Smart Growth America
Making Neighborhoods Great Together

GOVERNORS' INSTITUTE
on community design

Building Resilient States
A Framework for Agencies

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Preface

Where and how communities grow and build homes, transportation, and other infrastructure is likely not at the forefront of most disaster preparedness agencies' agenda. Yet a community's decisions about land use and transportation have significant impacts on how resilient it can be in the face of disasters.

This document is intended to introduce and integrate land use and transportation issues into states' conversations about resilience. Disaster preparedness professionals can use it to understand how strategic decisions about land use and transportation can build communities that are more resilient from the ground up.

The recommendations in this Framework were informed by the Governors' Institute on Community Design, with support from the U.S. Environmental Protection Agency (EPA), which has worked conducting resilience policy workshops with various states. It was also informed by the 2014 State Resilience and Economic Growth Summit, which brought together 126 representatives from 26 states to discuss ways to improve resilience, and featured national expert panels on vulnerable populations, resilience as economic development, state leadership, and building state-local partnerships as well as presentations by representatives from EPA, the Federal Emergency Management Agency, the U.S. Department of Housing and Urban Development, and the National Oceanic and Atmospheric Administraiton on federal resilience resources and initiatives.

Smart Growth America is a national expert on land use, development, and transportation as they relate to resilience and economic growth. We are available to help your state implement any or all of the strategies outlined here. Visit smartgrowthamerica.org/resilience to learn more.

Introduction

Storms, floods, droughts, landslides, and wildfires have affected thousands of individuals, families, businesses, and communities across the United States in recent years. 2012 stands out as particularly devastating, with Hurricane Sandy killing 117 people[2], displacing approximately 776,000 residents in the Northeast region[3], and causing an estimated $50 billion in damages.[4] While Sandy received much attention, a total of 28 states had federal major disaster declarations that year: floods impacted thousands of people in New Mexico and Vermont; wildfires wreaked havoc on communities in Montana, Oklahoma, and Colorado; tornados destroyed small towns in Kansas, Tennessee, and Indiana; and Hurricane Isaac slammed into the Alabama, Mississippi, and Louisiana coasts. In addition, there were many other disasters, emergency declarations, fire management situations, and other significant events that did not qualify for a Presidential declaration. And unfortunately, the frequency and severity of extreme weather events is only expected to increase in years to come.[5]

States have a unique stake in disaster preparedness and recovery. Disasters can cost states billions of dollars, and they are always a crucial player in post-disaster clean up and recovery efforts. Yet the states vary widely in their readiness to face disasters. States could save a lot of time, money, and lives by being better prepared. Rather than focusing solely on disaster recovery, states can and should plan for long-term resilience to natural disasters and adapt to a changing environment. States can influence this in a number of ways:

What is resilience?
Resilience is the capacity of individuals, communities and systems to survive, adapt, and grow in the face of stress and shocks, and even transform when conditions require it.[1] This document focuses on shocks and stresses resulting from natural disaster, but resilience is a concept that applies to economic, social and other shocks as well. Done well, preparing for natural hazards will also help to prepare for these other types of disruptions and will create an infrastructure that can be used pro-actively to address economic and social resilience preparedness.

- Play a significant role in deciding how and where development occurs;
- Establish guidelines for local land use plans;
- Design, build, and fund critical infrastructure, such as roads, utilities, and water systems;
- Fund and approve the siting of hospitals, schools, and state government buildings and facilities;
- Set guidelines for construction of state-subsidized housing;
- Control conservation funding and oversee environmental remediation;
- Provide tools and expertise, such as hazard mapping and long-term planning capacities, to local governments;
- Disburse federal resources; and
- Build local capacity and commitment to disaster resilience.

These activities represent an enormous opportunity for states to improve their resilience in the face of disaster. Governors can move to ensure that these and other state actions not only carry out

their intended purposes (economic development, transportation infrastructure, improved housing, etc.) but also contribute to a state's overall resilience and long-term economic and social well-being.

Ideally, every state action and program should be assessed through the lens of resilience, and resilience should factor into all government decision-making. This approach is so broad, however, that it can lead to paralysis. In addition, not all state actions have equal importance when it comes to their impact on resiliency. From a practical standpoint, governors and their administrations can make significant advances by focusing on a discrete number of key actions and programmatic areas:

1. Put someone in charge
2. Seek the advice and expertise of partners outside state government
3. Integrate future risks into a state Hazard Mitigation Plan and land use policy
4. Ensure that state investments do not increase vulnerability
5. Develop strategies to address assets that are already in high-risk areas
6. Help communities become more resilient
7. Develop a process for monitoring, measuring, and reporting on progress

This Framework provides governors and their administrations specific advice on how to undertake each of these initial steps, as well as examples of successful implementation of each. Every state can learn from these ideas to bounce back more quickly and emerge stronger from disaster.

A Framework for State Leaders

Governors and their administrations can help their state be more resilient by taking action in seven key areas. This section provides more detail about those steps.

1. Put someone in charge

At the initial stages, states must ensure that their resilience efforts are coordinated across agencies and decision-making bodies. To do this, there must be a clear, central authority on state resilience with the capacity to work with and influence state agencies, local governments, and other stakeholders.

Creating an executive office of resilience or similar authority within the governor's administration sends a clear message that resilience is a state priority. Having a central coordinator for state resilience is also key to convening the many state agencies that impact resilience through their investments, programs, and infrastructure projects. To be successful, this authority must have a clearly articulated mandate from the governor and a strong leader who will make state resilience his or her top priority and responsibility. Putting someone in charge is the first step towards greater resilience.

Specific steps

1.1. Create a central authority to coordinate state's resilience efforts
There are different mechanisms that governors can use to ensure integration and coordination across agencies. Among the most effective strategies is to establish an executive office of resilience or to create a sub-cabinet focused on resilience. While these two options essentially serve the same purpose through different means, there may be specific political or organizational benefits and challenges for each. In some cases it may be beneficial to establish both an executive office and a sub-cabinet, where the office serves as the coordinator, core staff, and convener of the sub-cabinet. By establishing an executive office or sub-cabinet, the governor sends a clear message to their administration, state agency staff, and local government leaders that resilience is a statewide priority.

- <u>Executive office of resilience</u>
  The governor can create an executive office tasked with overseeing and coordinating a state's resilience efforts. This office should:

  - Serve as a central point for resilience planning;
  - Coordinate resilience efforts across state agencies;
  - Ensure state spending on infrastructure and public facilities supports resilience;
  - Liaise with regional entities (MPOs, planning organizations, etc.) and local governments;
  - Serve as the state's resilience contact for federal, NGO, and other partners; and
  - Coordinate public outreach efforts.

  The governor should appoint a director who has experience in resilience and a good

understanding of state agencies and the political environment. The director should have weekly meetings with the governor's policy team to provide updates on progress, receive feedback on the governor's priorities, and address any political or logistical issues. While the office should have dedicated staff, it should also have the authority to call upon staff from a number of state agencies for specific expertise as necessary. The office should also host monthly meetings for senior staff from key agencies to assess how each is meeting its resilience goals and provide guidance on addressing specific obstacles. Initially, this group of key agencies can be limited to transportation, safety/emergency management, environment, economic development, and housing/community development. As the office builds greater familiarity with the state's resilience priorities and develops a working framework for assisting state agencies in achieving their resilience goals, it should consider expanding this list to include other agencies as appropriate.

- Interagency sub-cabinet focused on resilience
  Another approach governors can take to coordinate resilience efforts across agencies is to create a sub-cabinet. Establishing a sub-cabinet can send a strong message throughout the administration that resilience is of critical importance and that numerous agencies play a critical role. The sub-cabinet should:

  - Serve as a central authority for resilience planning;
  - Coordinate resilience efforts across state agencies; and
  - Ensure state spending on infrastructure and public facilities supports resilience.

  The sub-cabinet should involve cabinet members and senior leadership from agencies with a significant role in building the state's resilience. Like the executive office, this group can initially be limited to transportation, safety/emergency management, environment, economic development, and housing/community development. Upon building greater institutional expertise on state resilience, the sub-cabinet should consider expanding to include others as appropriate. Leaders from state agencies that are not formally members of the sub-cabinet should be involved on an as-needed basis. Frequent meetings are critical and should be held at least every other week, with the sub-cabinet submitting monthly progress reports to the governor's office.

  The sub-cabinet should have permanent staff assigned to it, which could be shared with the executive office of resilience if one is also formed. This staff can provide support for the sub-cabinet's efforts and take on everyday roles:

  - Liaise with regional entities (MPOs, planning organizations, etc.) and local governments;
  - Serve as the state's resilience contact for federal, NGO, and other partners; and
  - Coordinate public outreach efforts.

See Appendix, Section 1 on page 20 for more examples.

1.2. Give the entity a clear charge

The governor must give the resilience office or sub-cabinet a clear charge and mandate that provides focus and goals within the broad topic of resilience. For example, New York Governor Andrew Cuomo established the Governor's Office of Storm Recovery in 2013 with four main focus

areas: housing recovery, small business, community reconstruction, and infrastructure. The Office used disaster recovery funds made available following Hurricane Sandy to develop active workplans and pilot programs in each focus area that would form the basis for the state's long-term, ongoing resilience strategy.

1.3. Define resilience as it relates to your state

The first responsibility of the resilience office or sub-cabinet should be to define exactly what resilience means to your state. This should be thought of as an overarching mission statement that sets a clear goal for a state to adopt and serves as the main reference point for all agency staff. With a cross-disciplinary issue like resilience, articulating a single definition and vision is an important step towards ensuring that staff members across the state government are coordinating around a common objective.

Vermont, for example, included their definition in their "Roadmap to a Resilient Vermont"[6]:

> "A resilient Vermont is better prepared for and able to more effectively manage and bounce back from natural disasters and climate-related shocks, and the risks they pose to our economy, environment, and social well-being.
>
> "A resilient Vermont focuses on both proactively reducing our vulnerabilities and improving our response and recovery, to ensure that we are continually strengthening our resilience.
>
> "We must be resilient at every level – from individual residents, households, and businesses and neighborhoods, to the entire community and state. There is a shared sense of responsibility for resilience at every level and across the public, private, and nonprofit sectors."

2. Seek the advice and expertise of partners outside state government

Partners outside of state government—including local governments, non-profit organizations, businesses, regional institutions, and community leaders—can bring important resources and expertise to any state's resilience work. For example, universities can contribute to data gathering and climate research, private businesses can provide insight into how resilience can leverage current commerce and industry trends, and non-profits and local governments can help reach out to vulnerable populations and implement projects at the community level. Engaging these stakeholders also builds deeper in-state organizational capacity around resilience, and can help build public support for the issue as well.

There are four main areas where all states, regardless of how advanced their resilience policies, will likely need to look outside of state government for advice and expertise:

- Data collection and mapping
  States should leverage the research capacity of universities and other educational institutions to gather resilience data, upgrade hazard maps, develop climate projections, and organize this information into a central, accessible database.

- Outreach to vulnerable communities
  Vulnerable communities, including low-income, elderly, and disabled residents, are often at high risk of hazards with low capacity for quick recovery. States should partner with non-profit and community organizations in areas such as housing and social services to develop resilience curriculums and planning workshops that they can then deliver to the populations they serve.

- Local level implementation
  Many land use and development decisions at the core of resilience are in the hands of local government. Therefore no successful resilience strategy can be undertaken without partnering with local governments. This includes developing the right kinds of incentives and technical assistance for local needs and tapping into the expertise of local safety officials to accurately assess hazard risk.

- Regional coordinators
  Regional organizations like metropolitan planning organizations or regional planning commissions are often the ones who help local communities with their resilience planning. These organizations often help coordinate disaster response, and are key players in long-term resilience activities.

- Business impact
  The economic case is one of the most powerful motivators for resilience. States should seek out private sector businesses to first understand the potential impact of natural hazards on business operations, supply chains, and the state's long-term economic strength. These relationships can also be valuable in articulating the importance of resilience to different industries, communities, and the general public.

- Community impact
  Any guidance about where and how to grow should be discussed with residents and community members. Commercial real estate developers and homeowners will both likely have serious concerns about building (or restricting building) in disaster-risk areas. Listen to their perspectives and directly address their concerns.

Specific steps

2.1. Develop a strategy for outreach to outside partners

The state's resilience office or sub-cabinet should develop and implement an outreach strategy to engage diverse stakeholders. This engagement can range from simply gathering information through surveys to establishing on-going standing committees that meet periodically with a state's resilience leaders. While the effectiveness of any strategy depends on factors such as the size of the state, outreach can be targeted to specific areas or groups to increase chances of success. For example, a state could convene shipping industries around finding ways to mitigate the impact of sea level rise on coastal ports, or gather agricultural stakeholders to discuss the effect of drought and extreme heat on crop yields.

Standing working groups are a good way to establish long-term commitment from members and develop resilience capacity. The state's resilience office or sub-cabinet must establish clear missions and lines of communication in order for working groups to be effective. Colorado

organized working groups focused on specific topics such as housing and infrastructure following severe flooding in 2013. These groups had a dual mission to understand how recent flooding impacted their issue area and propose ways to strengthen it against future flooding events. Another approach is geographical. New Hampshire created Adaptation Workgroups that draw on expertise from local institutions, including universities, hospitals, and non-profit organizations, to help communities anticipate, prepare for, and respond to the effects of extreme weather and climate change. The Workgroups focus on specific regions such as the Seacoast and the Upper Valley, meeting regularly to host public forums, present new and updated data sources to stakeholders, and develop local level resilience action plans. See Appendix, Section 2 on page 21 for more examples.

3. Focus on developing a robust state Hazard Mitigation Plan

A key part of resilience is understanding what hazards pose the greatest threat to your state, and who is most vulnerable to those hazards. The process of developing a state Hazard Mitigation Plan, required by the Federal Emergency Management Agency (FEMA), can go a long way towards accurately assessing current and future risk, building in-state resilience capacity, and putting your state in the best position to compete for available federal funding. The resilience office or sub-cabinet should work closely with the state emergency management agency to develop a plan that maximizes potential benefits. Hazard Mitigation Plans must be adopted by the highest elected official or designee in the state.

In March 2015, FEMA announced that state Hazard Mitigation Plans must now consider the projected impacts of climate change on hazard risk. This forward-looking focus is particularly important when it comes to decisions that influence the location of development. State and local land use policies that support encroachment on natural areas and the build-out of floodplains, for example, put lives and property in unnecessary danger. By evaluating climate change models alongside planned land use and development maps, demographic trends, and other projections, state and local planners can help produce a stronger Hazard Mitigation Plan by clarifying exactly where to support resilient growth and where growth leads to elevated risk.

Many of the recommendations included in this Framework can directly help states develop a more effective Hazard Mitigation Plan. For example, creating a working group dedicated to updating the state's Hazard Mitigation Plan can better leverage the expertise of partners outside state government, demonstrate an interagency approach to mitigation planning, and foster a culture of data sharing and collaboration—all elements of a robust Hazard Mitigation Plan.

Specific steps

3.1. Plan inclusively

The most effective plans draw on a wide spectrum of expertise and resources. Consult not only emergency management professionals but also experts from the fields of economic development, land use and urban planning, housing, health and social services, infrastructure, and natural and cultural resources.

3.2. Commit to adopting FEMA's Enhanced Hazard Mitigation Plan

Under the guidance of a resilience office or sub-cabinet, states should go beyond the standard Hazard Mitigation Plan required by FEMA and opt for an Enhanced Hazard Mitigation Plan (EHMP). These plans require a more thorough assessment of future risk and must demonstrate a comprehensive commitment to implementing resilience policies. Adopting an EHMP also qualifies states for an increased amount of mitigation funding following a disaster declaration. States with an EHMP are eligible to receive 20 percent of estimated costs of disaster recovery, while states with a standard plan are eligible for 15 percent. As of March 2015, only 12 states have adopted EHMPs.

Beyond meeting the requirements of a standard state Hazard Mitigation Plan, an EHMP must show the integration of mitigation into a broad range of state programs and agencies, a comprehensive resilience strategy that is both hazard-specific and considers future risk, a vetted prioritization process for project implementation and funding, and successful management of FEMA Hazard Mitigation Assistance grants. The full requirements of both the standard plan and EHMP are available in FEMA's 2015 State Mitigation Plan Review Guide (see Appendix, Section 3 on page 21).

3.3. Check annually to make sure your plan still works

States should institute active, ongoing coordination and communication with FEMA on mitigation programs. FEMA is available to consult about this, and can also verify that states with enhanced plans are maintaining a comprehensive mitigation program and effectively using funding.

4. Ensure that state investments do not increase vulnerability

Every year states fund housing, roads, water systems, and other important infrastructure. Unfortunately, these investments are sometimes made in locations that are at high risk from natural hazards or encourage growth in high-risk areas and as a result, increase a state's vulnerability to natural hazards and drastically reduce the return on state investments.

A state resilience office or sub-cabinet should direct all community development, housing, environmental, and infrastructure programs to assess investment plans based on current and future risks. For example, the economic development agency may have plans that identify locations for future industrial development, and the transportation agency may have plans that outline where new roads will be constructed. A resilience office or sub-cabinet could asses each of these for current and future risks. Other state programs may not have a specific location planned for development, but instead have the potential to put new assets in harm's way. For instance, a state's Low Income Housing Tax Credit may end up supporting housing located in a high-risk area if certain applications are unknowingly selected to receive credit. The program criteria could be amended to factor in hazard risk.

The goal of this action is to help state agencies understand where risks overlap with planned investments. At a minimum, states should closely examine plans for transportation, stormwater management, economic development, housing and community development, conservation and land use, General Services Administration, water infrastructure, health and social services, and natural and cultural resources. This includes ensuring that post-disaster emergency management and re-investment plans don't simply rebuild to the same pre-disaster standards.

Specific steps

4.1 Develop a common resilience data source that state agencies and local governments can access

All of a state's concurrent resilience planning efforts should use the most complete and up-to-date data available. To facilitate this goal, the state resilience office or sub-cabinet should develop an online system that organizes all resilience data in one place and provides an interface that clearly explains what each data layer is showing. A centralized, user-friendly resilience database can serve to familiarize planners with key resilience metrics, encourage the use of data in planning processes, and ensure that all data resources are considered. This database should serve as the primary science-based tool for evaluating existing and planned investments, alongside the state's risk assessment.

States that have made significant progress in quantifying risk typically have invested in a comprehensive, standardized clearinghouse for GIS data inventories, historical records, climate projections, and other resources. At times this effort has been undertaken in partnership with state universities for database development and maintenance.

4.2. Include resilience in criteria for state grants, loans, incentive programs, and other spending

The resilience office or sub-cabinet can work with agency staff to adjust how grants, incentives, and other funding decisions are made to consider resilience. If they are not already in place, agencies should develop and integrate resilience measures into program spending criteria. For example, departments of transportation should not fund road construction and maintenance projects that encourage development in floodplains and wetlands.

The same criteria should be applied to funds distributed through incentive programs such as the Low Income Housing Tax Credit or historic preservation tax credits. For instance, a developer's proposal to restore a historic structure should receive points for going beyond the minimum required to bring it up to modern resilience standards.

In addition, the governor can issue executive orders to ensure that state investments increase resilience. In 2012, Maryland Governor Martin O'Malley issued the "Climate Change and Coast Smart Construction Executive Order," directing that all new and reconstructed state buildings, facilities, and infrastructure be planned and built to avoid or minimize future flood damage.

4.3. Rebuild better, safer, and stronger after disasters

When natural disasters cause damage to property and infrastructure, the state should ensure that rebuilding efforts produce more resilient, economically viable, and environmentally responsible structures. Post-disaster recovery periods are often accompanied by a large and relatively rapid dispersal of local, state, and federal funds. This represents a rare opportunity to heavily invest in resilience measures and ensure that any future disasters have a much smaller impact. The pressure to rebuild quickly is always tremendous following major disasters. However it is critical that the state prevent recovery funds from being used to rebuild to the same pre-disaster standards—essentially replicating the risk that existed before. The state should not authorize any rebuilding project under its control until measures to mitigate future damage have been analyzed and implemented into the project's scope.

Work towards this goal must begin long before a disaster strikes. A major disaster can often overwhelm state and local agencies. The resilience office or sub-cabinet should develop a strategy to coordinate federal, state, and local recovery efforts, and define its role as the central organizing body for all post-disaster funding and assistance. This pre-disaster planning should include identifying state and local priority zones based on the state's Risk Assessment and setting clear guidelines for the dispersal of recovery funds.

5. Develop strategies to address assets already in high-risk areas

A comprehensive risk assessment (which is required in all state Hazard Mitigation Plans) will reveal how a state's people, economy, infrastructure, and environment are already at risk. It is not enough, however, just to identify risk. States must determine how to address what is found to be in harm's way.

At-risk assets, from transportation facilities to state parks and residential neighborhoods, should be evaluated on a range of criteria, including economic benefit, cultural or historical significance, and social impact. The state will likely need to take a different approach towards properties and infrastructure it owns—where there is more direct control over funding, maintenance, improvements, and disinvestments—versus private property that must also be protected. The state may also choose to use its resilience strategy to call special attention to critical infrastructure that is already in need of repair.

After evaluating at-risk assets, the resilience office or sub-cabinet should work with state agencies and affected communities to consider all options to protect those assets from future hazards, including slow-onset and long-term hazards such as sea level rise. In some cases, it may be prohibitively expensive or simply impossible to protect the asset, requiring relocation or abandonment.

Resilience and social equity
When considering where to invest in resilience, it is tempting to focus on the simple economics of cost and property value, while neglecting issues that can't be easily monetized like history, culture, and equity. But relying solely on economic measures can short-change communities with low incomes and low land values. These communities often have the least capacity to prepare for and recover from natural disasters, and therefore stand to gain the greatest benefit from resilience investments. Taking a broader approach also makes fiscal sense, as communities with fewer financial resources will ultimately need more intense state and local disaster assistance if states are not proactive in their resilience investments.

Specific steps

5.1. Assess resilience options for existing at-risk assets
Using the state's risk assessment, the resilience office or sub-cabinet should lead a review of at-risk assets. Assessments should compare, at a minimum, the cost of protecting the asset, the cost of relocating the asset, and the impact of losing or abandoning the asset. This review should be done in collaboration with relevant state agencies and local governments. Eventually, this process should include everything from privately owned properties such as businesses, churches, farmland, and residential communities, to state

and city owned facilities such as roads and bridges, police and fire stations, parks, libraries, schools, and government office buildings. However, it may be more efficient and effective for the state to focus on state-owned properties first and foremost. Assessment of state-owned properties allows for greater discretion over maintenance and relocation decisions, and builds critical experience in resilience planning that the state can then use to assist communities and private property owners. Prioritize assets for evaluation based on the level of risk and repetitive loss, as well as issues such as the number of people affected, historical or cultural significance, vulnerability of the population, or economic value and significance to the state.

5.2. Develop strategies for assets that should be protected

The resilience office or sub-cabinet should work with state agencies and communities to protect assets wherever possible. Strategies could range from engineering solutions, such as installing green stormwater management infrastructure or seismic retrofitting in earthquake zones, to community outreach campaigns, such as the National Fire Protection Association's Firewise Communities Program. Long-term asset protection strategies that build off of the state's forward-looking risk assessment should also be considered. For example, natural resource protection—such as restoring wetlands that can absorb floodwaters before they reach populated areas—and regulatory techniques that alter land use patterns over time—such as capping construction in zones vulnerable to coastal erosion—can significantly reduce future risks.

To help communities address their at-risk assets, the state should create tools that identify potential solutions and estimate the costs and benefits of protection. For example, Vermont created the Vermont Economic Resiliency Initiative (VERI) to provide communities with a tool to determine how to best protect key economic areas in high-risk locations (see Appendix, Section 5 on page 23). VERI helps communities evaluate local flood risk to business and infrastructure, identify the steps communities and the state can take to minimize rebuilding and recovery costs, and ensure businesses stay open during flooding events.

5.3. Develop strategies for assets that are not practical to protect

There undoubtedly will be assets that are not practical for the state to protect. Intervention may be impossible or deemed too costly. The resilience office or sub-cabinet should work with communities to develop strategies to address these assets, including relocation out of harm's way or even abandonment.

For state or community-owned assets like roads, schools, and office buildings, relocation or abandonment is a difficult decision but one that state and local governments ultimately have the power and responsibility to make. Addressing private property, however, is more complicated. It is a balancing act—private property owners have all the rights and responsibilities associated with ownership, but state taxpayers often assist with emergency response, clean up, and recovery costs in the event of a natural disaster. The state and community may consider acquisition or buyout programs for private properties, the most permanent form of hazard mitigation. These voluntary programs offer fair compensation to property owners who relinquish the title to their property. States can either manage buyout programs or assist local communities with administering them. While buyout programs can be very expensive, FEMA will fund 75 percent of the costs. Once the state has cleared the property, it must remain open space, and can become a sustainable community asset such as parkland or a wildlife conservation area.

The state should work with communities to determine not only what properties should be

considered for acquisition, but also when buyouts should be offered, how the process is administered, and how to reduce the impact to the local tax base. Whenever a buyout program is being considered, states should place a particular focus on assisting vulnerable populations, including low-income, aging, and disabled community members who may have more challenges navigating the relocation process.

While there are numerous examples of acquisition programs, Valmeyer, IL, may be one of the most dramatic. Valmeyer was located in the Mississippi River's floodplain and suffered numerous flooding events throughout its history. After the Great Flood of 1993, the town leadership decided to use federal and state disaster funding to relocate to higher ground.[7] Homeowners were offered buyouts and civic buildings were built on a bluff overlooking the river.

States can play an important role in buyout situations by helping communities develop plans, providing state funding, and assisting with the dispersal of federal funding. Following Hurricane Fran in 1996, North Carolina worked with the town of Kinston to develop an acquisition program for substantially damaged homes using FEMA Hazard Mitigation Grant Program funds. When Hurricane Floyd struck the same area three years later, a large portion of the Hurricane Fran recovery program was rolled over to begin including Floyd victims, eliminating the typically long time lapse between a disaster and completing deed transactions.[8]

5.4. Get multiple benefits from resilience projects

States should develop strategies to make sure resilience investments deliver multiple and ongoing benefits. The state should work with communities to determine the best strategies that both protect or relocate at-risk assets and meet the broader needs of the community. Economic, environmental, and equity benefits should not be considered as separate goals, but rather as complementary pieces of a fiscally and socially responsible resilience plan. Each investment is an opportunity for state leadership and community partners to aspire to a project that will benefit the area above and beyond hazard protection.

Projects that result in multiple benefits are increasingly being prioritized for federal funding assistance. For example, FEMA recently updated its required benefit-cost analysis for mitigation projects to encourage applicants to quantify environmental benefits. Resilience is more than hazard mitigation, and projects that address the broader social, environmental, and economic aspects of resilience are being seen as increasingly valuable and worthy of support—with good reason. Why fund a project that only increases resilience if you can fund one that also creates a new community asset?

There are numerous ways to achieve multiple benefits—work to harden a road can incorporate additional pedestrian and bike connections between land uses on either side, and a buyout area can be maintained as a public meadow that also protects homes from forest fires. In Frederick, MD, a project to control flooding along Carroll Creek created a park that offers pedestrian paths, water features, and an amphitheater, serving as the new focus of the city's historic downtown and spurring over $150 million in private investment.[9]

6. Help communities become more resilient

Local governments play an important role in building resilience. While it varies from state to state,

towns and cities have a great deal of control over land use planning, local roads, building codes, zoning, parks, local government facilities, and building permits, but often do not have the expertise, resources, or capacity to take the steps needed to become more resilient. Yet, if they do not improve their resilience the state will still need to respond to and pay for natural disasters. Both the state and communities can save money by preemptively investing in local resilience. The resilience office or sub-cabinet should work with state agencies to enable and empower communities by providing technical assistance, implementing incentive programs, developing guides and tools, and establishing sources of resilience funding.

Specific steps

6.1. Develop technical assistance and tools for communities
The state should build resilience expertise and capacity at the local level by providing technical assistance and tools to communities. These should be focused on a few widely applicable issues, such as land use planning, transportation planning, codes and permitting, or facility siting.

Potential technical assistance could include trainings for local government staff or a circuit rider program where state staff provide on-going, direct assistance to local officials. The resilience office or sub-cabinet should establish a competitive application process to distribute this assistance that takes into account both risk and capacity. Although the goal should be to deliver as much assistance as possible, time and staff limitations demand a process that prioritizes communities with low resilience planning capacity and high hazard risk. Low capacity communities can be defined as having limited planning staff, insufficient financial resources, limited prior resilience expertise, or large vulnerable communities that lack the personal financial or mobility means to quickly react and recover from natural disasters. The state should consider developing and delivering technical assistance in partnership with regional universities and non-profits to increase efficiency and take advantage of existing in-state expertise.

Policy tools are an important element to building resilience. The resilience office or sub-cabinet should work with state agencies and local officials to ensure that any existing policy tools, such as transfer of development rights, stormwater utility fees, and conservation easements, are understood by and easily accessible to local governments. This discussion should also consider any policy tools that aren't currently available, evaluate their potential usefulness, and enact the necessary legislation to establish them.

In addition to policies, the state should provide access to best practice resources, model ordinances, and resilience and recovery checklists for communities to emulate and implement. The EPA's Flood Resilience Checklist (see Appendix: Additional Resources on page 20), which helps communities prepare for floods, is an example of the types of tools that could be provided. The state should develop a centralized online system to provide easy access to this information, a resource that could be especially useful to small urban or rural communities that lack internal planning staff and adequate connections to external expertise. The online system could also list opportunities to apply for technical assistance support from the state, federal government, foundations, and other resources. Non-profit organizations and local institutions can be valuable partners in producing these guides and toolkits. For example, the Center for Planning Excellence in Louisiana, created the Best Practices Manual for Development in Coastal Louisiana and the Louisiana Land Use Toolkit (see Appendix: Additional Resources on page 20), which are designed

to help local government officials create sustainable and long-term solutions that produce benefits for both the natural and built environments.

6.2. Establish a state resilience fund

States should develop a permanent fund to invest in resilience projects, meet recovery needs in the aftermath of disasters, and assist communities with implementing local resilience measures. A resilience fund can provide flexible and immediate resources. For example, these funds could pay directly for resilience improvements to state infrastructure, serve as a match for available federal and local resources, provide grants to communities, or function as a state revolving loan fund. In the aftermath of a disaster, these funds could be made available more quickly than federal funds, which often take an extended amount of time to deploy.

There are numerous ways states can build a fund, including committing a percentage of existing state infrastructure, economic development, or community development budgets to resilience projects in those areas. The state can also create special taxes or fees dedicated to resilience, such as real estate transfer fees and stormwater utility fees.

The resilience office or sub-cabinet should set parameters on how the fund can be used and develop transparent criteria to determine which projects receive funding. Even with dedicated resources, the state will not be able to fund all resilience projects proposed by local governments, state agencies, and regional institutions. It is important to have a scoring system in place to fairly and transparently evaluate and prioritize proposed projects based on factors such as cost, data-backed risk projections, need and capacity assessments, regional impact, and potential for multiple benefits (environmental, economic development, public health, social equity, etc.).

6.3. Help communities establish local resilience funds

In addition to establishing a state resilience fund, the resilience office or sub-cabinet should help communities establish similar, locally focused funds. While communities would control these funds, the state should incentivize their development, institute the necessary regulations that allow communities to levy additional fees and taxes for resilience, and provide assistance and guidance when needed. Communities can use sales taxes (see, for example, communities in Montana and Colorado[10]), general obligation and revenue bonds, real estate transfer taxes, impact fees, special district fees, and stormwater utility fees to establish local resilience funds.

Community resilience funds could be operated in similar ways as the state fund. For example, Tuscaloosa, AL, was able to use its ample reserve fund to start immediately cleaning up after an EF4 tornado ripped through downtown in 2011. The fund meant that Tuscaloosa did not have to wait for federal or state funding—within 24 hours, $5 million had been approved for spending, with another $5 million approved a few weeks later. The ability to get recovery efforts quickly underway helped the city build back better than before.

6.4. Develop incentives that encourage communities to become more resilient

Incentives are a good way to encourage local governments to take positive resilience steps without using a heavy hand. The resilience office or sub-cabinet should work with state agencies and local communities to develop a series of actions that communities can take to increase their chances at receiving resilience funding. For example, communities that complete a certain number of resilience technical assistance workshops offered by the state could earn points on related grant applications or unlock eligibility for direct assistance from the state fund.

Similar benefits could be awarded to communities that successfully establish local resilience funds or voluntarily implement higher resilience standards than legally required, such as freeboard elevation or the FEMA Community Rating System program for flood-prone areas. To facilitate this last point, the state should launch a publicly accessible online portal that catalogs information on the goals, benefits, and costs of different resilience standards, alongside examples and model ordinances from communities that have successfully implemented them.

7. Develop a process for monitoring, measuring, and reporting on progress

A full rollout of the state's resilience workplan will involve many simultaneous moving parts, and communicating consistently is a crucial part of this process. The resilience office or sub-cabinet should assign staff to conduct regular outreach and check-ins with state agencies undertaking resilience evaluations, partner institutions outside of state government, and local governments implementing projects funded through the state resilience fund. This is critical not only to monitor and measure progress on specific projects, but also to receive feedback on the state's performance in the coordinating role and to evaluate the effectiveness of different incentives and strategies. These check-ins should be in addition to the monthly meetings between the resilience office and key agency staff, or the bi-weekly meetings of the interagency sub-cabinet.

The resilience office or sub-cabinet should require that any project—local or state level—applying for state resilience funding propose a set of performance metrics that will be used to determine success. These projects should also be required to submit monthly progress report back to the office or sub-cabinet and incorporate any data gathered into the state's central resilience database.

Specific steps

7.1. Identify core resilience metrics to apply statewide
The resilience office or sub-cabinet should identify a set of performance metrics that it can use to independently evaluate the success of state-funded projects. For example, "losses avoided" estimates are perhaps the most effective way to demonstrate how resilience strategies minimize the loss of life and property in different natural disaster scenarios. FEMA's Hazus-MH is an example of a model that produces losses avoided estimates (see Appendix, Section 7 on page 25). The Social Vulnerability Index is another metric that has been used nationwide to measure the exposure of different populations to natural disasters based on capacity for preparedness and recovery (see Appendix, Section 7 on page 25). The metric can be applied from the regional level all the way down to individual census tracts.

Beyond providing useful internal feedback, identifying, applying, and publicizing a standard set of performance metrics to state-funded resilience projects can help build a strong case for resilience throughout the state.

Conclusion and Next Steps

This Framework is a starting point for states to evaluate their current resilience efforts and move to fully embrace the critical role they play in resilience and climate adaptation. The points outlined in this document should be thought of as a seven-step workplan, not something to accomplish all at once. Each step is complex and raises specific challenges, but with the full participation of the governor's office, state agencies, and partners outside state government, states can take the lead on building resilient and adaptable communities in the face of escalating threats from natural disasters and a changing environment. For more information and resources, visit Smart Growth America's State Resilience Program at smartgrowthamerica.org/resilience.

Appendix: Additional Resources

General resources

- **Smart Growth and Climate Change**
  http://www2.epa.gov/smartgrowth/smart-growth-and-climate-change
  Resources from the U.S. Environmental Protection Agency on climate change as it relates to land use and development.

- **Smart Growth Strategies for Disaster Resilience and Recovery**
  http://www2.epa.gov/smartgrowth/smart-growth-strategies-disaster-resilience-and-recovery
  Smart growth strategies like creating flexible land use policies, targeting public investment to catalyze private investment, and engaging the entire community in making decisions about the future can help communities recover from a disaster, rebuild according to a shared community vision, and be better prepared for the next natural disaster.

- **Georgetown Climate Center's Adaptation Clearinghouse**
  http://www.georgetownclimate.org/adaptation/clearinghouse
  The Adaptation Clearinghouse seeks to assist state policymakers, resource managers, academics, and others who are working to help communities adapt to climate change.

1. Put someone in charge

- **Examples of recovery and resilience executive offices**
  - Colorado Resiliency and Recovery Office
    https://sites.google.com/a/state.co.us/coloradounited/
    See also the Office's Resiliency Framework at
    https://sites.google.com/a/state.co.us/coloradounited/resiliency-framework

  - New York Governor's Office of Storm Recovery
    http://stormrecovery.ny.gov

  - New Jersey Governor's Office of Recovery and Rebuilding
    http://nj.gov/gorr/

- **Examples of resilience sub-cabinets** (including enabling legislation)
  - Oregon Resilience Task Force
    http://www.oregon.gov/OMD/OEM/Pages/Resilience-Taskforce.aspx

  - Vermont Climate Cabinet
    http://www.anr.state.vt.us/anr/climatechange/ClimateCabinet.html

2. Seek the advice and expertise of partners outside state government

- **NOAA's Sea Grant Universities**
  http://seagrant.noaa.gov/
  Sea Grant's mission is to provide integrated research, communication, education, extension and legal programs to coastal communities. Use this site to find allied communities in coastal areas.

- **Connecticut: Institute for Community Resilience and Climate Adaptation**
  http://circa.uconn.edu
  Collaboration between the University of Connecticut, the Connecticut Department of Energy and Environmental Protection, and the National Oceanic and Atmospheric Administration to create real-world solutions to the risk posed by climate change.

- **New Hampshire Coastal Risks and Hazards Commission**
  http://nhcrhc.stormsmart.org
  Established by state legislation in 2013, the Commission assembles representatives of state and local governments, regional non-profits, regional planning bodies, and professional associations to help communities address concerns over sea level rise.

- **New Hampshire/Vermont Upper Valley Adaptation Workgroup**
  http://uvaw.uvlsrpc.org
  Regional resilience working group that assembles state and local officials, non-profit leaders, and business representatives to address climate concerns across state lines.

3. Focus on developing a robust state Hazard Mitigation Plan

- **FEMA 2015 State Mitigation Plan Review Guide**
  http://www.fema.gov/media-library-data/1425915308555-aba3a873bc5f1140f7320d1ebebd18c6/State_Mitigation_Plan_Review_Guide_2015.pdf
  Describes the full requirements for both the standard HMP and Enhanced HMP

- **Examples of FEMA-approved Enhanced Hazard Mitigation Plans**
  - California: http://hazardmitigation.calema.ca.gov/plan/state_multi-hazard_mitigation_plan_shmp
  - Florida: http://www.floridadisaster.org/mitigation/State/Index.htm
  - Kentucky: http://kyem.ky.gov/recovery/Pages/State-Hazard-Mitigaton-Plan.aspx
  - Iowa: http://homelandsecurity.iowa.gov/disasters/hazard_mitigation.html
  - Nevada: http://dem.nv.gov/About/RandM/
  - North Carolina: https://www.nccrimecontrol.org/Index2.cfm?a=000003,000010,001623,000177,002107
  - Ohio: http://ema.ohio.gov/Mitigation_OhioPlan.aspx
  - Wisconsin: http://emergencymanagement.wi.gov/mitigation/planning.asp

- **Cal-Adapt Climate Change Research Portal**
  http://cal-adapt.org
  Centralized web portal for scientific research on the impact of climate change on

California's communities, allowing users to visualize and model future risk. Cal-Adapt was developed along guidelines laid out by the 2009 California Adaptation Strategy.

- **North Carolina Integrated Hazard Risk Management Program** (IHRM)
  https://irisk.ncem.org/irisk/About.aspx
  An online tool containing IHRM data and FEMA's Hazus-MH and Benefit-Cost Analysis models to evaluate the risk posed by 15 different hazards across the state.

- **Shaping Climate-Resilient Development: A Framework for Decision-Making**
  http://media.swissre.com/documents/rethinking_shaping_climate_resilent_development_en.pdf
  Report by the Economics of Climate Adaptation Working Group—including Swiss Re, McKinsey & Company, ClimateWorks, the European Commission, and Standard Chartered Bank—that outlines how to develop a comprehensive economic risk assessment.

4. Ensure that state investments do not increase vulnerability

- **Examples of statewide resilience databases**
  - Ohio State Hazard Analysis Resource and Planning Portal (SHARPP)
    http://ohiosharpp.ema.state.oh.us/ohiosharpp/
    Repository for state and local Hazard Mitigation Plans information on mitigation planning, projects, and resources. It offers three tiers of data access: general public, local and state officials, and state emergency management administrators.

  - New Hampshire Geographically Referenced Analysis and Information Transfer System (GRANIT)
    http://www.granit.unh.edu
    Statewide clearinghouse for GIS data meant to support state and local planners and decision-makers. Created through collaboration between the University of New Hampshire and the New Hampshire Office of Energy and Planning.

  - California MyPlan and Hazard Mitigation Web Portal
    http://myplan.calema.ca.gov and http://hazardmitigation.calema.ca.gov
    Publicly accessible portals for the state's resilience data that allow any user to access information and generate maps for mitigation planning tasks.

- **Examples of policy integrating resilience into state spending**
  - New York Climate Risk and Resiliency Act
    http://assembly.state.ny.us/leg/?default_fld=&bn=A06558&term=2013&Summary=Y&Actions=Y&Memo=Y&Text=Y
    2014 law requiring consideration of climate risk across state investment actions.

  - Vermont State Agency Policy Options
    http://accd.vermont.gov/strong_communities/opportunities/planning/resiliency/sgia
    Post-disaster report that recommends an audit of all economic development and transportation investment decisions to see if they advance state resilience goals.

- Maryland Climate Change and Coast Smart Construction Executive Order
  http://www.georgetownclimate.org/resources/climate-change-and-coast-smart-construction-maryland-executive-order-0101201229
  2012 executive order directing agencies to consider coastal flooding and climate change during site selection and design of new construction and rehabilitation projects. Also requires construction two feet above the 100-year floodplain.

- **Examples of post-disaster resilience planning**
  - Florida Post-Disaster Redevelopment Plan
    http://www.floridadisaster.org/Recovery/IndividualAssistance/pdredevelopmentplan/Index.htm
    A recovery guidebook developed by state agencies after a series of community workshops aimed at identifying risk and creating action plans for future disasters.

  - American Planning Association "Planning for Post-Disaster Recovery"
    https://www.planning.org/research/postdisaster/
    Extensive resources on how communities can best prepare for natural disasters and ensure a fast and more resilient recovery.

  - State Disaster Recovery Planning Guide
    http://coastalhazardscenter.org/dev/wp-content/uploads/2012/05/State-Disaster-Recovery-Planning-Guide_2012.pdf
    Guidelines for creating and executing a successful state disaster recovery plan.

5. Develop strategies to address assets already in high-risk areas

- **National Fire Protection Association FireWise Communities Program**
  http://www.firewise.org/wildfire-preparedness/be-firewise/home-and-landscape.aspx?sso=0
  Community outreach program that educates people and businesses on measures that can help them withstand future fires. Program model can be applied to many other hazards.

- **Kinston, NC: Innovative Floodplain Management**
  http://www.fema.gov/media-library-data/20130726-1515-20490-7614/kinston_cs.pdf
  Case study on a sustainable, state-led voluntary buyout program implemented in a small town following two devastating hurricanes.

- **New York Enhanced Buyout Program**
  http://stormrecovery.ny.gov/ny-rising-buyout-and-acquisition-programs
  Buyout program for coastal towns impacted by recent hurricanes. State consulted with local governments to identify target areas and offered sliding scale of relocation incentives.

- **FEMA Property Acquisition Handbook for Local Communities—State Summary**
  http://www.fema.gov/media-library-data/20130726-1507-20490-4551/fema_317.pdf
  Handbook designed to help states make decisions about relocation or protection in partnership with impacted communities.

6. Help communities become more resilient

- **EPA Flood Resilience Checklist**
  http://www2.epa.gov/smart-growth/flood-resilience-checklist
  Is your community prepared for a possible flood? Completing this checklist can help you begin to answer that question.

- **Technical assistance and toolkits**
  - Center for Planning Excellence's Best Practices Manual for Development in Coastal Louisiana
    http://www.cpex.org/best-practices-manual-coastal/
    This manual highlights a number of international, national and local best practices in coastal development.

  - Center for Planning Excellence's Louisiana Land Use Toolkit
    http://www.cpex.org/louisiana-land-use-toolkit/
    An action item to facilitate sustainable development and guide improved future outcomes, as well as a model development code (zoning and subdivision regulations) steeped in Smart Growth principles.

  - Vermont Economic Resiliency Initiative
    http://accd.vermont.gov/strong_communities/opportunities/planning/resiliency/VERI
    Vermont worked with five communities to develop resilience action plans that set priorities for the protection of economic assets.

  - Wisconsin Community Economic Recovery Guidebook
    https://sites.google.com/a/schoolfactory.org/recovery/
    Guidebook outlining steps communities can take to promote both resilience and economic growth.

  - FEMA Mitigation Ideas
    https://www.fema.gov/media-library/assets/documents/30627?id=6938
    Resources to help communities identify and evaluate mitigation strategies for a wide range of hazards.

  - New York Rising Community Reconstruction Plans
    http://www.stormrecovery.ny.gov/nyrcr/final-plans
    Intensive sate-led engagement and participatory planning efforts involving residents, businesses, and local governments. Planning process uses data-backed risk assessments to identify near- and long-term resilience actions.

  - EPA Smart Growth Implementation Assistance Project Summaries
    http://www2.epa.gov/smartgrowth/smart-growth-implementation-assistance-project-summaries
    Reports from EPA-led technical assistance projects with states, tribes, regional entities, and communities around the country. Reports that offer strategies and tools specifically for resilience include: the Association of Bay Area Governments in

California, the Rhode Island Division of Planning (forthcoming), the State of Vermont, and the Metropolitan Washington (DC) Council of Governments

- **State and local resilience funds**
  - Massachusetts Coastal Community Resilience Grant Program
    http://www.mass.gov/eea/agencies/czm/program-areas/stormsmart-coasts/grants/
    Competitive grant program that assists communities looking to adopt innovative resilience strategies and standards. Administered under the state's StormSmart Coasts Program (http://www.mass.gov/eea/agencies/czm/program-areas/stormsmart-coasts/), which offers detailed technical assistance and model projects.

  - Vermont Emergency Relief and Assistance Fund
    http://floodready.vermont.gov/find_funding/emergency_relief_assistance
    Provides a 7.5 percent state match to FEMA Federal Public Assistance after declared disasters. Communities that take specific resilience steps are eligible to receive up to a 17.5 percent match.

  - Charlotte-Mecklenburg, NC Stormwater Services Division
    http://charmeck.org/stormwater/Pages/default.aspx
    Local authority in charge of analyzing hazard risk and prioritizing properties for appropriate mitigation projects, ranging from buyouts to environmental restoration. Program funded primarily through stormwater utility fees.

- **Incentives**
  - FEMA Community Rating System Coordinator's Manual
    http://crsresources.org/manual/
    Detailed resource on how communities can earn credits towards flood insurance premiums by implementing resilience measures beyond minimum standards.

7. Develop a process for monitoring, measuring, and reporting on progress

- **FEMA Hazus-MH Model**
  https://www.fema.gov/hazus
  Model that produces loss estimation and losses avoided reports, illustrating the long-term fiscal value of resilience.

- **Social Vulnerability Index**
  http://webra.cas.sc.edu/hvri/products/sovi.aspx
  Comparative metric that aggregates income, ethnicity, age, employment, and special needs to determine social vulnerability score.

- **Miami-Dade County Mitigation Action Prioritization**
  http://mitigation.eeri.org/files/resources-for-success/00056.pdf
  Framework for evaluating proposed resilience projects based on cost, suitability, and risk reduction potential—developed by state, local, and non-profit leaders. Criteria improved

contentious process of selection and ultimately funded a wide range of projects.

- **San Francisco Planning and Urban Research Association: Measuring Resilience**
  http://www.spur.org/publications/spur-report/2009-02-01/defining-what-san-francisco-needs-its-seismic-mitigation
  Series of metrics developed to measure San Francisco's resilience to earthquakes. Focused on the vulnerability and needed recovery time of key infrastructure (roads, hospitals, shelters, etc.) to illustrate city's capacity to quickly respond to disaster.

Endnotes

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