WHITE PAPER

Housing Resilience: Best Practices for States on Resilient Planning & Recovery

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Introduction

Many states face dual challenges in ensuring a more resilient housing sector: hurdles in standing up a disaster recovery program, and gaps in near- and long-term actions that could lead to more resilient housing stock. That was the key takeaway from a January 2019 Experts Roundtable on Enhancing Housing Resilience, hosted by the National Governors Association (NGA), in conjunction with the Institute for Building Technology and Safety (IBTS). The roundtable gathered two dozen state, federal, nonprofit and research experts for a day-long examination of policies and actions to improve the resilience of the nation's housing stock (both damaged and unharmed) and discussion of ways states can optimally structure the administration of federally supported mitigation programs, including how to build resilience into planning processes before a disaster strikes. The knowledge gained from this roundtable is summarized in this white paper.

Despite enhanced state preparedness, including guidance and training from NGA, damages from natural disasters have been increasing substantially in recent years. In 2017, the United States saw 16 disasters with damages exceeding $1 billion each, with cumulative disaster damage in excess of $305 billion, the highest amount ever recorded in the United States. **(Image 1)** NOAA records show that four of the five years with the highest cost of damages from natural disasters have occurred since 2010, with the other year being 2005.[1] **(Image 2)** This trend is predicted to continue as weather patterns become more intense.[2]

As damages continue to occur, states will be called upon to respond. The lesson learned from the past few years is that governors need to do even more to improve the resilience of their critical infrastructure and enhance preparedness in the event of an emergency or disaster. This entails mitigating the impacts that result from disasters, for

[1] https://www.ncdc.noaa.gov/billions/overview
[2] https://nca2014.globalchange.gov/highlights/report-findings/extreme-weather

instance avoiding the loss of power, housing and transportation, and enabling more resilient recovery when a disaster strikes, such that power, housing and transportation, for instance, are more quickly restored.

The federal government is a key partner for states in disaster recovery through various funding mechanisms. With deadly and expensive disasters occurring more frequently, the federal government has had to provide more recovery funding to state and local governments. A significant portion of the federal funding has been directed toward repairing damaged housing stock, especially in the form of Community Development Block Grants - Disaster Recovery (CDBG-DR) administered by the federal Department of Housing and Urban Development (HUD). Recent disaster recovery packages have complemented CDBG-DR funds with additional funding that "plussed up" existing accounts, such as Pre-Disaster Mitigation Funds (PDM) and the Hazard Mitigation Grant Program (HMGP) made available by the Federal Emergency Management Agency (FEMA).

States should consider how they may need to reorient, reorganize and reeducate their agencies to successfully deploy federal resources intended to mitigate future damages. First, states will want to be aware of whether the agencies administering CDBG-DR grants, which come with unique regulations and requirements, are not the lead agency during emergency response efforts. If not, grant administrators will need to be brought into the discussion before federal funding has been awarded to avoid or limit delays in the administration of recovery funds, or misalignment of priorities. States also may need to provide cross-agency support and training where a new agency lacks the experience or capacity to administer long-term disaster recovery programs. In addition, separate agencies may administer the FEMA grant programs that are intended for mitigation pre- and post-disaster; they will need to work together to ensure alignment of resilience investments. The federal government also could help with training of those responsible for administering CDBG-DR funding, directly or via various national organizations (which is similar to the extensive training for state emergency managers who are responsible for disaster response).

States also need to develop a strategy for how best to respond to the public demand for rapid recovery and accelerated deployment of funds following a disaster. While "speed to the need" is a justifiable approach, it may hinder sensible but someone more lengthy steps that could ensure damaged or at-risk housing is rebuilt or retrofitted to be more resilient and thus be more cost-effective, valuable and serviceable in the long term.

This paper contains additional insights into these lessons learned. It also includes an overview of the recovery programs of two states that participated in the Experts Roundtable -- Connecticut and North Carolina – whose extensive experience to stand up programs in the wake of disasters that struck their states in 2012 and 2016/2018, respectively, can help inform other states. Finally, the paper explores solutions to reduce future damages to housing and recover costs from disasters, particularly as those events become more frequent and severe.

Image 1 (https://www.climate.gov/news-features/blogs/beyond-data/2018s-billion-dollar-disasters-context)

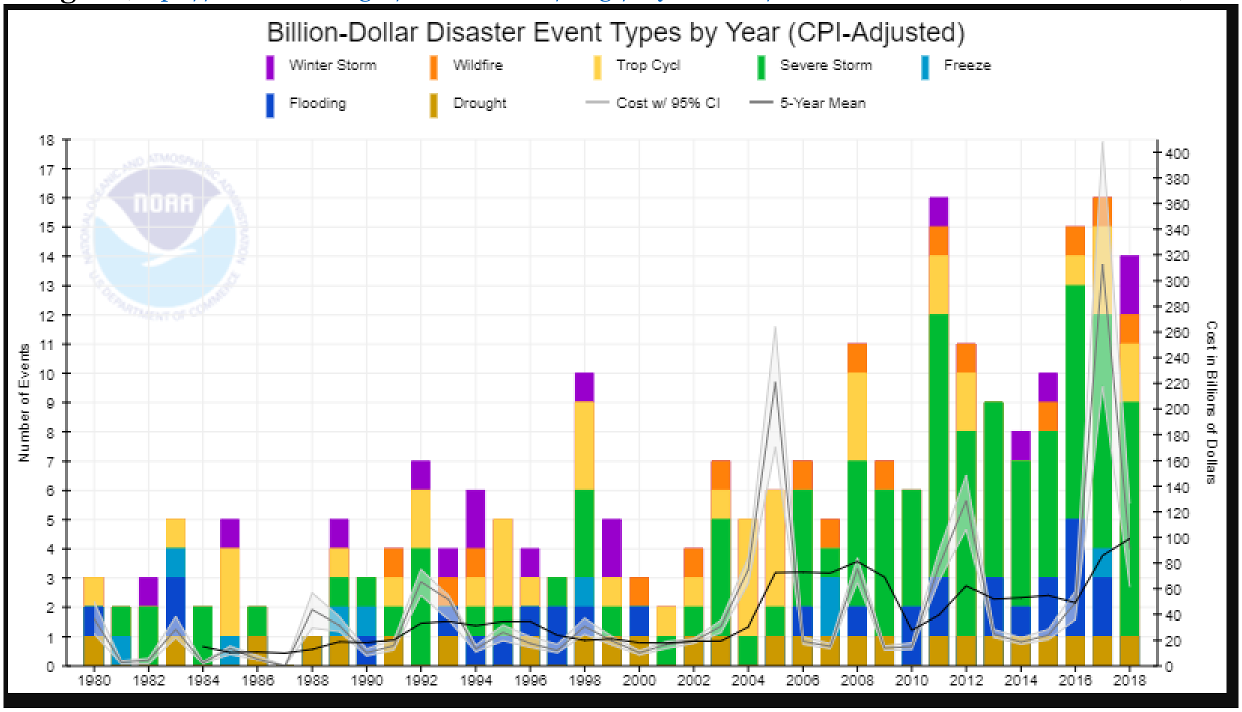
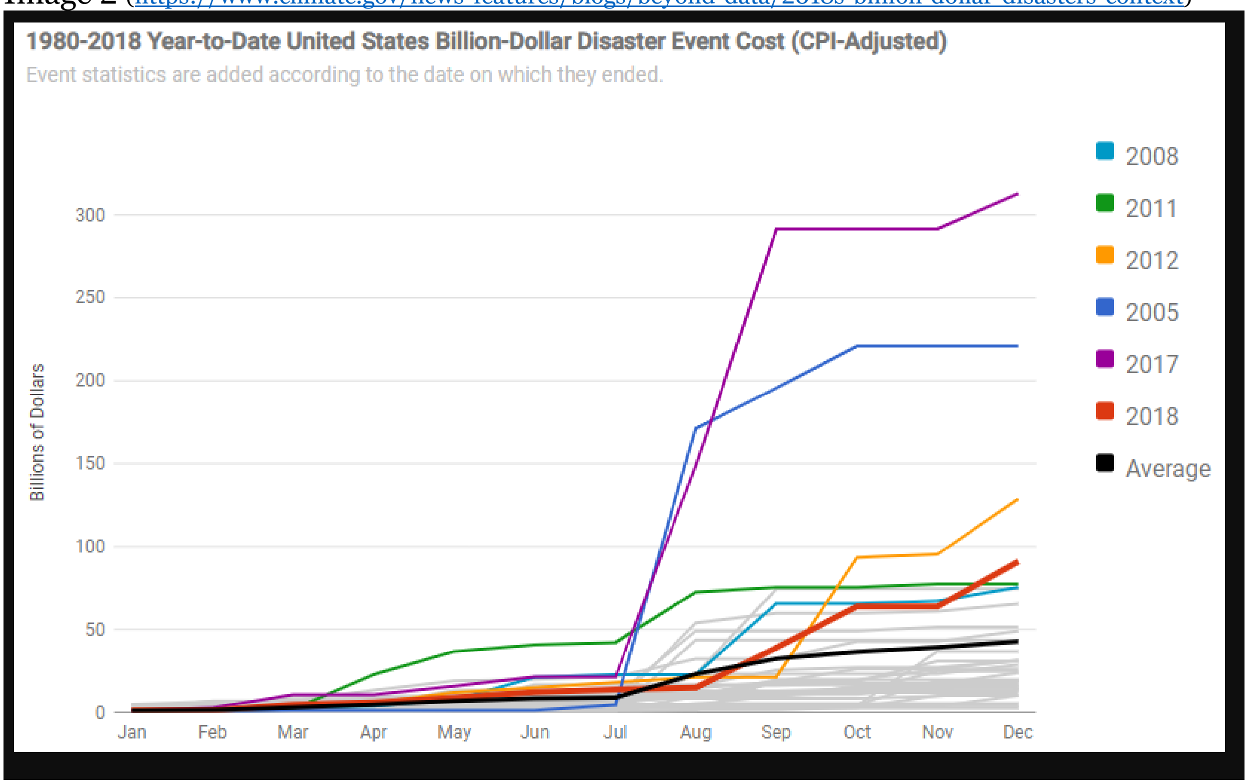


Image 2 (https://www.climate.gov/news-features/blogs/beyond-data/2018s-billion-dollar-disasters-context)



Leading Federal Recovery and Resilience Resources

The federal government has numerous resources available for state and local governments to mitigate future damages and improve the resilience of their communities, and the availability only increases following a disaster. The Expert Roundtable focused on two of the largest federal funding programs that can be used by states to restore damaged housing stock and mitigate future damage to homes: HUD's CDBG-DR and FEMA's HMGP.

CDBG-DR

In response to major presidentially declared disasters, Congress has included significant funding beyond the traditional support for immediate emergency response in several disaster aid packages. This supplemental funding to rebuild disaster-impacted communities often has been apportioned through the CDBG-DR program. CDBG-DR funds are administered through HUD and can support a wide range of measures for long-term disaster recovery, generally supporting: Housing, Restoration of Infrastructure, Economic Revitalization, and Administration & Planning.

Unlike FEMA funds, which are standing funding programs with policies and procedures in place, CDBG-DR must have protocols established by HUD through a posting in the Federal Register. In addition, funding is not guaranteed to communities impacted by disasters; HUD determines eligibility for CDBG-DR grants based on documented unmet recovery needs. Once HUD awards funds, the grantee, CDBG-eligible states or units of local governments, are tasked with preparing action plans and administering their own programs within the confines of the policies and procedures established for this disaster appropriation. Some recent supplemental appropriations have included specific deadlines established by Congress for the use of the CDBG-DR funds.[3]

HMGP

FEMA's HMGP is a well-known program that has been administered for many years by eligible entities (states, territories and tribes). Following a presidential disaster declaration, eligible entities receive funding to implement mitigation efforts through the course of their recovery, with the goal of enhancing protections in the event of future disasters. Unlike CDBG-DR, HMGP is a standing-program authorized under Section 404 of the Robert T. Stafford Disaster Relief and Emergency Assistance Act (Stafford Act). Project eligibility is broad, but includes acquisition and demolition, elevations, flood mitigation, the development of community hazard mitigation plans, retrofit of existing buildings, and much more.

In many cases, state emergency managers are the parties responsible for the administration of HMGP funding, and are responsible for administering funds and prioritizing and selecting projects based on their own internal criteria. However, FEMA does establish some project requirements, specifically that an eligible project must: conform to local and state hazard mitigation plans, be technically feasible, demonstrate cost effectiveness, and be located in a community that is in good standing as part of the National Flood Insurance Program if the disaster was flooding-related. FEMA will cover up to 75 percent of the project cost, with the rest to be covered by the project sponsor.[4]

[3] https://www.hudexchange.info/programs/cdbg-dr/
[4] https://www.fema.gov/hazard-mitigation-grant-program

State Challenges Administering Federal Resilience Funds

Through the course of the roundtable, attendees raised numerous challenges faced by states in successfully administering federal resilience funds. A few common challenges can be traced back to limited experience with the federal programs, outdated building codes and issues with interagency coordination, among others.

Need for Greater and Quicker Clarity on Rules and Regulations
Immediately following the enactment of a supplemental disaster appropriations act, HUD will begin to work on providing states, cities, counties and tribal entities with guidelines and information necessary to establish their own CDBG-DR program procedures. Each CDBG-DR allocation method is published by HUD in the Federal Register, often many months after the passage of the legislation. The Federal Register notice is the only place that contains information on eligible activities, program requirements and any specific waivers.[5] The delay in publishing the Federal Register notice leads to uncertainty and hesitation by states to hire the staff or contractors necessary to administer the CDBG-DR program.

Complexity of the Funding Environment
With no fewer than 19 post-disaster potential sources of funding from federal agencies, all with their own funding cycles, timelines and requirements, there is an immense administrative burden just to find and access the correct constellation of funding, let alone successfully administer the funds. States routinely bring up funding complexity as a barrier and a means for long delays on closing out projects and funding apportionments.

Limited State Experience with CDBG-DR
CDBG-DR exists as a program only when Congress passes supplemental disaster appropriations. Unless a state or territory has previously been impacted by a disaster designated to receive supplemental disaster assistance, state governments generally do not have experience administering a CDBG-DR program. While state do have dedicated and professional staff responsible for administering the standard Community Development Block Grant (CDBG) program, professionals experienced in CDBG-DR program guidelines are not common in state governments across the country.

Need to Coordinate Administration of CDBG-DR and FEMA Funds
When a state is awarded CDBG-DR funding in response to a disaster, the state also will receive FEMA HMGP and other mitigation funds provided for under the Stafford Act, such as Pre-Disaster Mitigation. The lead agency responsible for administering CDBG-DR funding may not always be the same agency responsible for administering FEMA mitigation funding, which can impede coherent strategies on improving the resilience of the housing stock. State agencies may not have the same strategy to effectuate a resilient recovery, and even federal agencies may not coordinate actions 100 percent of the time despite best efforts to avoid duplication of benefits.

Balancing Support for Vulnerable Populations
CDBG-DR is well suited to help states support vulnerable populations by its very nature of funding documented unmet recovery needs. In addition, the program staff with experience administering the CDBG program often have knowledge of the community partners working to protect vulnerable populations. However, there may be pressure from those impacted by the disaster to distribute recovery funds irrespective

[5] https://files.hudexchange.info/resources/documents/CDBG-DR-Fact-Sheet.pdf

of the needs of the individual citizens. How to equitably structure a resilient housing recovery program that supports those most vulnerable to future disasters is a growing challenge as CDBG-DR continues to be utilized by the federal government for disaster recovery.

Finding the Goldilocks Zone: Not too Fast, Not too Slow

Following a disaster, state leaders face significant pressure to expedite the allocation of funds to help individuals rebuild and get them back into their homes as quickly as possible. At the same time, there is sometimes pressure from Congress and the federal government to obligate funding quickly, at the risk of funds being rescinded or withheld from the state government. While no one wants to see families displaced, it may sometimes make more sense to take a more deliberative approach to the use of federal funds post-disaster. Integrating resilient practices into a recovery process may slightly delay the repair of housing damaged during the disaster, but it will make the community safer when the next storm hits.

Opposition Toward Property Acquisitions and Buyouts

In many communities that are reliant upon property taxes to support local services, a disaster can devastate local finances if the real estate market is severely impacted. While both CDBG-DR and HMGP funds can be used by the government to acquire property and buy out homes to create open space for flood mitigation purposes, there may be local opposition to such measures despite the proven resilience benefits. Without replacement or alternative revenues, communities reliant upon property taxes generated by those homes and parcels will see a depreciation of tax revenue, which in turn will require the community to make difficult budget decisions. While buyouts were used more heavily in the wake of 2012's Superstorm Sandy, the local impact continues to be one of the main hindrances to successful geographically contiguous buyout programs.[6]

Outdated Building Codes and Inadequate Compliance

A final challenge is the prevalence of housing that does not meet modern building codes. This can be attributed to the reliance of governments on outdated building codes, often a result of delays in the adoption of updated building codes, and the lack of requirements for property owners to bring a property up to code unless they are making substantial improvements to the property.[7] With the availability of modern storm-safe windows and roof protections, and newer building codes often requiring homes in flood plains to be built higher than in the past, the existing housing stock could benefit from upgrading to meet new building codes. Unfortunately, a large portion of the housing most at risk to flooding, wind and fire damage, is often grandfathered in to outdated building codes. In addition, even where updated building codes are in effect, compliance often is a problem. States need to ensure that adequate funding is available for inspections, compliance and code enforcement .

Case Study: Post-Disaster Recovery Management Best Practices in Connecticut

On Oct. 29, 2012, Superstorm Sandy (Sandy) made landfall near Atlantic City, New Jersey, and wreaked havoc along the shore on its journey north. While Connecticut did not suffer the amount of damage incurred by New York and New Jersey, the immediate effects of the storm on Connecticut resulted in the deaths of six residents and widespread wind and flood damage to homes, businesses and infrastructure. More than 650,000

[6] https://www.pewtrusts.org/en/research-and-analysis/blogs/stateline/2015/12/03/rising-tide-of-state-buyouts-fights-flooding
[7] https://www.habitatmag.com/Publication-Content/Building-Operations/2018/2018-May/Outdated-Code

residents lost power and many waited longer than a week for their power to be restored. In addition, many homes were rendered uninhabitable and a number of residents waited a couple of years to return to their homes.

Prior to suffering from the impacts of Sandy, Connecticut faced similar damages from Tropical Storm Irene in 2011. In response, then-Governor Dannel Malloy's administration took steps to strengthen the "Unified Command" concept within the state emergency management system, through the State Response Framework, including the creation of a State Disaster Recovery Framework (SDRF). Under the SDRF, the Long-Term Recovery Committee was launched as one of the Recovery Support Functions. The Long-Term Recovery Committee continues to meet and is chaired by agency staff from outside the emergency management functions of government, and includes four subcommittees that include local, state, federal and nonprofit experts.[8]

The Long-Term Recovery Committee provided a platform for state officials to quickly establish the Connecticut Superstorm Sandy Interagency Funding Working Group (CT Working Group) as soon as Congress ultimately passed, and the president signed, a disaster supplemental appropriations act in January 2013 (PL 113-2). The CT Working Group, made up of staff from various state agencies and chaired by the deputy commissioner for emergency management and homeland security, evaluated all applications received for HMGP, Pre-Disaster Mitigation and Flood Management Assistance funding under the supplemental appropriations provided to the state under PL 113-2. The existence of the CT Working Group allowed the agencies and Gov. Malloy's office to ensure there was no duplication of benefits between the FEMA-funded projects and the projects selected under CDBG-DR, and avoided any complications flagged by experts representing their respective agencies.

When the state was notified it would receive more than $70 million in funding through CDBG-DR, Gov. Malloy relied on the state's CDBG administrator, the newly created Department of Housing (DOH), to take the lead on the crafting of an action plan in response to the Federal Register notices published by HUD in March and April 2013. DOH faced the immediate task of having to not only craft a state action plan[9] that would indicate how the CDBG-DR funds would be expended, but also had to hire additional staff to assist in the management and administration of the CDBG-DR program.

DOH made decisions during the crafting of the state action plan that attempted to not only support vulnerable populations, but also attempted to balance the pressure from displaced homeowners to expedite the distribution of funds while preventing fraud and abuse. Of the more than $70 million initially awarded to the state, $30 million was designated for owner-occupied housing rehabilitation, and $26 million was set aside to repair or replace multi-family housing. This ratio assisted DOH in meeting its target of at least 50 percent of funding benefiting low-to-moderate income individuals.

Perhaps the most significant approach DOH took toward the administration of the CDBG-DR program was the structure of the design and construction management process. DOH contracted directly with architects, engineers and construction managers to conduct the inspections, design the projects, oversee the bid processes, and participate in approving all payment requisitions. DOH accomplished this through a three-party contract approach, which gave the department the necessary authority to deal directly with the contractors when problems arose. This approach toward home repairs, rather than providing homeowners

[8] https://www.ct.gov/ctrecovers/cwp/view.asp?a=4498&q=528634
[9] https://portal.ct.gov/-/media/DOH/Sandy_Relief_Docs/AP-CDBG-DR.pdf?la=en

with direct funding to hire their own contractors, resulted in slightly slower disbursement of federal funding; however, it ensured that the state was able to meet the federal goal of protecting homeowners, taxpayers and the state from fraud, waste and abuse.

Case Study: North Carolina's Agency Restructuring to Coordinate Recovery and Resilience

Similar to Connecticut, which still was recovering from Hurricane Irene when Superstorm Sandy struck the state, North Carolina was implementing hazard mitigation changes in response to 2016's Hurricane Matthew when Hurricane Florence hit the state two years later. In response to these two storms, North Carolina accelerated already significant attempts to restructure recovery and resilience efforts and stood up programs to directly assist county governments and homeowners facing unsafe dwellings.

Hurricane Matthew hit North Carolina in early October 2016, with the largest impact across the Carolinas being flooding from historic rainfall. Twelve to 18 inches of rain fell over portions of interior North Carolina, occurring at the end of what already was an abnormally wet period. Hurricane Matthew was responsible for the deaths of 31 individuals in North Carolina and caused more than $4.5 billion in damages across the state. Less than two years later, Hurricane Florence hit the state in September 2018, with upwards of 35 inches of rain falling in portions of the state. The historic rainfall and ensuing flooding resulted in the death of 46 individuals in North Carolina, and total damages in the state exceeded $17 billion.

Following the catastrophic storms that hit the state, the state created programs to directly help local governments cope with the financial burden of the lengthy recovery process, and better prepare for the future. One such program is the "State Grant Program for Financially Distressed Local Governments," which provides grants of up to $1 million to eligible local governments to assist with routine operating expenses and administrative support costs incurred through their local disaster recovery efforts. In addition, the state established the "State Revolving Loan for Temporary Cash Assistance to Local Governments," which provides no- interest loans of up to $2 million to assist eligible local governments in paying for disaster-related expenses while awaiting reimbursement from various federal disaster recovery resources or programs. Lastly, to encourage a locally led resilient recovery process, the state facilitated the creation of resilient redevelopment plans for the 50 counties impacted by Hurricane Matthew.[10]

In response to lessons learned from other disasters, where citizens were displaced from their homes for significant periods of time awaiting repairs, North Carolina's Department of Public Safety participated in FEMA's STEP (Sheltering and Temporary Emergency Power) program following Hurricane Florence. STEP was launched to provide basic, partial repairs to make homes safe, clean and secure to help North Carolina homeowners with minor damage from Hurricane Florence get back in their homes quickly and remain while longer-term repairs continue.[11] This approach allows people to return to work and school in their communities avoiding disruptions to their lives and livelihoods.

Governor Roy Cooper worked not only to protect local governments and those displaced by the storms, but also to to coordinate recovery and resilience at the state level. The governor worked with the General Assembly

[10] https://www.rebuild.nc.gov/resiliency/hurricane-matthew-resilient-redevelopment-plans
[11] https://www.ncdps.gov/florencestep

to create the new Office of Recovery and Resiliency within the Department of Public Safety, and tasked it with administering the CDBG-DR funding for Hurricanes Matthew and Florence.[12] By establishing the office with dedicated staff focused on improving resiliency within the Department of Public Safety, the state will be able to institutionalize processes with trained employees should another significant recovery be required in the future. The structured partnership alongside the North Carolina Emergency Management team will also allow for smarter, more resilient and better coordinated decisions on the distribution of future CDBG-DR and HMGP funds.

Key Takeaways: What Governors Can Do to Protect Against Future Damage

Throughout the Experts Roundtable, numerous best practices and key takeaways emerged. These actions could be put in motion by governors, in the short, medium and long term, to make their state and the housing stock more resilient in the face of more frequent destructive natural disasters.

During Blue Skies:

- State and local agencies should hold interagency response and recovery planning meetings in advance of any disaster, and hold them routinely, to ensure "business cards are not exchanged during a disaster." Through this effort, the governor can ensure working relationships among emergency managers, CDBG administrators, state insurance commissioners, state and local recovery planners, community and urban planners, as well as nonprofit organizations that mobilize in response to disasters.

- Governors should consider creating the position of Chief Resilience Officer[13] in a senior place within the gubernatorial policy office, or restructuring state agencies to elevate the importance of resilience. Institutionalizing resilient recovery processes with a dedicated trained recovery staff can help to ensure a coordinated government approach to the deployment of mitigation funding.

- A disaster can hit without warning and will require immediate response from the governor and state emergency managers. It is important for gubernatorial staff to know all specific executive authorities in advance of a disaster to avoid having to do legal research amid a crisis. It is equally important for newly elected governors and their transition teams to have disaster plans ready and thought out prior to inauguration.

- The state also should prepare a list of pre-qualified contractors before any disaster hits, whether to help administer the recovery program or carry out architectural, engineering and construction management tasks including immediate debris removal.

[12] https://www.ncdps.gov/news/press-releases/2019/01/03/nc-office-recovery-and-resiliency-names-key-leaders
[13] Five states have a dedicated staffer or office focused on resilience: Colorado (https://www.coresiliency.com/), New Jersey (https://nj.gov/gorr/resiliency/), North Carolina (https://www.rebuild.nc.gov/resiliency), Oregon (https://www.oregon.gov/newsroom/Pages/NewsDetail.aspx?newsid=1122), Virginia (https://www.governor.virginia.gov/media/governorvirginiagov/executive-actions/ED-24-Increasing-Virginias-Resilience-To-Sea-Level-Rise-And-Natural-Hazards.pdf).

- Building codes should be examined, updated and enforced so as to ensure the most modern and protective enhancements are applied to the state's housing stock. In addition, the state should take steps to examine the siting of existing housing for vulnerable populations and whether they are subjected to higher risks during various disaster response and recovery scenarios.

- State emergency managers should develop robust data management systems in advance of any disaster so that the state has the most relevant and up-to-date data available to it. The data holders or managers from various state agencies should be included in emergency operation center drills and scenarios to ensure effective handoff and analysis of data.

- With the passage of the federal Disaster Recovery Reform Act in 2018, which will increase the authorized amount of FEMA mitigation funding and change how it is administered, states should begin to plan for how they will apply for and use any DRRA Pre-Disaster Mitigation that will be made available. This includes beginning to share information across sectors within state government and building a team that will be ready to respond to the new mitigation funding guidance.

During the Recovery Process:

- If the state lacks trained staff capacity following a disaster, it should look to supplementing with outside nonprofit organizations with experience administering FEMA mitigation projects and CDBG-DR programs at the state and local level. The state also should examine where sufficient capacity exists for the administration of some recovery programs to be delegated locally.

- States should consider prioritizing affordable housing when structuring recovery action plans. Citizens residing in affordable housing face many hardships during the recovery process, and in many cases the affordable housing lost during a disaster is not replaced. States should work with nonprofits and experts prior to a disaster to examine how they can improve the affordable housing stock and make it more resilient, as affordable housing built in the past was often sited in at-risk locations without the many resilient measures that may now be available.

- Protections for renters could be considered during the recovery process to avoid price gouging. States could put in place moratoriums on rent increases by landlords in the wake of a disaster and during a recovery program.

- The state should look to the PACE model for financing resilience improvements that homeowners would like to make, not only during the recovery process but also during safe periods, in order to mitigate future damages. PACE financing, or Property-Assessed Clean Energy financing, allows individuals to defer the upfront costs for energy efficiency or renewables energy projects, as well as retrofits and resilience improvements. The PACE loans are defrayed by additional assessments on the property owner's property taxes over an agreed-upon time period.

Once the State is Back on its Feet:

- The working groups (such as Long-Term Recovery Committees) established before a disaster and during a recovery process should continue after the conclusion of the recovery program so as to exercise muscle memory when next disaster hits.

- The state, by including the insurance commissioner in the recovery process, could work with the insurance industry to reduce premiums for those who have applied resilient improvements. The application of resilient enhancements can cost slightly more than less-protective measures, so insurance premium savings can help offset the cost burden.

Conclusion

With natural disasters occurring more frequently and with greater intensity, the need to improve the resilience of our states is expected to increase. A variety of actions can be taken to better protect citizens and enhance the resilience of the nation's housing stock before and after a natural disaster. The steps taken by Connecticut to protect vulnerable homeowners and taxpayers, and its establishment of a standing interagency task force to cross-examine mitigation projects, are decisions that can be replicated in other states. North Carolina's creation of programs assisting local government finances during a recovery, and the establishment of the Office of Recovery and Resiliency, will have significant benefits for the state and the communities. These examples and other knowledge gained from this roundtable revealed that many states will likely face challenges in trying to administer a disaster recovery program, but based on lessons learned to date, there are many near- and long-term actions states can take to achieve a more resilient housing stock.