and property from some of the damaging effects of floods.”⁶⁵ Because the design standard allowed for some variation based upon site-specific conditions, FEMA Region 1 refused to reimburse localities for the additional costs needed to rebuild larger culverts with PA funds. FEMA argued that the standards were not uniformly applied. On appeal, FEMA headquarters reversed the determination of Region 1 and agreed to reimburse one locality, to town of Townshend, for the costs of rebuilding a larger culvert. However, rather than reimburse the town for the costs of rebuilding to the state’s pre-disaster codes, FEMA agreed to reimburse the state using Section 406 hazard mitigation.⁶⁶ This path could potentially pose problems to other Vermont localities that are also seeking reimbursement for larger culverts rebuilt after Irene. In order to be eligible for 406 mitigation, the mitigation measures must be approved in advance and must be cost-effective. Thus, localities will have to show that all of the culverts rebuilt to Vermont’s pre-disaster codes meet FEMA’s backward-looking CBA, which also does not value the ecological benefits provided by the larger culverts. FEMA Region 1 is reviewing similar projects to see if the Townshend appeal affects those previous determinations.

State and local governments can pay for any additional costs needed to adapt a facility with other funds, such as CDBG or HMGP funds, or state and local funds. Nothing in the Stafford Act prohibits a state or local government from contributing the additional funds needed to improve a facility with other funds.⁶⁷ FEMA specifically allows for the *improvement of facilities*, but state and local governments must come up with other funds to finance any additional cost needed improve the facility.⁶⁸

Where it is not sustainable to rebuild a facility in place, state and local governments can opt for in-lieu contributions and redirect the funds to expand other facilities in less flood-prone parts of the community.

FEMA could use its authority to approve “modifications” to its eligible cost calculations or to allow for our require hazard mitigation under Section 406 to ensure that rebuilt facilities are improved to ensure their long-term resilience to impacts from climate change, where necessary.⁶⁹

FEMA could amend its regulations to eliminate the preference for repair over replacement or relocation and evaluate all options on equal footing based upon an assessment of the long-term vulnerability of an asset. By doing so, FEMA could ensure that communities are not rebuilding assets in harm’s way such that disaster relief payments may be necessary again in the future.

⁶⁵ See VT. FISH AND WILDLIFE, VERMONT STREAM CROSSING HANDBOOK, VERMONT FISH AND WILDLIFE at 1 (2010), http://www.vtfishandwildlife.com/library/Reports_and_Documents/Aquatic%20Organism%20Passage%20at%20Stream%20Crossings/_AOP_%20Handbook.pdf.

⁶⁶ Letter from Deborah Ingram, Assistant Administrator, FEMA Recovery Directorate, to Joe Flynn, Director, Vermont Emergency Management (March 21, 2013)(on file with author); see also Justin Clancy, *Lessons Learned from Irene: Climate Change, Federal Disaster Relief, and Barriers to Adaptive Reconstruction* (student paper on file with author).

⁶⁷ FEMA, PUBLIC ASSISTANCE PROGRAM GUIDE at 110-11.

⁶⁸ FEMA, PUBLIC ASSISTANCE PROGRAM GUIDE at Ch. 3.

⁶⁹ FEMA, PUBLIC ASSISTANCE PROGRAM GUIDE at Ch 3.

FEMA could also amend its BCA worksheet to allow for the consideration of future climate risks to a facility or to allow a facility to be built to higher design standards to mitigate future impacts (e.g. design to protect against a 500-year flood event rather than a 100-year flood event). To determine the best method for amending its BCA, FEMA could work with other agencies like the Army Corps of Engineers, which is accounting for sea-level rise in the design of civil works projects.

Hazard Mitigation Grant Program

Section 404 of the Stafford Act, creates the Hazard Mitigation Grant Program, which also can be used to fund adaptation measures.⁷⁰ Adaptation is hazard mitigation by another name: Hazard mitigation activities are designed to lessen or avoid future impacts, but future impacts are typically determined based upon consideration of *historic* data. Adaptation activities are also designed to lessen or avoid future impacts, however the probability of future impacts is determined based upon *climate* projections.

The difference between Section 404 and Section 406 hazard mitigation is that Section 404 allows FEMA to fund a wider array of mitigation activities and the activities do not have to relate to the repair or replacement of a particular damaged structure (as is required when FEMA allows hazard mitigation under Section 406). The amount of Section 404 mitigation funds available to a community is determined by preexisting caps set according to the total amount of disaster relief funds that are appropriated.⁷¹

Under Section 404, FEMA can fund a wide range of hazard mitigation activities, which are defined by FEMA regulations as “any cost effective measure[,] which will reduce the potential for damage to a facility from a disaster event.”⁷² Eligible activities include both structural and non-structural mitigation: acquisition, elevation, retrofits, vegetative management, stormwater management, and some structural flood control projects.⁷³ State and local governments are eligible to apply for the HMGP provided that they have adopted and FEMA has approved a Hazard Mitigation Plan that includes a risk assessment of natural hazards.⁷⁴ In general, the federal share is 75 percent for hazard mitigation activities, and state and local governments must contribute a 25 percent match. CDBG funds, discussed below, can often be used as the state or local match.

The problem with using HMGP funding for adaptive activities is that for most projects⁷⁵ applicants must show that the activity addresses a repetitive problem and is a “cost-effective” long-term solution to the

⁷⁰ Section 5170(c) of the Stafford Act provides:

The President may contribute up to 75 percent of the cost of hazard mitigation measures which the President has determined are cost-effective and which substantially reduce the risk of future damage, hardship, loss, or suffering in any area affected by a major disaster.

⁷¹ The Post-Katrina Emergency Management Reform Act of 2006 (Pub. L. No. 109-295, sec. 684, 120 Stat. 1355) changed the caps for HMGP awards based upon the total level of disaster assistance provided under the Stafford Act, as follows:

The third sentence of section 404(a) of the Robert T. Stafford Disaster Relief and Emergency Assistance Act (42 U.S.C. 5170c(a)) is amended by striking “7.5 percent” and inserting “15 percent for amounts not more than \$2,000,000,000, 10 percent for amounts of more than \$2,000,000,000 and not more than \$10,000,000,000, and 7.5 percent on amounts of more than \$10,000,000,000 and not more than \$35,333,000,000. 42 U.S.C. § 5170c(a) (2006).

Applicants with a FEMA-approved State or Tribal Enhanced Mitigation Plan are eligible for HMGP funding not to exceed 20 percent of the estimated total Federal assistance under the Stafford Act, up to \$35.333 billion of such assistance, excluding administrative costs authorized for the disaster.

⁷² 44 C.F.R. § 206.2.

⁷³ *Id.* § 206.434. Examples of structural changes include retrofitting structures to be more resistant to wind-hazards or elevating assets and building seawalls to reduce flood damage.

⁷⁴ *Id.*

⁷⁵ Five percent of HMGP funds can be used to fund projects where cost-effectiveness cannot be determined because it is infeasible or administratively burdensome. FEMA, HAZARD MITIGATION ASSISTANCE UNIFIED GUIDANCE 25 (June 2011), <http://www.fema.gov/library/viewRecord.do?id=4225>.

problem. Similar to the PA program (discussed above), FEMA calculates cost-effectiveness by reference to resources that rely on historical data (FIRMs and FISs) and that do not consider the long-term changes in flood risks from sea-level rise and climate change.⁷⁶ Thus, it may be difficult for state and local governments to show that some adaptive projects are cost-effective where the facility has not been subject to historic damage and if they cannot rely on scientific data showing projected future conditions as a result of climate change. This limitation prevented Vermont from buying out properties in the hydrologic floodplain because they were not in designated special flood hazard areas (i.e, the 100-year floodplain) on FIRMs.

Additionally, certain adaptation activities may not be included in the localities Hazard Mitigation Plan because communities typically do not assess how the risks of natural hazards may increase as a result of climate change.

Opportunities for using HMGP funds to adapt

FEMA could amend its BCA to allow for the consideration of future climate risks when approving hazard mitigation activities.

State and local governments can use hazard mitigation plans to assess their vulnerability to impacts from climate change and to identify activities to mitigate future hazards. FEMA, in partnership with other agencies such as EPA and NOAA, could provide technical and financial support to help communities consider climate change in hazard mitigation plans.⁷⁷

Section 1104 of the Sandy Improvement Act may also provide both states and FEMA with more flexibility to administer HMGP funding. This section allows FEMA to streamline environmental review, cost-effectiveness analysis, and historic preservation requirements by considering multiple projects as a group. Although it is unclear how FEMA will implement this new authority, this section may fix some of the deficiencies with the BCA. Projects that may not have individually met FEMA's cost-effectiveness requirements may meet these requirements when the cumulative benefits of multiple projects are added together. Section 1104 also provides for state administration of HMGP. The section allows the FEMA Administrator to waive notice and rulemaking procedures to expedite the implementation of this provision.⁷⁸ Again it is unclear how this provision will be implemented, but state administration may allow states more flexibility to determine the criteria for evaluating and justifying the cost-effectiveness of mitigation measures.

Community Development Block Grant Program

Congress also often finances state and local recovery efforts by appropriating funds to the Community Development Block Grant (CDBG) program authorized by the Housing and Community Development Act of 1974 and administered by HUD.⁷⁹ CDBG funds are typically allocated by formula grants to support economic development activities of state and local governments. Because these funds are issued through block grants, state and local recipients (grantees) exercise a great degree of discretion in determining how to use the funds. Funds can be used to acquire real property, demolish structures, prepare sites for development, to establish revolving funds, and to support economic development, among other things.⁸⁰ The only requirement is that the funded activities meet three national priorities to: (1) benefit low- and

⁷⁶ FEMA, *Supplement to the Benefit-Cost Analysis Reference Guide*, *supra* note 57.

⁷⁷ For an example of an EPA project designed to consider how to incorporate consideration of climate change in hazard mitigation plans see Robert Verchick and Abby Hall, *Adapting to Climate Change While Planning for Disaster: Footholds, Rope Lines, and the Iowa Floods*, 2011 B.Y.U. L. REV. 2203, 2235 (2011).

⁷⁸ Sandy Relief Act, § 1104, 127 Stat. at 43; *see also* Brown, *supra* note 33 at 17-18.

⁷⁹ 42 U.S.C. § 5306(d) (2006).

⁸⁰ *Id.* § 5305.

moderate-income families;⁸¹ (2) aid in the prevention or elimination of slums or blight; or (3) meet other community development needs having a particular urgency because existing conditions pose a serious and immediate threat to the health or welfare of the community.⁸²

It is under the third priority that Congress has funded the CDBG program to support disaster relief.⁸³ Through supplemental appropriations, Congress allocates funds to HUD to distribute block grants to help communities support both short-term disaster relief as well as long-term recovery. Because of the wide array of eligible activities, the CDBG program provides flexibility to state and local recipients to use the funds to implement activities to mitigate future hazards. Many communities have used CDBG funds for this purpose; for example, Louisiana used CDBG funds to acquire properties in floodplains after Hurricane Katrina.⁸⁴

In the Sandy Relief Act, Congress appropriated \$16 billion to the CDBG program. The Act directs HUD to allocate the funds directly to state and local governments “for necessary expenses related to disaster relief, long-term recovery, restoration of infrastructure and housing, and economic revitalization in the most impacted and distressed areas.”⁸⁵ The funds cannot be used to support activities that are eligible for reimbursement from FEMA or the Corps; however, CDBG funds can be used to “supplement” assistance provided under the Stafford Act (this includes allowing CDBG money to serve as the state or local match for projects funded under the PA program and the HMGP).

To be eligible, the Sandy Relief Act requires each state or local grantee to submit an “action plan” for using the funds to the HUD Secretary for approval. The plan must demonstrate how the intended use of the funds will address the “long-term recovery, restoration of infrastructure and housing, and economic revitalization in the most impacted and distressed areas.”⁸⁶ Within 45 days of enactment of the Sandy Relief Act, the Secretary was directed to establish criteria for approving plans and denying any plans that do not meet the criteria.⁸⁷ Fifty percent of the funds must be used to support activities benefitting persons of low or moderate income, unless the Secretary waives this requirement based upon a finding of compelling need.⁸⁸ HUD must allocate a third of the funds within 60 days of enactment.

Opportunities for using CDBG funds to adapt

HUD provides a good example for how agencies can use the incentive of federal funding to encourage state and local governments to rebuild smarter after a disaster. Using their ability to approve action plans, HUD is encouraging communities to consider how to direct CDBG funds to projects that will be sustainable over the long-term. Specifically, HUD is requiring that action plans include:

⁸¹ For the purposes of the CDBG program, a “low- and moderate-income person” means a member of a family having an income equal to or less than the Section 8 low-income limit established by HUD every year. 24 C.F.R. § 570.3 (2012). Generally, a Section 8 low-income family is one whose annual income does not exceed 80 percent of the median income for the area, adjusted for family size. 42 U.S.C. § 5302(a)(20)(A). In fiscal year 2011, a family of four having an income less than \$67,600 qualifies as a CDBG low- and moderate-income family in the District of Columbia. Dept. of Housing and Urban Development, *FY 2011 Income Limits Documentation System*, available at <http://www.huduser.org/portal/datasets/il/il2011/2011summary.odn> (last updated July 14, 2011).

⁸² 24 C.F.R. § 570.200(a)(2).

⁸³ See generally, Eugene Boyd, CRS Report for Congress, RL33330, *Community Development Block Grant Funds in Disaster Relief and Recovery* (Sep. 21, 2011).

⁸⁴ See generally, David A. Lewis, *The Relocation of Development from Coastal Hazards through Publicly Funded Acquisition Programs: Examples and Lessons from the Gulf Coast*, 5 SEA GRANT LAW AND POL’Y J. 1, 98-139 (2012).

⁸⁵ As authorized under Tit. 1 of the Housing and Community Development Act of 1974 (42 U.S.C. § 5301).

⁸⁶ Sandy Relief Act, Pub. L. No. 113-1, 127 Stat. at 38 (Jan. 29, 2013).

⁸⁷ *Id.*

⁸⁸ *Id.* at 38.

- “A description of how the grantee will promote (a) sound, sustainable long-term recovery planning informed by a post-disaster evaluation of hazard risk, especially land-use decisions that reflect responsible floodplain management and take into account possible sea level rise (for example, by using the new FEMA floodplain maps and designs applying the new Advisory Based Flood Elevations (ABFE) or higher). . .
- A description of how the grantee’s programs or activities will attempt to protect people and property from harm, and how the grantee will encourage construction methods that emphasize high quality, durability, energy efficiency, a healthy indoor environment, sustainability, and water or mold resistance, including how it will support adoption and enforcement of modern building codes and mitigation of hazard risk, including possible sea level rise, storm surge, flooding, where appropriate. . . To foster the rebuilding of more resilient neighborhoods and communities, HUD strongly encourages grantees to consider sustainable rebuilding scenarios such as the use of different development patterns, infill development and its reuse, alternative neighborhood designs, and the use of green infrastructure [with reference to The Partnership for Sustainable Communities’ six Livability Principles, www.sustainablecommunities.gov.]”⁸⁹

HUD is also requiring that structures meet minimum construction standards including:

- Green building standards for the replacement of substantially damaged and new construction of residential housing (e.g., ENERGY STAR or LEED certification), and
- A Green building retrofit checklist for the rehabilitation of non-substantially damaged residential buildings.⁹⁰

Other agencies could follow HUD’s example for how to use the incentive of federal funding to encourage communities to rebuild in a manner that is resilient to future impacts.

At the state and local level, the flexibility of the CDBG program will provide the most opportunity to allow adaptive projects. Communities could consider using these funds to make up the additional cost (non-reimbursable costs under the Stafford Act) needed to adaptively rebuild a public facility. Communities could also use these funds to support mitigation activities that may not meet FEMA’s cost-effectiveness requirement, discussed above. For example, communities could use CDBG funds to buyout properties in floodplains, specifically to buyout properties that would not be eligible for funding under the HMGP.

Federal Aid Highway Act Emergency Relief Funding

Congress appropriated \$2 billion to the Federal Aid Highway Act Emergency Relief (FHWA ER) program through the Sandy Relief Act. State and local governments may use ER funds to repair or reconstruct⁹¹ federal-aid highways and bridges (e.g., interstate highways) damaged as a result of natural disasters or catastrophic failures.⁹²

⁸⁹ Allocations, Common Application, Waivers, and Alternative Requirements for Grantees Receiving Community Development Block Grant (CDBG) Disaster Recovery Funds in Response to Hurricane Sandy, 78 Fed. Reg. 14329-01 (Mar. 5, 2013).

⁹⁰ *Id.*

⁹¹ All repair work falls into two categories: emergency repairs or permanent repairs. Emergency repairs are the temporary repairs necessary during and immediately following a disaster. Permanent repairs are repairs necessary to restore the facility to its pre-disaster condition. Unlike emergency repairs, permanent restoration work is not eligible for reimbursement if performed prior to authorization by the Secretary. 23 C.F.R. § 668.109(a)(2) (2012). The Secretary is authorized to approve funding for repair work once the state governor submits and application for review and the Secretary declares that damage to transportation facilities was the direct result of a natural disaster or catastrophic failure.

⁹² 23 U.S.C. § 125 (2006). A natural disaster is defined as a sudden and unusual occurrence causing serious damage, including but not limited to, intense rainfall, floods, hurricanes, tornadoes, tidal waves, landslides, volcanoes or earthquakes. A catastrophic failure is a sudden failure of a major element or segment of highway system due to an external cause. 23 C.F.R. § 688.103. State and local governments may only recoup the costs to rebuild after the State Governor declares an emergency and the Secretary concurs, or after the President declares a major disaster under the Stafford Act. 23 U.S.C. § 125(d).

Similar to the limitations in the Stafford Act, FHWA ER funds can only be used to reimburse state and local governments for certain eligible costs and activities. Although FHWA has more flexibility than FEMA, current criteria for determining eligibility may present some similar challenges to using ER funds to adapt transportation assets.

Eligible Costs

State and local governments can be reimbursed for the costs to repair or reconstruct a “comparable” highway facility.⁹³ In 2012, Congress enacted the Moving Ahead for Progress in the 21st Century Act (MAP-21), which amended to Highway Act to define a “comparable facility” as a “facility that meets the current geometric and construction standards required for the types and volume of traffic that the facility will carry *over its design life*.”⁹⁴ Although comparable facility was primarily defined to allow for the addition of extra lanes to create additional capacity over the asset’s *design life*, the definition is broad enough to allow FHWA to also approve additional resiliency measures.⁹⁵

Another avenue by which FHWA can approve additional resilience during rebuilding is by allowing “betterments.” The Secretary of DOT can approve “betterments” to a transportation asset, which may allow for the installation of measures to mitigate future impacts to the facility.⁹⁶ Betterments are added protective features that are “economically justified to prevent recurring damages,” such as the relocation or rebuilding of roadways at higher elevations.⁹⁷

Methods for determining the economic justification of betterments may, in some cases, preclude measures designed to build resilience to future climate changes. Economic justification weighs the cost of betterment against the risk of eligible recurring damage and the cost of future repair.⁹⁸ State DOTs and FHWA negotiate to determine whether a betterment is economically justified. In the past, applicants have often relied on historic flood data. However, FHWA’s process provides enough flexibility that applicants could consider the risks to the facility posed by sea-level rise and climate change. To do so, state departments of transportation (state DOTs) and metropolitan planning organizations (MPOs) may need guidance and technical assistance on how to assess the long-term benefits of adapting an asset. FHWA has funded several pilot projects to help transportation agencies assess the vulnerability of their systems to impacts.⁹⁹ These studies could be used to develop guidance to help state DOTs and MPOs consider climate change impacts when rebuilding comparable facilities, when justifying the cost-effectiveness of

⁹³ The total cost of a project eligible for ER funding may not exceed the cost of repair or reconstruction of a comparable facility. 23 C.F.R. § 668.109(e). Comparable facility means a facility that meets the current geometric and construction standards required for the types and volume of traffic that the facility will carry over its design life. 23 U.S.C. § 125(d)(2)(A).

⁹⁴ 23 U.S.C.A. § 125(d)(2) (West 2013); *see also* Robert S. Kirk, CRS Report for Congress, R42804, *Emergency Relief Program: Federal Aid Highway Assistance for Disaster Damaged Roads and Bridges* at 4 (Nov. 2012).

⁹⁵ A recent Congressional Research Service report suggests that MAP-21’s amendments to the definition of “comparable facility” to include the “design life” of the facility, may provide increased flexibility to allow facilities to be rebuilt to be more “resilient in coping with future emergencies.” Painter, *supra* note 16, at 29. In some instances, FHWA has allowed ER funds to be used to replace facilities to accommodate additional traffic volumes, such as by adding lanes. *See* FHWA, EMERGENCY RELIEF HANDBOOK at 26, (Nov. 2009) <https://www.fhwa.dot.gov/reports/erm/er.pdf>.

⁹⁶ 23 C.F.R. § 668.109(b)(6).

⁹⁷ Betterments include, but are not limited to, elevating roadways, installing riprap, increasing culvert size or replacing culverts with bridges, or relocating facilities. There are limited situations where added features require no further economic justification as betterments. One situation applies to reasonable grade raises associated with basin flooding. 23 C.F.R. 688.109(b)(8). Another involves repairs of features, such as bridges, that may require permits or approvals from other entities. Incorporation of current design standards, although they may result in improved or added features, is also not considered betterment. *See* FHWA, EMERGENCY RELIEF HANDBOOK at 8-10, 29-30, (Nov. 2009) <https://www.fhwa.dot.gov/reports/erm/er.pdf>.

⁹⁸ 23 C.F.R. § 668.109(b)(6).

⁹⁹ FHWA, *Climate Change Vulnerability Assessment Pilots*, http://www.fhwa.dot.gov/environment/climate_change/adaptation/ongoing_and_current_research/vulnerability_assessment_pilots/index.cfm

betterments, in long- and short-range transportation plans, in environmental assessments, and during the design and construction of transportation assets.

Additionally, state and local governments can use other funds, such as regularly apportioned Federal-aid highway funding, to better or expand facilities. FHWA has issued guidance on how state DOTs and MPOs can use Federal-aid Highway Act funds to adapt transportation infrastructure.¹⁰⁰

Eligible Activities

Although the ER program allows communities to restore, replace, or relocate transportation facilities,¹⁰¹ FHWA regulations include a preference for restoration in place over replacement or relocation.¹⁰² Replacement of a facility can only be justified when it is “not technically and economically feasible to repair or restore a seriously damaged element to its pre-disaster condition.”¹⁰³ Relocation can only be justified “[w]here it is neither practical nor feasible to replace a damaged highway facility in kind at its existing location.”¹⁰⁴ The relocation alternative must be selected through the environmental review process, required under the National Environmental Policy Act (NEPA), and must be of the same character and function as the damaged facility.¹⁰⁵

Although the Secretary has discretion¹⁰⁶ to determine the practicality and feasibility of restoring a facility, casual or offhand application of the feasibility criteria to support replacement or relocation determinations are not allowed.¹⁰⁷ The default assumption is that a facility can be restored in the same location, which makes relocation of vulnerable facilities a disfavored alternative.¹⁰⁸

In addition, the requirement that a relocation alternative be developed through the environmental review process may add time and expense to the rebuilding process. Under FHWA regulations, most emergency relief projects are categorically excluded from the environmental review requirement and can proceed with little time and expense.¹⁰⁹ By contrast, rather than proceeding through a streamlined categorical exclusion (CE), some adaptive rebuilding projects, such as relocation, may require the completion of an environmental impact statement (EIS).¹¹⁰ EIS documents often require a more intensive and expensive

¹⁰⁰ FHWA, *Memorandum: Eligibility of Activities To Adapt To Climate Change and Extreme Weather Events Under the Federal-Aid and Federal Lands Highway Program* (Sep. 2012) <http://www.fhwa.dot.gov/federalaid/120924.cfm>.

¹⁰¹ 23 U.S.C. § 125 (2006). Generally, all elements of the highway within its cross section damaged as a direct result of a disaster are eligible for repair or restoration under the ER program. This includes, but is not limited to, pavement, culverts, slopes, embankments, guardrails, bridges and retaining walls. While the ER program funds all elements of the highway system, only elements that are within the highway right-of-way and are necessary to restore the highway to its pre-disaster design are eligible for reimbursement. *See generally* FHWA, EMERGENCY RELIEF HANDBOOK.

¹⁰² FHWA, EMERGENCY RELIEF HANDBOOK at 30.

¹⁰³ 23 C.F.R. § 668.109(d).

¹⁰⁴ *Id.*

¹⁰⁵ *Id.* Environmental review is required by the National Environmental Policy Act (NEPA). Pub. L. No. 91-190, § 102, 83 Stat. 852 (1970).

¹⁰⁶ *Sierra Club v. U.S. Dept. of Transp.*, 664 F. Supp. 1324, 1335 (N.D. CA, 1987), (the Secretary’s finding that it was infeasible to repair Route 1 at Devil’s Slide was not plainly erroneous or inconsistent with the regulation).

¹⁰⁷ *Sierra Club v. U.S. Dept. of Transp.*, 664 F.Supp.1324 (N.D. Cal. 1987), (regulation under federal emergency relief statute prohibits relocation only if repair is technically and economically feasible), *see generally*, FHWA, EMERGENCY RELIEF HANDBOOK.

¹⁰⁸ In almost all cases, it is practical or feasible to replace a damaged facility on its existing location. A state or local government may, however, elect to relocate a facility even though it may be feasible or practical to repair the location in the same facility. If a facility has been damaged repeatedly, or is projected to have a high risk of repetitive damage in the future, relocating the facility rather than repairing may be a cost-effective choice. Relocation of the facility in this situation would be viewed as a betterment for ER funding. As with all other betterments, the state or local government would need to prove that the relocation is economically justified. FHWA, EMERGENCY RELIEF HANDBOOK at 31.

¹⁰⁹ 23 C.F.R. § 771.117(c)(9).

¹¹⁰ 40 C.F.R. § 1508.18, 42 U.S.C. § 4332

analysis and process such as the identification and evaluation of alternatives, disclosure of environmental impacts, public scoping, and a public comment period.¹¹¹ The actual time required to complete an EIS depends on the complexity of the project, potential for environmental harm, size of the proposed action, and the extent of public comment; but some EIS's can take several years to complete.¹¹² In the aftermath of a disaster, the focus of most officials is, understandably, to get the community back up and running quickly. The delay needed to complete an EIS may sway the community to rebuild a facility in place so they can take advantage of the streamlined process offered by CE review. In October of 2012, FHWA issued a Notice of Proposed Rulemaking to evaluate and seek comments on whether their CE process should be amended to include, among other things, the "construction of engineering and design changes to a damaged facility to deal with future extreme weather events and sea level rise."¹¹³ However, CEs may not be the best avenue to proceed with all adaptive projects because resizing or relocating a facility can have significant environmental impacts. Thus, other alternatives, such as Programmatic Environmental Impact Statements could be considered (discussed below).

Opportunities for using FHWA ER funds to adapt

FHWA could provide guidance and technical support to help state and local governments incorporate consideration of climate change in their cost-effectiveness calculus to ensure that state DOTs and MPOs can be reimbursed to rebuild comparable facilities or betterments where necessary to ensure the long-term resilience of assets to future impacts.

FHWA's guidance on using Federal-aid Highway Act funding for adaptation could also serve as a model to other federal agencies on how to analyze federal programs and provide guidance to state and local grantees on whether federal funding can be used to support adaptive projects.

To better prepare to direct funds to projects in the aftermath of a disaster, state DOTs and MPOs could consider the long-term vulnerability of assets in transportation plans. These plans could then be used to prioritize certain assets and plan for how to adapt the transportation system to future impacts in the event of a disaster. State DOTs and MPOs could also consider developing Programmatic Environmental Impact Statements (PEIS) as part of their long-term planning processes. The NEPA process can be used to identify a range of alternatives for adapting transportation facilities such as relocating, elevating, or protecting assets. By conducting this analysis in pre-disaster planning, communities will be in a better position to direct ER funding in the event of a disaster. FHWA could provide guidance and technical support to help state DOTs and MPOs incorporate considerations of climate impacts in transportation plans and other documentation necessary to construct a transportation asset, such as a PEIS.

Public Transportation Emergency Relief Funding

Congress appropriated \$10.9 billion to the Public Transportation Emergency Relief (FTA ER) program through the Sandy Relief Act. The FTA ER was recently created by MAP-21; it allows the Secretary of DOT to reimburse state and local governments for both the operating costs to "reestablish, expand or relocate public transportation route service before, during, and after an emergency," and to provide grants for capital projects to "protect, repair, reconstruct, or replace equipment and facilities of a public transportation system."¹¹⁴ A portion of the funds provided to the FTA ER program can be transferred to other types of transportation projects, such as rebuilding highways under FHWA's ER program (described above).

¹¹¹ 40 C.F.R. § 1506.10 (setting a 90 day time period between EPA publication of notice of availability of draft EIS and the Record of Decision, 30 day time period between EPA publication of notice of availability of final EIS and the Record of Decision, and a 45 day public comment period for a draft EIS).

¹¹² See 40 C.F.R. § 1506.8.

¹¹³ 77 Fed. Reg. 59875 (Oct. 1, 2012).

¹¹⁴ 49 U.S.C.A. § 5302 (West 2013).

Opportunities for using FTA ER funds to adapt

A recent Congressional Research Service report suggests that this authority may provide DOT with flexibility to allow state and local governments to enhance system capacity or resilience when rebuilding with funds under both the FTA ER and FHWA ER programs.

Some transit agencies have proposed that, instead of using ER funding to simply restore infrastructure to its pre-disaster condition by replacing equipment that may be antiquated, they take this opportunity (and funding) to install equipment that makes their system more functional (such as, for example, increasing capacity) as well as more resilient in coping with future emergencies. The new FTA ER Program may provide grantees with this flexibility, as both Congress and recent administrators have provided similar flexibility for the FHWA ER program.¹¹⁵

State Clean Water Revolving Fund

Through the Sandy Relief Act, Congress appropriated \$607.7 million to the Environmental Protection Agency (EPA) for State and Tribal Assistance Grants for capitalization grants: \$500 million for State Revolving Fund (SRF) under the Clean Water Act (CWA) and \$100 million under the Safe Drinking Water Act (SDWA). EPA is directed to provide the funds to states in EPA Region 2 “for wastewater and drinking water treatment works and facilities impacted Sandy.” The funds are to be directed to eligible projects “to reduce flood damage risk and vulnerability or to enhance resiliency to rapid hydrologic change or natural disaster” at these facilities.¹¹⁶

The SDWA authorizes EPA to make grants to states to redress emergency threats to the public water system that present substantial danger to the public health. Grants can be used to support only those actions which “(i) are necessary for preventing, limiting or mitigating danger to the public health in such emergency situation and (ii) would not, in the judgment of the Administrator, be taken without such emergency assistance.”¹¹⁷

The CWA was amended in 1987 to create the SRF, which was design to help communities construct treatment facilities and reduce harmful discharges into surface waters.¹¹⁸ The SRF provides several types of financial assistance to help states construct and upgrade wastewater treatment facilities, including: loans, refinancing of local debt obligations, guarantees, and administrative costs.¹¹⁹ SRF operates like an infrastructure bank; it is capitalized with federal funds and then used to loan money to communities to upgrade facilities. As the loans are repaid, the returns can be used to fund other water quality projects.¹²⁰

Opportunities for using SRL funds to adapt

The language in the Sandy Relief Act specifically authorizes these funds to be used to reduce flood damage and enhance resilience. Additionally, states have wide discretion in how they allocate these funds so long as they meet the priorities established in the enabling statutes. Therefore, it is likely that state and local governments can use these funds to adapt wastewater and drinking water treatment facilities. Additionally, CDBG and PA program funding may also be used to repair these facilities while SRF can be

¹¹⁵ Painter, *supra* note 16, at 29.

¹¹⁶ Sandy Relief Act, tit. 10, ch. 7, 127 Stat. at 31; the Clean Water State Revolving Funds are created by the Federal Water Pollution Control Act (33 U.S.C.A. § 1384) and section 1452 of the Safe Drinking Water Act (42 U.S.C. § 300j-1).

¹¹⁷ 42 U.S.C. § 300j-1 (2012).

¹¹⁸ Pub. L. No. 100-4, 33 U.S.C. § 1381, et seq. (West 2012)

¹¹⁹ 33 U.S.C. § 1383 (West 2012); *see also* Claudia Copeland et al., CRS Report for Congress, RL30478, *Federally Supported Water Supply and Wastewater Treatment Programs* at 20 (Mar. 2010).

¹²⁰ Environmental Protection Agency, *How the CWSRF Program Works*, http://water.epa.gov/grants_funding/cwsrf/basics.cfm.

used to supplement and improve these facilities in light of anticipate climate changes.¹²¹ However, because SRF is often issued through loans, utilities may need to determine how to repay the loans.

SANDY RECOVERY AND IMPROVEMENT ACT OF 2013

Division B of H.R. 152, entitled the “Sandy Recovery and Improvement Act of 2013” (“Sandy Improvement Act”) amends the Stafford Act to reform administrative procedures for allocating disaster relief funds. Many of the reforms were designed to remove bureaucratic hurdles within the Stafford Act that were reported to inhibit recovery after hurricane Katrina.¹²²

- **Sec. 1102** adds alternative procedures for approving PA projects to increase the flexibility of administration, reduce administrative costs, and expedite the provision of assistance to state and local governments.¹²³ The state or local government receiving funds must voluntarily agree to participate in the program. Once they have agreed to do so, FEMA can use alternative procedures to “make grants on the basis of fixed estimates.” The state and local grantees must agree “to be responsible for any actual costs that exceed the estimate.” Additionally, applicants can elect to receive an “in-lieu contribution, without reduction”.¹²⁴ This provision removes the 10 percent reduction in reimbursement rate that applicants previously incurred when opting for an in lieu contribution. Therefore, this provision will provide state and local governments with greater flexibility to redirect PA funds to other projects or use the funds for “cost-effective” mitigation rather than repair a facility in place.¹²⁵ The alternative provisions also allow applicants to consolidate funds from multiple facilities and channel those funds to a single project.¹²⁶
- **Sec. 1104** amends the Hazard Mitigation Grant Program provisions of the Stafford Act (42 U.S.C. 5170c) to add streamlined provisions for conducting environmental review (as required by the National Environmental Policy Act)¹²⁷ and historic preservation review (as required by the National Historic Preservation Act).¹²⁸ These provisions allow FEMA to use “Programmatic Agreements” to allow for the consideration of multiple structures as a group and for analyzing the cost-effectiveness of hazard mitigation projects.¹²⁹ According to the CRS report *Analysis of the Sandy Recovery Improvement Act*, FEMA has submitted a draft “Prototype” to the Advisory Commission on Historic Preservation, but the draft has not been approved. Additionally, the draft Prototype only addresses compliance with historic preservation requirements and “does not address cost-effectiveness and has no influence on any cost-share provisions within FEMA programs.”¹³⁰ Thus, it is unclear how these provisions allowing for review through Programmatic Agreements will be implemented. This section also allows states to administer the HMGP. These

¹²¹ See generally, Copeland, *supra* note 119.

¹²² Brown, *supra* note 33 at 1.

¹²³ Sandy Relief Act, Pub. L. No. 113-2, § 1102, 127 Stat. 4, 40 (2013).

¹²⁴ 42 U.S.C. § 5172(c)(1)(A) (2006), amended by Sandy Relief Act, sec. 428, 127 Stat. at 41.

¹²⁵ Sandy Relief Act, § 1102, 127 Stat. at 41.

¹²⁶ Brown, *supra* note 33 at 12 (The report provides the example that a local government could receive a grant based upon the estimate of reconstructing nine elementary schools, and use that money to build seven bigger elementary schools instead.)

¹²⁷ National Environmental Policy Act of 1969, Pub. L. No. 91-190, § 102, 83 Stat. 852 (1970); see also Brown, *supra* note 33.

¹²⁸ National Historic Preservation Act of 1966, Pub. L. No. 89-665, § 106, 80 Stat. 917.

¹²⁹ “[T]he President may utilize expedited procedures... for the purpose of providing assistance under [Sec. 404], such as procedures under the Prototype Programmatic Agreement of the Federal Emergency Management Agency, for the consideration of multiple structures as a group and for an analysis of cost-effectives and fulfillment of cost-share requirements for purposes of hazard mitigation measures.” Sandy Relief Act, § 1104, 127 Stat. at 43.

¹³⁰ Brown, *supra* note 33 at 17.

provisions for streamlining the allocation of HMGP funds may also alleviate some of the challenges in evaluating the cost-effectiveness of individual projects (as discussed above).

- **Sec. 1105** allows for the creation of independent review panel to arbitrate disputes over eligible assistance between FEMA and state and local applicants.¹³¹ To qualify, the amount in dispute must be \$1 million or more. Similar panels were authorized by the 111th Congress to arbitrate disputes between FEMA and communities impacted by 2005 hurricanes.¹³²
- **Sec. 1106** amends the Stafford Act to allow for a uniform federal review process for compliance with environmental review and historic preservation requirements. The provision allows the President to “establish an expedited and unified interagency review process to ensure compliance with environmental and historical requirements under Federal law relating to disaster recovery projects.”¹³³
- **Sec. 1111** directs FEMA, no later than 180 days after enactment, to “submit to Congress recommendations for the development of a national strategy for reducing future costs, loss of life, and injuries associated with extreme disaster events in vulnerable areas of the United States.”¹³⁴

REFORMS INCLUDED IN SENATE AMENDMENTS TO H.R. 1

In this section we analyze various reforms to the Stafford Act included in the Sandy Disaster Relief Appropriations Bill passed by the Senate as an amendment to H.R. 1 in the 112th Congress on December 28, 2012. Although these reforms were not ultimately adopted in the final legislation, they would have provided state and local governments with even more flexibility to use disaster relief funds to *adapt* public facilities when rebuilding after disasters. These amendments could be used to inform separate legislation to reform some of the remaining barriers in the Stafford Act, described above.

- **Sec. 603** would have required FEMA to consider the costs of complying with enhanced state codes and standards when calculating eligible costs. Specifically, the bill directed FEMA to “consider the eligible costs required to comply with a State’s Stream Alteration General Permit proves, including any design standards required to be met as a condition of permit issuance.”¹³⁵ Arguably this amendment is not needed. The Stafford Act already requires FEMA to reimburse state and local governments to rebuild to updated codes and standards, however this language was inserted to resolve the dispute between FEMA and Vermont after Tropical Storm Irene (described above). This provision would have explicitly required FEMA to reimburse Vermont for rebuilding roads and bridges with larger culverts. Congress could revive and strengthen this language by allowing the FEMA Administrator to modify the eligible cost calculation where necessary to ensure the long-term sustainability of a facility and to specifically require FEMA to consider climate change in its cost-effectiveness calculus.
- **Sec. 604** would have allowed the FEMA Administrator to increase the federal cost share for permanent work under the PA program.¹³⁶ H.R. 152 does not provide the Administrator with

¹³¹ Sandy Relief Act, § 1105, 127 Stat. at 44.

¹³² American Recovery and Reinvestment Act of 2009, Pub. L. No. 111-5, § 601, 123 Stat. 115, 165.

¹³³ Sandy Relief Act, § 1106, 127 Stat. at 45-46.

¹³⁴ *Id.*, § 1111, 127 Stat. at 49-50.

¹³⁵ Senate Amendments to H.R. 1, 112th Cong., tit. VI, § 603 (Dec. 28, 2012).

¹³⁶ *Id.* at § 604.

Notwithstanding any other provision of law, the Administrator of [FEMA] may recommend to the President an increase in the Federal cost share [*or modify*] of the eligible cost of permanent work under Section 406 ... of the [Stafford Act] for damages resulting from Hurricane Sandy without delay.

(see proposed language below):

authority to increase the federal cost share, so federal cost share will be 75 percent for most PA projects.

- **Sec. 605** would have created a pilot program to allow for the relocation of state facilities out of disaster prone areas. Congress could strengthen this provision by applying it to all public facilities.¹³⁷
- **Sec. 1104** would have directed federal agencies, in partnership with state, tribal and local governments, to “inform plans for response, recovery, and rebuilding to reduce vulnerabilities from and build long-term resiliency to future extreme weather events, sea level rise, and coastal flooding.” With respect to “repairing, rebuilding or restoring infrastructure and restoring land, project sponsors shall consider, where appropriate, the increased risks and vulnerabilities associated with future extreme weather events, sea level rise and coastal flooding.” Section 1104(b) would have made funds available for the development of “regional projections and assessments of future risks” to help improve these plans.
- **Sec. 1105** would have required HUD to issue guidelines on how recipients of federal funds for reconstruction should “to the greatest extent practicable ... maximize the utilization of technologies designed to mitigate future power outages, continue delivery of vital services and maintain the flow of power to facilities critical to the public health, safety and welfare.”

CONCLUSION

Disaster relief funding presents an opportunity for state and local governments to rebuild in a manner that anticipates and responds to future changes in the climate. In most cases, the programs funded through disaster relief appropriations, such as the Sandy Relief Act, provide administering agencies with enough authority to allow for adaptation during the rebuilding process. Based upon the above analysis, we have identified the following potential opportunities that different entities could use to direct disaster relief funds to adaptive projects:

- FEMA could use its authority to “modify” eligible costs or to allow for hazard mitigation under the PA Program to more specifically allow for improvements to public facilities that will increase their long-term resilience to impacts from climate change.
- FEMA could change its method of calculating “cost-effectiveness” to greater account for the long-term threats to facilities posed by climate change.

For purposes of modifying eligible cost estimates for permanent work under Section 406, the President may determine that the eligible costs shall include reasonable additional costs needed to repair, restore, reconstruct, replace or relocate a public facility in a manner that will reduce the risk of future damage, hardship or suffering from a major disaster in consideration of the best available science regarding future changes in sea levels, precipitation, and storm intensity.

¹³⁷ *Id.* at § 605. [emphasis added].

In administering the funds made available to address any major disaster ... the Administrator of [FEMA] shall establish a pilot program for the relocation of State facilities under section 406 of the [Stafford Act], under which the Administrator may waive or specify alternative requirements for, any regulation the Administrator administers to provide assistance, consistent with [NEPA], for the permanent relocation of *State facilities* ... that were significantly damaged as a result of the major disaster, are subject to flood risk, and are otherwise eligible for repair, reconstruction, or replacement under section 406 of that Act, if the Administrator determines that such relocation is practicable, and will be cost effective or more appropriate than repairing, restoring, reconstructing, or replacing the facility in its pre-disaster location, and if such relocation will effectively mitigate the flood risk to the facility.

Congress could strengthen this language to establish this pilot program for all *public* facilities, not just State facilities.

- Other federal agencies could consider including criteria when issuing grants (similar to those applied by HUD in administering CDBG funding) to encourage communities to assess the long-term vulnerabilities of projects that will be funded with disaster relief.
- FHWA and FTA could consider the entire design life of a facility when reimbursing state and local governments, which may permit these agencies to allow for improvements that strengthen the resilience of the facility to future impacts during the rebuilding process.
- State and local governments could use CDBG funds or HMGP funds to make up the cost difference needed to adapt facilities.
- State and local governments can use SRF funds to improve wastewater and drinking water treatment facilities.
- State and local governments can prepare for future disasters by enacting codes and standards that require public facilities to be constructed to higher standards.
- State and local governments could work with entities that develop design standards or model codes (such as AASHTO and ICC) to assist them in devising higher standards for the construction of certain facilities.
- State and local governments can prepare for future disasters by incorporating consideration of climate change in hazard mitigation plans.

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