



REPORT

REBUILDING SAFER: A GUIDE TO STATE AND LOCAL ADAPTATION



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About NRDC

NRDC ([Natural Resources Defense Council](https://www.nrdc.org)) is an international nonprofit environmental organization with more than 3 million members and online activists. Established in 1970, NRDC uses science, policy, law, and people power to confront the climate crisis, protect public health, and safeguard nature. NRDC has offices in New York City, Washington, D.C., Los Angeles, San Francisco, Chicago, Bozeman, MT, Beijing and Delhi (an office of NRDC India Pvt. Ltd). Visit us at www.nrdc.org and follow us on Instagram @nrdc_org.

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EXECUTIVE SUMMARY

Floods, wildfires, extreme heat, and hurricanes now regularly test American infrastructure and emergency response systems, strain budgets, and threaten lives. For low-income populations and those that have been systemically underrepresented in and underserved by government services including disaster management, disasters bring disproportionate harm and slower, incomplete recoveries. Traditional disaster management systems, often designed to restore communities to a pre-disaster status quo, fail to address these vulnerabilities or to build long-term resilience. The result is a cycle of repeated loss, widening inequities, and growing financial strain on households, businesses, and governments.

Even as the need for support increases, federal disaster management funding continues to be inconsistent and labor-intensive to access. This leaves state and local governments on the front lines of climate change.

NRDC (Natural Resources Defense Council) has developed *Rebuilding Safer: A Guide to State and Local Adaptation* to help state and local governments break that cycle of repeated loss. Drawing on lessons from across the country, this guide highlights practical opportunities for strengthening disaster resilience through policy, governance, and investment. The strategies outlined here are designed to help states and local governments reduce future losses, protect public health and safety, and ensure that recovery efforts produce stronger, more equitable outcomes.

While each strategy can reduce risk on its own, the greatest benefits are achieved when they are pursued together.



Strategy 1: Understand the risk and vulnerability.

Build a clear picture of risk, including hazards, exposures, and vulnerabilities, to guide decisions and target investments.



Strategy 2: Integrate adaptation into existing systems and processes.

Embed climate adaptation into existing planning, permitting, codes, and capital budgeting processes.



Strategy 3: Create new systems and processes to increase state and local capacity to adapt.

Establish durable rules, authorities, and incentives ensuring that public and private decisions are informed by risk and can therefore stand the test of time. Establish roles and structures that build knowledge and capacity while also promoting cross-agency collaboration and coordination.



Strategy 4: Pioneer transformative adaptation approaches.

Big problems require big solutions—bonds, tax structures, climate superfunds, and risk-transfer instruments—as means to fund long-term climate adaptation.



© North Carolina Air National Guard

A local resident stands at the edge of a collapsed roadway caused by flooding from Hurricane Florence in Boiling Spring Lakes, North Carolina.

Apart from **Strategy 1**, which the authors highly recommend as a first commitment by all jurisdictions, these strategies are complementary and can begin in any sequence. Start where capacity and opportunity exist, then expand as momentum builds.

The primary audience for this report is state and local lawmakers and policymakers seeking to advance climate adaptation in their jurisdictions. The secondary audience is agency staff, planners, emergency managers, public health officials, and other practitioners responsible for implementation.

Our greatest opportunity for impact is now. Now is the time to adapt.

GLOSSARY

The following glossary is intended to establish common language for the purposes of this report. Different organizations may use different terms for these concepts. Definitions have been left intentionally open-ended where possible.

Adaptation (Climate Adaptation): Actions taken to reduce vulnerability to current and future climate-related hazards. Adaptation includes structural measures (e.g., elevating buildings, upgrading infrastructure, restoring natural systems) and nonstructural measures (e.g., land-use planning, building standards, disclosure requirements, governance reforms, health and social services). In this guide, *adaptation* and *climate adaptation* are used interchangeably.

Climate Hazard: A potentially damaging climate-related event or trend, such as flooding, extreme heat, wildfire, drought, storms, or sea level rise.

Community Rating System (CRS): A voluntary Federal Emergency Management Agency (FEMA) program that rewards communities for exceeding minimum National Flood Insurance Program (NFIP) standards. Participating communities receive discounted flood insurance premiums for residents based on the strength of local floodplain management practices.

Design Standards: Technical criteria that govern how buildings, infrastructure, and public facilities are planned, designed, and constructed. Updating design standards to account for future climate conditions is a key adaptation strategy.

Disaster Risk Reduction (DRR): A systematic approach to identifying, assessing, and reducing disaster risks through policy, planning, and investment. DRR overlaps significantly with climate adaptation but may also address non-climate hazards.

Equity: The fair and just distribution of benefits and burdens, recognizing that communities differ in exposure to hazards, access to resources, and capacity to prepare for and recover from disasters.

Exposure: The presence of people, infrastructure, housing, or other assets in areas subject to climate hazards. Exposure is one component of overall risk.

Hazard: A potentially damaging physical event, phenomenon, or human activity that may cause loss of life, injury, property damage, social and economic disruption, or environmental degradation.

Maladaptation: Actions intended to reduce climate risk that instead increase vulnerability, shift risk or harm to other populations, or create new problems.

Public-Private Partnership (P3): A contractual arrangement between a government entity and a private sector partner to finance, design, build, operate, or maintain public infrastructure or services. P3s can accelerate project delivery, transfer risks, and bring additional capital and expertise to complex, long-term infrastructure projects.

Residual Insurance Program: A state-created insurance mechanism that provides coverage when private insurers withdraw from high-risk markets. Examples include Fair Access to Insurance Requirements (FAIR) Plans and state wind pools.

Resilience: The capacity of people, communities, institutions, and systems to survive, adapt, and recover from shocks and stresses while maintaining essential functions.

Risk: The potential for harm resulting from the interaction of hazards, exposure, and vulnerability. Risk is commonly understood as: $\text{Risk} = \text{Hazard} \times \text{Exposure} \times \text{Vulnerability}$.

Social Vulnerability: The degree to which individuals or communities are likely to experience disproportionate harm from hazards due to factors such as structural racism, income, age, disability, language barriers, housing conditions, or access to services.

Vulnerability: The degree to which people, assets, or systems are susceptible to harm from climate hazards. Vulnerability reflects sensitivity to impacts and the capacity to prepare for, respond to, and recover from events.

INTRODUCTION

Climate change is fundamentally reshaping risk across the United States. The costs of climate-fueled disasters are rising sharply, straining public resources, destabilizing insurance markets, and placing disproportionate burdens on communities with the least capacity to prepare and recover.¹ State and local governments must respond with coordinated action that protects lives and livelihoods, safeguards critical infrastructure, and ensures that when disasters occur, recovery leads to safer, more resilient outcomes.

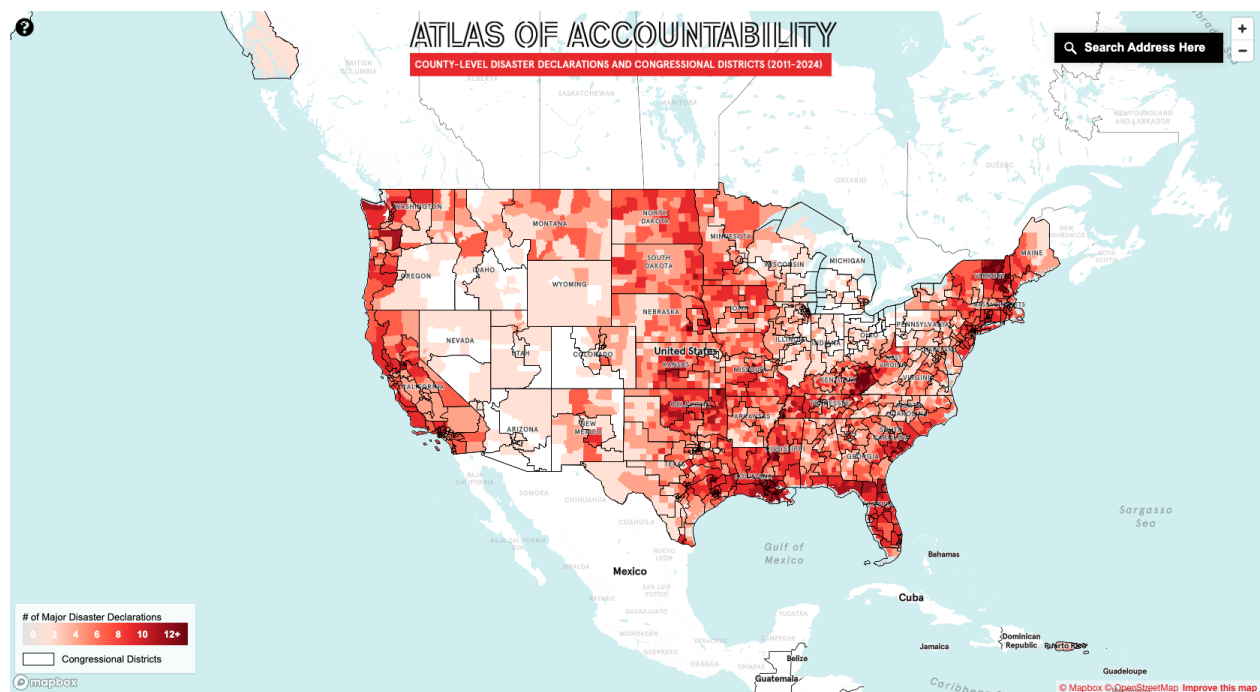
Returning to the status quo after disaster strikes is not viable. Most U.S. counties have experienced at least one federally declared disaster, and many have faced multiple disaster events just in the past decade.² Rebuilding in the same places, to the same standards, perpetuates a cycle of harm, damage, displacement, and escalating costs.

The infrastructure systems that cities and communities depend on were not designed for the more intense and frequent disasters they now face. The costs to repair, rebuild, and strengthen these systems continue to climb. Between 2015 and 2024, the United States experienced 190 separate billion-dollar disasters that collectively cost approximately \$1.4 trillion in total economic damages.³

These high costs are reflected in spending on disaster response and recovery over the last two decades as well. From fiscal years 2015 through 2021, selected appropriations for federal disaster assistance totaled \$315 billion.⁴ The Federal Emergency Management Agency (FEMA)'s Public Assistance program, FEMA's Individuals and Households Program, the United States Department of Housing and Urban Development (HUD)'s Community Development Block Grant-Disaster Recovery program, and the Small Business Administration's disaster loans have distributed hundreds of billions of dollars to and through state and local government for recovering from disasters over the last two decades.⁵

But recognizing an increase in both natural hazard frequency and intensity, and the surging costs of disasters events, is only part of the challenge. While many state and local governments have heavily relied on federal funding and expertise to support locally lead and state supported preparedness, response, recovery, and natural hazard mitigation efforts, many now face growing gaps while needs and costs are rising.⁶ For low-income populations and communities that have been systemically underrepresented and underserved by government entities, these gaps carry especially severe consequences.⁷ Recent analyses even

Figure 1: Rebuild by Design's Atlas of Accountability: County-Level Disaster Declarations and Congressional Districts (2011-2024)



Source: Rebuild by Design



A single undamaged home stands amid the remains of a neighborhood destroyed by the Maui Fires in Lahaina, Maui, Hawai'i.

point out that in places that receive large amounts of FEMA financial aid after a disaster event, inequality can increase significantly because people with means more easily access that aid while people with less means have a harder time accessing aid.⁸

State and local governments operate within systems that often incentivize short-term decisions rather than long-term resilience. After disasters, leaders face intense pressure to rebuild quickly and cheaply, even when better standards would prevent future harm. Communities grappling with housing shortages and housing affordability struggle to balance immediate needs with safer siting, permitting, and design. Projections of future climate conditions can be conflicting or incomplete, making it difficult to weigh near-term costs against long-term risks. And local economies often depend on development patterns that generate revenue today while compounding exposure tomorrow. These realities mean that building resiliently is not simply a matter of knowing what to do—it requires changing the underlying incentives, authorities, and processes so that the safer choice becomes the easier choice.

If states fail to invest strategically in climate adaptation now, they will suffer escalating costs that strain budgets and undermine public safety when disaster inevitably strikes. **The imperative for state and local action is clear: Disasters are more frequent and more severe, and every dollar invested in proactive risk reduction yields outsize returns in avoided losses.**⁹

Opportunities exist to change the paradigm by better understanding risk, integrating climate adaptation into existing systems, building new systems through legislation, and pioneering new, transformative approaches. The following four strategies are organized to help state and local leaders move from understanding risk to taking decisive, system-level action. Together they offer a practical pathway for building a more resilient society.

A firm understanding of risk as well as vulnerability and exposure—as outlined in Strategy 1—is the natural starting point to increase disaster resilience, but states and localities should not let that prevent them from starting. If capacity or opportunity to implement one of the other strategies highlighted in this report exists, begin there. Starting and making progress is better than perfection.



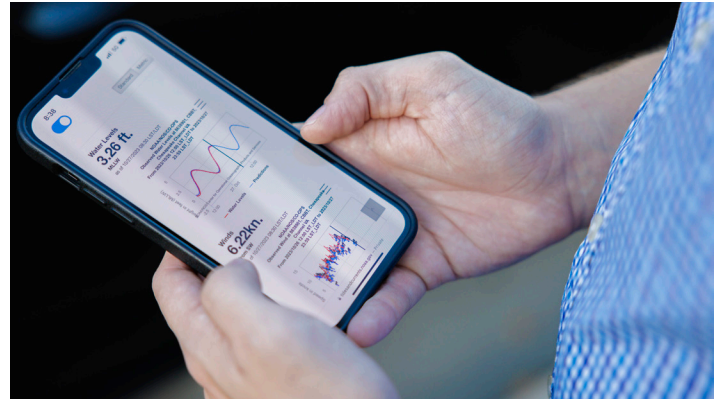
STRATEGY 1: UNDERSTAND THE RISK AND VULNERABILITY

Good data are the foundation of effective climate adaptation. State and local governments cannot reduce risk or allocate resources strategically without first understanding what hazards they face, who and what are most vulnerable, and how those risks are likely to change over time.

A comprehensive risk and vulnerability assessment identifies relevant climate hazards and exposures, evaluates social and demographic vulnerability, and inventories critical infrastructure, all while incorporating projections of future risk. This work allows leaders to answer practical questions: Which neighborhoods face the greatest flood or heat exposure? Which facilities require upgrades to function during extreme events? Which populations need additional support during emergencies and recovery?

Risk assessments also help allocate limited public resources where they will do the most good. By identifying where risk is highest and consequences are most severe, states and local governments can prioritize investments that reduce future losses rather than spread funds thinly or respond reactively after a disaster.

Beyond their technical value, risk assessments build political will. Climate threats often feel abstract until they are made visible. Localized data showing flooded schools, heat-exposed neighborhoods, or infrastructure at risk help leaders communicate urgency, justify investments, and build public support for action.¹⁰

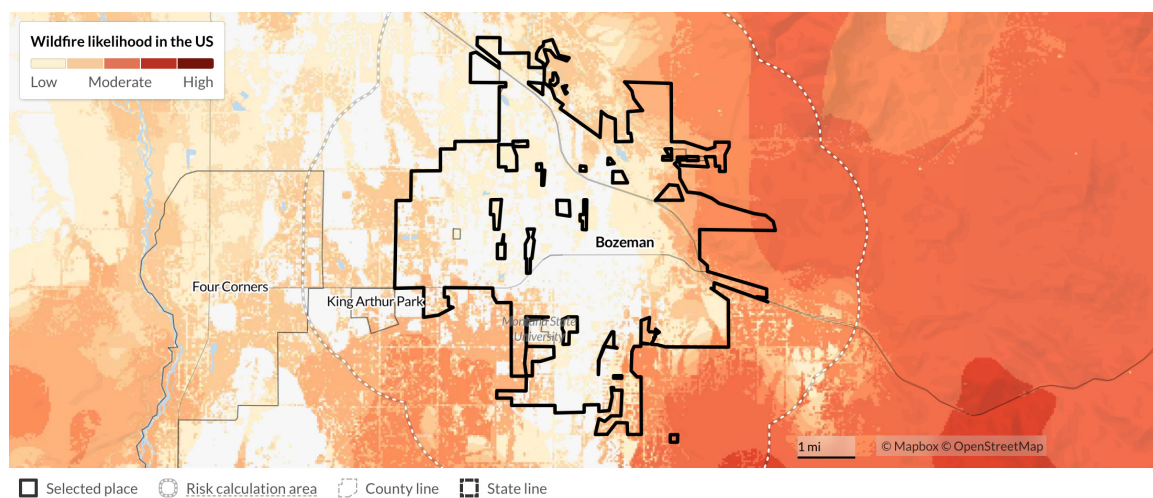


Virginia Institute of Marine Science Assistant Professor Derek Loftis checks water level sensor data while mapping tidal flooding in Norfolk, Virginia.

In other words, risk assessments should not be viewed solely as a technical exercise but also as a tool of good governance. Meaningful community engagement, particularly with those most vulnerable to climate impacts, is essential; these communities often have the clearest understanding of what resilience must look like on the ground and can surface priorities that policymakers may otherwise overlook. Incorporating environmental justice considerations alongside social vulnerability deepens the accuracy and relevance of the assessment.

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Figure 2: USDA's Wildfire Risk to Communities Tool Visualizing Wildfire Likelihood risk in Bozeman, MT



Source: USDA

While many states and localities have already completed hazard mitigation plans or climate assessments, these efforts are often created for a single purpose and housed within one agency, and historically they have missed updated climate projections or lacked equity considerations. Reviewing, updating, and building on what already exists ensures that risk information is broadly shared across agencies and used consistently to guide policy, capital planning, and budgeting. When conducted collaboratively and refreshed regularly, risk assessments can align institutions, improve decision making, and help ensure that adaptation efforts reduce inequities.

EXAMPLES OF USING RISK DATA TO GUIDE DECISION MAKING:

Example: Health data from Maricopa County (Arizona) and the Arizona Department of Health Services (ADHS) serve as the foundation for the *Heat Action Planning Guide for Neighborhoods of Greater Phoenix*. Maricopa County and ADHS use these data to identify high-risk communities, guide neighborhood-scale heat interventions, and prioritize actions put forth in the guide.¹¹

Example: Alaska’s 2019 Statewide Threat Assessment is used to direct spending on infrastructure, economic development, and public health in rural Alaska. Updates to this assessment—which analyzed threats from erosion, flooding, and thawing permafrost—are currently underway and will include five additional natural hazards: landslides, tsunamis, wildfires, earthquakes, and volcanoes.¹²

Example: Spokane, Washington, takes a people-centered approach to using risk and vulnerability data to inform the city’s actions to foster climate resilience. Data are used to guide the city’s climate planning process and ensure that resilience actions, policies, and investments reflect the needs of those most affected by climate impacts.¹³

Example: Thanks to the Montana Wildfire Risk Assessment, the state provides wildfire risk information to the public through its Risk Explorer tool. State and local agencies use these data and the tool to identify high-risk areas, inform community wildfire protection planning, prioritize mitigation and land-management investments, and support residents in understanding and reducing their exposure to wildfire hazards.¹⁴

TOP-LINE IDEAS

- Data and information that clearly articulate natural hazard risk enable smarter, more targeted investment. Clear understanding of natural hazard risk, exposure, and vulnerability guides decisions that reduce future impacts to people and property.
- Localized information builds political will. Community-specific data make climate risks tangible and help justify adaptation investments to decision makers and the public.
- Institutionalized risk assessment improves governance. Regular updates and cross-agency use ensure that climate considerations inform policy and budgeting over time.



Reinforcement work being conducted on the sea wall in Utqiagvik, Alaska.

© John Moore/Getty Images



STRATEGY 2: INTEGRATE ADAPTATION INTO EXISTING SYSTEMS AND PROCESSES

State and local governments already possess powerful tools for climate adaptation. Successfully implementing climate adaptation does not always require new programs, new offices, or new laws. In many cases, the fastest and most durable way to reduce risk is to integrate best available data on risk and vulnerability into the systems that state and local governments already use every day.

Existing systems around planning, permitting, capital budgeting, infrastructure maintenance, and delivery of services all provide opportunities to reduce long-term exposure to climate hazards. By embedding understanding of current and future risk into these routine functions, governments can operationalize adaptation as part of standard practice.

This operational integration shows up in concrete ways across government functions. For example:

- Planning departments can incorporate future flood projections into comprehensive plans and zoning decisions.
- Permitting staff can apply updated elevation requirements or heat-resilient design standards during routine reviews.

- Integrating climate risk can help jurisdictions plan proactively for buyouts or neighborhood transitions where long-term safety cannot be achieved through retrofits alone.
- Capital improvement plans can prioritize projects that reduce exposure or improve system performance during extreme events.
- Transportation, public works, health, and labor departments can strengthen workplace safety standards to protect workers from heat stress and wildfire smoke exposure.

Each adjustment, while modest on its own, compounds over time to significantly reduce vulnerability.

Leveraging existing systems also lowers barriers to action. Because these processes are familiar to staff and decision makers, they can integrate climate risk incrementally through updated guidance, revised criteria, staff training, or administrative policy without waiting for legislation or new funding. Operational integration also helps prevent maladaptation. That is, when climate risk is considered consistently across departments, governments are less likely to approve development that creates new vulnerabilities or invest in infrastructure that quickly becomes unsafe, uninsurable, or obsolete.



© Lance Cheung/USDA

A soil conservation instructor leads a night seminar at the Agricultural Land Based Training Association (ALBA) in Salinas, California.

Communities can also seize opportunities provided by existing federal programs. For example, the Community Rating System (CRS), a voluntary FEMA program, rewards communities that exceed minimum National Flood Insurance Program (NFIP) standards with discounted flood insurance premiums for residents.¹⁵ More than 22,000 communities participate in the NFIP, but only approximately 1,500 participate in the CRS. There are significant savings being left on the table for communities not already enrolled or maximizing their involvement.

Table 1: FEMA CRS Classes, Premium Discount, and CRS Credit Points

1	45%	4,500+
2	40%	4,000–4,499
3	35%	3,500–3,999
4	30%	3,000–3,499
5	25%	2,500–2,999
6	20%	2,000–2,499
7	15%	1,500–1,999
8	10%	1,000–1,499
9	5%	500–999
10	0%	0–499

Source: FEMA

CRS participation requires no new legislation, only the commitment to systematically improve floodplain management practices already within local control. Communities earn CRS credits through actions like better floodplain mapping, enhanced drainage maintenance, public outreach, or stricter development standards. These improvements translate directly into lower insurance costs for residents while building long-term flood resilience.

EXAMPLES OF INCORPORATING ADAPTATION INTO EXISTING SYSTEMS AND PROCESSES:

Example: Milwaukee integrated climate resilience directly into its everyday street design and maintenance by adopting National Association of City Transportation Officials design guidance, including its *Urban Street Stormwater Guide*, to create more disaster-resilient streets. Adoption of these design guidelines ensures that transportation projects routinely incorporate stormwater management, heat mitigation, and safer multimodal access without requiring new programs or authorities.¹⁶

Example: Norfolk, Virginia’s Coastal Resilience Overlay is a zoning overlay feature included in the city’s existing zoning and development processes. Aligned with the city’s strategic plan, this tool incorporates future conditions into permitting and land-use considerations, building resilience into the fabric of city operations through existing mechanisms.^{17,18}



A road begins to flood as high tide moves into a residential neighborhood in Norfolk, Virginia, following days of rainfall.

Example: Lincoln, Nebraska, achieved a Class 5 CRS rating by improving floodplain mapping, running a public education campaign, maintaining natural drainage corridors, and implementing higher regulatory standards for new development in flood-prone areas. The city’s participation saves residents 25 percent on flood insurance premiums while reducing flood risk exposure.¹⁹

TOP-LINE IDEAS

- Existing systems offer low-cost entry points. Small adjustments to familiar tools pertaining to zoning, permitting, street design, and floodplain management allow jurisdictions to reduce risk quickly and cost effectively without creating new programs or authorities.
- Integration makes adaptation durable. Embedding climate risk into routine government functions promotes resilient decision making into everyday governance.
- Designing to future conditions protects public investments. Updating standards and practices to reflect evolving risks reduces long-term costs, prevents repeated loss, and ensures that today’s projects remain safe and functional in the decades ahead.



STRATEGY 3: CREATE NEW SYSTEMS AND PROCESSES TO INCREASE STATE AND LOCAL CAPACITY TO ADAPT

Incorporating adaptation solutions into existing systems provides a strong foundation, yet addressing escalating climate risks often requires more formal authority. In some cases, state and local governments lack the necessary legal authority or regulatory frameworks. This strategy focuses on creating or modernizing laws, regulations, and formal requirements that enable adaptation where existing systems fall short. These frameworks establish clear expectations and authority, institutionalizing disaster risk reduction at the state or local level.

Building capacity is important because climate adaptation touches nearly every function of government. Transportation, housing, public works, public health, emergency management, natural resources, and economic development are all impacted by, and should take into account, increasing climate risk. Without clear responsibility for alignment, efforts become fragmented, duplicative, or reactive. Dedicated governance, such as seen when establishing statewide or citywide offices to coordinate resilience-building activities, helps connect these pieces, set shared priorities, and resolve tradeoffs across jurisdictions.

Investing in staff capacity also unlocks resources. Jurisdictions with dedicated staff pursue grants more successfully, manage complex funding requirements more effectively, and coordinate multi-benefit projects with greater impact.²⁰ A relatively modest investment in

staffing can yield outside returns by avoiding duplicative spending, improving project delivery, and strengthening competitiveness for external funding.

Outside of adding staff capacity, well-designed laws pull double duty by guiding private decisions and protecting public health, safety, and welfare. For example, strong legal frameworks can ensure that recovery programs reach renters, people with disabilities, and other populations often excluded from traditional disaster assistance. And clear, codified standards give developers, lenders, insurers, and property owners predictable rules that reward risk-informed siting and construction and deter unsafe development bets; in turn, markets price risk more accurately and investment shifts toward safer outcomes.

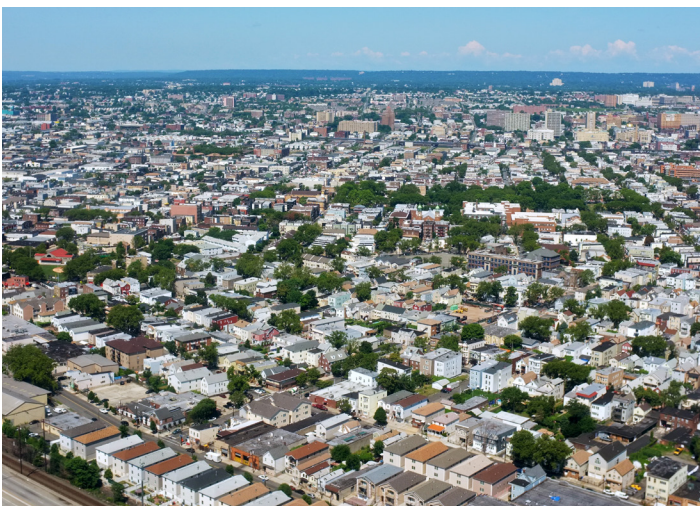
EXAMPLES OF CREATING NEW SYSTEMS TO ENABLE STATE AND LOCAL ADAPTATION:

Example: New Jersey's Resilient Environments and Landscapes program uses risk data to ensure that buildings and infrastructure are built for today's conditions and the structure's full lifetime. By using climate data when planning, permitting, and investing, the state creates a consistent, statewide baseline ensuring that public and private development is designed for the risks communities will face.²¹

Example: Utah's H.B. 48 Wildland Urban Interface (WUI) Modifications establish a comprehensive framework to reduce wildfire risk in wildland-urban interface areas. These modifications set clear roles, requirements, and statewide standards that guide land-use decisions, mitigation activities, and emergency preparedness in the WUI.²²

Example: Florida (HB 7053), Louisiana (Act 315), and Virginia (§ 2.2-220.5) established chief resilience officer positions with staff, funding, and clear authority to coordinate statewide resilience activities.²³

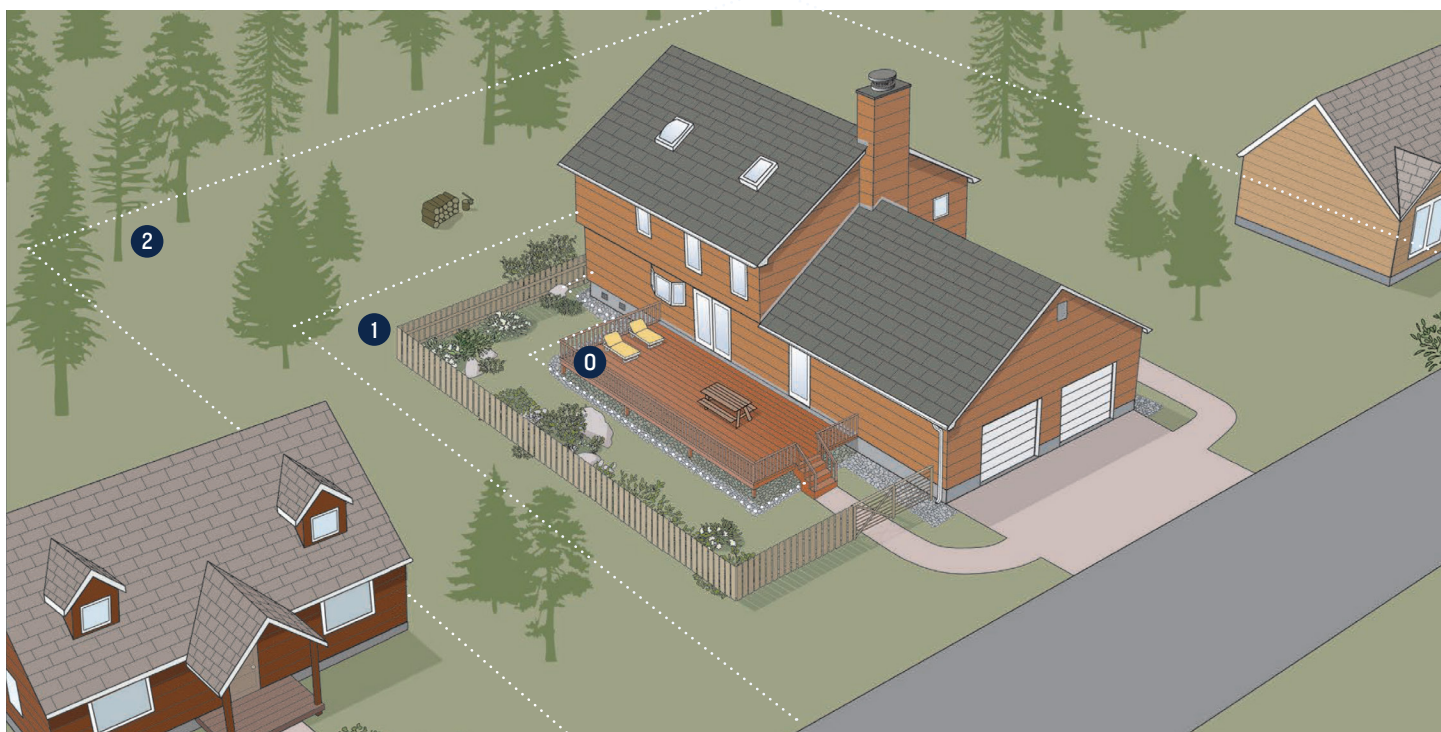
Example: California passed a series of bills (AB 1, AB 226, AB 234, AB 290, and SB 525) to strengthen the state's Fair Access to Insurance Requirements (FAIR) Plan by stabilizing its finances, expanding coverage, increasing governance oversight, and improving consumer payment protections. The FAIR Plan has become a critical backstop in California's strained property insurance market as wildfire risk grows, and these important reforms help maintain access to property insurance and reduce volatility.²⁴



A residential neighborhood in Newark, New Jersey.

Figure 3: Elements of a Wildfire Hardened Home

- 0 The Ember-Resistant Zone (Zone 0) 0-5 feet:** The zone within 5 feet of your home has many different names (e.g., the noncombustible zone, the immediate zone, the zero zone), but the objective is generally the same—to reduce the vulnerability of the home to embers by creating a zone of ember-resistant materials around the home. Gravel, a concrete or brick walkway, or another hardscape feature is commonly used to construct this zone. This ember resistant zone should include the area under and around any attached deck. Be sure to keep this zone clean of any woodpiles, wood mulch, or flammable vegetation.
- 1 The Lean, Clean, and Green Zone (Zone 1) 5-30 feet:** The objective of this zone is to reduce the risk of fire spreading from surrounding vegetation to the home. Lean indicates that there is only a small amount of vegetation, if any, present. Vegetation should be grouped in discontinuous islands. Clean indicates the vegetative debris and dead materials are routinely removed. Green indicates that vegetation within this zone is kept green and well irrigated (if appropriate) during the fire season.
- 2 The Reduced Fuel Zone (Zone 2) 30-100 feet:** The objective of this zone is to reduce fire spread and restrict fire movement into the crowns of trees or shrubs. Remove dead plant material, lower tree branches, and other ladder fuels (e.g., shrubs, lower branches, smaller trees). Locate outbuildings (e.g., for storage) at least 30 feet away from the home and create an ember-resistant zone all around outbuildings and propane tanks.



Source: Christina Restaino, et al, Wildfire Home Retrofit Guide, University of Nevada, Reno Extension, 2020, <https://readyforwildfire.org/wp-content/uploads/2024/03/wildfire-home-retrfito-guide-1.26.21.pdf>.

TOP-LINE IDEAS

- Dedicated capacity enables implementation. Establishing clear leadership, such as a chief resilience officer, with authority and staff can promote statewide coordination across agencies. Clear governance reduces fragmentation. Defined roles and authority help align departments and avoid duplicative or siloed activities.
- Legislation creates authority where processes fall short. New laws and regulations can set statewide standards or modernize insurance backstops in ways that other, less authoritative administrative processes cannot.
- Codification ensures durability. Legal frameworks institutionalize standards and requirements that endure beyond individual administrations.
- Preventive rules reduce long-term public costs. Smart legislation avoids predictable losses and breaks the cycle of repeated disaster spending.



STRATEGY 4: PIONEER TRANSFORMATIVE ADAPTATION APPROACHES

The scale of climate risk calls for transformative approaches. While the previous strategies provide essential building blocks for adaptation, certain contexts call for action that fundamentally reimagines how to finance and deliver risk reduction at scale. The resultant solutions often break new ground. They establish precedents, test novel approaches, or tackle problems too large for incremental change alone.

Being bold does not mean being reckless. The most successful moon shots combine ambition with clarity of purpose. They identify a gap that existing tools cannot fill—whether because of insufficient funding, misaligned incentives, or infrastructure needs that exceed traditional financing capacity—and design solutions tailored to that gap. Some shift costs from taxpayers to those who contributed to the problem. Others create dedicated revenue streams or unlock private capital for public benefit. What unites them is scale and innovation as they move beyond adapting existing systems to creating entirely new pathways forward.

For example, in some communities, truly transformative action means planning for voluntary buyouts or community-driven relocation. When structural mitigation cannot deliver long-term safety or would compound inequities, jurisdictions can work with residents to transition people out of high-risk areas and invest in receiving communities so households land in safer, more opportunity-rich places. Done well, this approach is resident led. It blends state and local funding with federal support when possible and matches capital for property acquisition with resources for housing, wraparound support services, and economic stabilization in receiving areas.²⁵

These approaches require political courage and stakeholder alignment, but they also create momentum. Early adopters demonstrate what is possible, building a road map for others and expanding the realm of what is achievable. When one state proves that a new model works, it becomes easier for the next to follow. This is where advocates, policymakers, and practitioners come together to push boundaries, not because it's easy, but because the magnitude of the climate challenge demands we think bigger about solutions that match the moment.

EXAMPLES OF TRANSFORMATIVE ADAPTATION SOLUTIONS:

Example: North Carolina (HB 1305) and Alabama (SB 389) authorized and funded grant programs to help homeowners upgrade their roofs to the Insurance Institute for Business & Home Safety (IBHS) FORTIFIED™ standard. North Carolina's Strengthen Your Roof and Strengthen Your Coastal Roof programs and Alabama's Strengthen Alabama Homes program have provided significant reductions in damage during hurricane-force wind hazard events.²⁶

Example: Expanding on North Carolina's roof strengthening program, in 2025 the North Carolina Insurance Underwriting Association sponsored the first-ever catastrophe bond, a \$600 million insurance-linked security that changes the way catastrophic loss in 18 coastal counties is managed.²⁷

Example: Hawaii passed Senate Bill 1396, the nation's first so-called green fee, which taxes tourist accommodations to create a stable source of income to invest in reducing harms caused by climate change. The state now has a means to proactively invest in climate adaptation approaches that reduce risk of future impacts.²⁸

© Insurance Institute for Business & Home Safety



FORTIFIED Roofs™ being installed on newly constructed homes.

© Governor Josh Green



Hawai'i Governor Josh Green poses with local elected officials and advocates at the bill signing ceremony for SB 1396.



An engineer monitors construction of the Red River Structure, a major component of the Fargo-Moorhead Metropolitan Flood Risk Management Project.

Example: Vermont (S.259) and New York (S2129B) passed climate superfund laws that require the largest fossil fuel companies to pay a proportionate share of state climate adaptation and recovery costs, shifting the financial burden of climate impacts from taxpayers to polluters.²⁹

Example: The Fargo-Moorhead region of North Dakota and Minnesota used an innovative public-private partnership (P3) model to fund a \$3.2 billion river diversion project. The river diversion will reduce flood risk for more than 200,000 people and over 70 square miles of infrastructure. Due to the scale of the project, funding and building would have likely been impossible using traditional funding mechanisms alone.³⁰

TOP-LINE IDEAS

- Dedicated revenue mechanisms unlock scale. Enabling statutes, state fees, local impact fees, and real-estate transfer taxes create predictable funding streams that can be paired with debt financing to support large-scale adaptation programs.
- Public-private partnerships deliver at speed and scale. P3 models can accelerate complex, multi-decade infrastructure projects while reducing lifecycle costs.
- Liability-based cost recovery shifts the burden appropriately. Climate superfund laws allocate a proportionate share of adaptation and recovery costs to major historical emitters rather than taxpayers.

CONCLUSION

The question is no longer whether climate change will reshape our communities; it already has and will continue to do so. Across the United States, families are being displaced by floods, small businesses are shuttering after repeated storms, and local budgets are buckling under the weight of disaster after disaster. Insurance markets are retreating. The most vulnerable populations bear the greatest burden while recovering the most slowly and least completely. Every year of delay deepens these inequities and drives costs higher.

Inaction is a choice, not an inevitability. State and local leaders have the authority, the tools, and the local know-how to change course. They know which neighborhoods flood, which infrastructure is failing, and which populations need support. They have relationships with frontline communities that possess significant local knowledge that, when successfully leveraged through partnership rooted in principles of empowerment, can produce results that best

serve those who need help most. They control the planning decisions that shape development and set the standards that determine whether buildings will withstand the next storm. That proximity is an advantage and a great responsibility.

The four opportunities in this guide—understanding risk, integrating adaptation into daily operations, creating protective legislation, and pioneering bold solutions—provide a clear road map forward. The examples featured here show what’s possible when local leaders take action that creates momentum, attracts investment, and demonstrates that government can meet the moment.

Climate change will not slow down to accommodate our timelines or our political cycles. But if we meet this challenge, we can ensure that the future is defined not by the disasters we failed to prevent, but by the resilience we were able to build.

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A damaged railroad bridge in Asheville, North Carolina, following flooding on the Swannanoa River during Hurricane Helene.

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Gantry Plaza State Park located beside the East River in Queens, New York City.

APPENDIX

RESOURCES

Below is a list of resources that can help readers learn more about topics highlighted in this report. The list is not comprehensive.

BETTER CODES AND STANDARDS

- [Building Codes Adoption Playbook for Authorities Having Jurisdiction](#)
- [Building Codes Save: A Nationwide Study of Loss Prevention](#)
- [FORTIFIED: A Program of IBHS](#)
- [Flood Resistant Design and Construction, ASCE/SEI 24-24](#)
- [ICC International Wildland–Urban Interface Code](#)
- [IBHS Construction Standards](#)
- [IBHS Hail Impact–Resistant Shingle Ratings](#)
- [IBHS Model Ordinance for Construction in WUI Area](#)
- [NFPA 1144 Standard for Reducing Structure Ignition Hazards from Wildland Fire](#)

BOLSTERING INSURABILITY

- [An Uninsurable Country: States Must Take Action to Fend Off the Looming Home Insurability Crisis](#)
- [Insurance for a FAIR Future](#)
- [“Last Resort” State Insurance Can Support Increased Resilience for Policyholders](#)

CLIMATE-INDUCED RELOCATION AND BUYOUTS

- [Lead with Listening: A Guidebook for Community Conversations on Climate Migration](#)
- [Funding and Financing Voluntary Buyouts and Relocation: Going Beyond Federal Grants](#)
- [Innovations in Buyouts: Lessons from Lived and Learned Experiences](#)
- [Opportunities for Federal Support of Community-Driven Relocation](#)
- [Best Practices for Voluntary Home Buyouts: Recommendations to the New York State Office of Resilient Homes and Communities](#)

CLIMATE VULNERABILITY ASSESSMENT

- [Guide to Community Climate Vulnerability Assessments](#)
- [U.S. Climate Resilience Toolkit: Assess Vulnerability and Risk](#)

CREATING A CHIEF RESILIENCE OFFICE

- [Instituting Resilience: Recommendations for Governors and Legislators on Establishing and Supporting Chief Resilience Officers](#)
- [State Chief Resilience Officer](#)

EQUITABLE ADAPTATION

- [A Science and Community-Driven Approach to Illustrating Urban Adaptation to Coastal Flooding to Inform Management Plans](#)
- [Equitable Adaptation Legal & Policy Toolkit](#)
- [Funding Rules that Promote Equity in Climate Adaptation Outcomes](#)
- [Strong, Prosperous, and Resilient Communities Challenge \(SPARCC\)](#)

FINANCING AND SCALING CLIMATE ADAPTATION

- [An Act to Increase Storm Preparedness for Maine’s Communities, Homes and Infrastructure](#)
- [\[California’s\] AB-733 Enhanced Infrastructure Financing Districts: Projects: Climate Change](#)
- [Challenges and Opportunities In Scaling Climate-Resilient Housing Solutions in the United States](#)
- [Cost Estimates for Flood Resilience and Protection Strategies in New York City](#)
- [Financing Climate Adaptation and Nature Based Infrastructure](#)
- [Financing Climate Resilience](#)
- [Ready-to-Fund Resilience Toolkit](#)
- [Resilience Incentivization Roadmap 2.0](#)

RESOURCES FOR EXTREME HEAT

- [Heat Action Planning](#)
- [In the Hot Seat: State and Local Governments Must Protect Their People from Extreme Heat](#)
- [Occupational Heat Safety Standards in the United States](#)
- [Preventing Heat Deaths on the Job with State Standards](#)

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