

**Testimony for The Pew Charitable Trusts Presented by Laura Lightbody, Director Flood-Prepared Communities Initiative
Senate Democrats' Special Committee on the Climate Crisis**

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Chairman Schatz and Members of the Special Committee, thank you for your invitation to discuss federal policies that can help communities prepare for increasingly severe and frequent extreme weather. My name is Laura Lightbody, and I oversee The Pew Charitable Trusts' (Pew) initiative aimed at reducing the impact of flood-related disasters on the U.S. taxpayer, communities and environment. Pew applies a rigorous, analytical approach to improving public policy that prioritizes investments in flood-ready infrastructure, mitigates the impact of disasters, modernizes flood insurance and promotes nature-based solutions.

On behalf of Pew, I thank the Committee for engaging in this important discussion on the impacts of sea level rise and extreme weather posed by climate change. As Members of the Committee are fully aware, extreme weather events—ranging from rapidly intensifying hurricanes and record-setting precipitation events to devastating wild fires—have become all too common. The costs of these events, in both lives and dollars, is mounting, and as that toll continues to rise, so does the nation's need to act.

The situation today and the prospects for the future present enormous challenges which must be met with leadership and bold ideas to reform national policies that encourage short-sighted development and rebuilding, and that damage and destroy the natural resources that can help protect us. This also presents an opportunity to create new programs that can drive positive, proactive change at the state and local level to make more resilient communities by equipping them with resources, data, and tools.

Pew is focused on policies that tackle flooding, our nation's most common and costly natural disaster that affects all 50 states in areas both inland and coastal. According to the National Oceanic and Atmospheric Administration (NOAA), flood and coastal storm events since 2000 have caused over \$845 billion in overall losses when accounting for impacts such as business interruptions, physical damage to buildings, agricultural losses, and damage to public infrastructure.¹ Undoubtedly, those numbers will continue to rise. The 2018 National Climate Assessment² projects a future with increasingly frequent downpours, intensifying hurricanes, and rising sea levels that could result in significant economic disruptions.

¹ National Oceanic and Atmospheric Administration, *Billion-Dollar Weather and Climate Disasters: Summary Stats*, National Centers for Environmental Information, (accessed October 1, 2019), <https://www.ncdc.noaa.gov/billions/summary-stats>.

² U.S. Global Change Research Program, 2018: *Impacts, Risks, and Adaptation in the United States: Fourth National Climate Assessment, Volume II*, <https://nca2018.globalchange.gov/downloads/>

To abate these future impacts, Pew recommends a number of actions that Congress can take to plan for future risks, steward taxpayer dollars responsibly, and reduce the harmful impact of extreme weather on communities.

- 1. Design and Plan for the Future**
- 2. Invest in Preparedness and Pre-Disaster Mitigation**
- 3. Create a New Partnership with States**
- 4. Prioritize Nature-Based Solutions**
- 5. Stop Growing Risk**

Design and Plan for the Future

For many years, public infrastructure from roadways to storm drainage has been constructed based on historical flood events and data using outdated standards. Building elevation and floodproofing requirements are commonly applied only to construction within the extent of today's designated flood hazard area—despite the availability of data about future flooding. This backwards-looking approach has resulted in repeatedly damaged assets, communities shut down for weeks and growing costs.

There are steps the federal government can and should take now to ensure that investments made at all levels of government are more resilient and better account for risks associated with increasingly extreme weather and sea level rise. One priority stands out.

Congress can require that federally-backed projects, such as roads, hospitals and public buildings, that are newly built or substantially rebuilt are not built in high risk areas or if they are, that they account for future flood risks, such as sea level rise, into their design and siting.

Since issuance of Executive Order 11988 in 1977, federal agencies such as the Department of Transportation (DOT) and the Department of Housing and Urban Development (HUD) have been directed to avoid investing in flood-prone areas, where possible, or alternatively, to abide by basic flood mitigation practices as a way to reduce “exposure to potential flood losses by deterring unnecessary siting of activities in high hazard floodplain locations.” That policy and the individual agency regulations have, over the years, lessened the flood losses that might have otherwise occurred. It has not, however, kept pace with increasing flooding problems and escalating costs.

Its greatest shortcoming has been its reliance upon an outdated definition of what constitutes a flood-prone area. By relying solely on FEMA insurance maps and the lines derived from data on past storms and flooding events, this policy has too often missed the mark in protecting people and assets from the next disaster.

That is why Pew and others, including many fiscal conservatives, engineers, conservation groups, and the insurance industry, were so supportive of 2015 updates to the policy. This executive order, the Federal Flood Risk Management Standard, directed agencies to use sound science to factor future flood risks into their decision-making. This update recognized that the calculation of the so-called 100-year floodplain is not a prediction of future risk. It recognized

that much of the nation’s flooding occurs in areas beyond the identified Special Flood Hazard Areas (SFHAs), and that flood heights frequently rise above determined base flood elevations. It recognized that flood risks are dynamic, not only because of changes in climate but also with changes in land use and demographics.

Unfortunately, this executive order was repealed in 2017. Our recommendation is for Congress to support an updated, flood-ready standard that would apply to all new federal investments.

This is an approach already adopted by the Department of Defense (DoD). Specifically, language included in P.L. 115-232, the John S. McCain National Defense Authorization Act for Fiscal Year 2019,³ requires DoD to amend its construction design criteria “to anticipate changing environmental conditions during the design life of existing or planned new facilities and infrastructure.” It also calls for construction projects to be undertaken with mitigation plans that look beyond the lines of the FEMA flood maps. Instead of relying solely on the current estimates of flood risk depicted as the 100-year floodplain, military planners must account for uncertainty in future conditions by employing a safety factor to protect facilities from future damages. Pew believes it would benefit the whole of government to adopt a similar approach.

Invest in Preparedness and Pre-Disaster Mitigation

It is essential that the federal government alter the long-existing bias that favors post-disaster assistance over federal support for adaptation and pre-disaster mitigation. Research has shown that, on average, mitigation saves society \$6 for each \$1 invested,⁴ and that these investments make communities more resilient.

Mitigation needs vary from community to community, but a lack of funding for these activities is near universal. Increased investment in mitigation through existing programs is important, but creating new funding opportunities for states and localities to take advantage of this return on investment *before* disaster strikes will be critical in breaking the costly cycle of flood, damage, and repair.

One proposal to create new funding opportunities has been introduced by Senators Jack Reed (D-RI), John Kennedy (R-LA), and Bob Menendez (D-NJ) as S. 2192, the State Flood Mitigation Revolving Loan Fund Act of 2019. Companion legislation has also been introduced in the House. This proposal would establish a revolving loan fund to provide low-interest loans and selected grants to help communities, businesses, schools, and families prepare for floods and sea level rise.

Another opportunity to realize lasting benefits of mitigation across the country exists within the transportation sector. Pew supports Environmental and Public Works Committee-passed provisions of the America’s Transportation Infrastructure Act of 2019 that would provide nearly one billion dollars in annual funding over five years to states and communities for assessments,

³ Public Law 115-232, August 13, 2018, John S. McCain National Defense Authorization Act for Fiscal Year 2019, <https://www.congress.gov/115/plaws/publ232/PLAW-115publ232.pdf>.

⁴ National Institute of Building Sciences, “Natural Hazard Mitigation Saves: 2017 Interim Report,” December 2017, http://www.wbdg.org/files/pdfs/MS2_2017Interim%20Report.pdf.

planning, and projects related to improving the ability of transportation assets to withstand disasters. We also recommend that the Federal Highway Administration (FHWA) create a pre-disaster mitigation program as part of the Emergency Relief (ER) Program. This could be done by allocating a percentage of future ER dollars towards such a program, correlating the dollars available with the magnitude and frequency of disasters, as is the case for the FEMA Hazard Mitigation Grant Program.

Adopting and generously funding programs like these can provide sustainable funding mechanisms for states and localities to better plan for and address growing risk to increasingly extreme weather.

Create a New Partnership with States

Pew strongly supports Congressional increases in preparedness resources for States, including the flood mitigation revolving fund, new pre-disaster funding for highways, full funding of the new Building Resilient Infrastructure in Communities program, coastal resilience grants made available through the National Coastal Resilience Fund, and special mitigation funding within HUD's Community Development Block Grant – Disaster Recovery funding stream. By making resources available through these programs, the federal government will help states build their own capacity to improve resilience in vulnerable communities.

We also recommend that Congress look toward making certain that the federal-state resilience partnership is a two-way street. In our view, many states must accelerate and improve their own programs for addressing the flood risks of the future. That is why we encourage Senators to reexamine the concept of a “disaster deductible” first proposed by FEMA in 2016.

We believe that a disaster deductible that conditions and scales the level of certain post-disaster federal assistance based on a state's own investment in disaster preparedness could result in an uptake in effective disaster adaptation by states and localities and overall lowered costs associated with disasters. Information being developed by FEMA pursuant to a directive in the 2018 Disaster Recovery Reform Act may prove helpful to the Committee: Section 1239 of that law called on FEMA to review the factors to be considered for major disaster declarations and the associated costs and, more specifically, to initiate a related rulemaking by Fall 2020.

Prioritize Nature-Based Solutions

Nature-based solutions can also provide flexible options for reducing flooding and, unlike conventional gray infrastructure that typically deteriorates with age and can aggravate flooding, green infrastructure, such as wetlands and parks, can provide self-sustaining flood defenses that support ecosystem restoration while providing recreational space for communities. Along the coast, these natural areas act as the first line of defense in reducing the effects of storm surge.

For example, coastal ecosystems mitigate an estimated \$23 billion each year in storm damages along the Atlantic and Gulf coastlines alone.⁵ And the U.S. Army Corps of Engineers itself found

⁵ Thorne, Karen, et al., *U.S. Pacific Coastal Wetland Resilience and Vulnerability to Sea-Level Rise*, Science Advances, Vol 4, no 2 (Feb 2018) <http://advances.sciencemag.org/content/4/2/eaao3270.full>.

that a project within the Charles River watershed in Massachusetts that protected over 8,000 acres of wetlands over a number of years prevented an estimated \$12 million in flood damages at a cost of only \$8 million. The Corps analysis did not include the recreational and wildlife benefits generated through this conservation action – the land is also used for hunting, fishing, hiking, and canoeing.⁶

One way the federal government has helped communities create or restore natural open space within floodplains is through FEMA’s Pre-Disaster Mitigation (PDM) Program, recently renamed the Building Resilient Infrastructure in Communities (BRIC) Program. Through the PDM Program, FEMA has invested in the acquisition of disaster-prone or damaged properties with the goal of moving people out of harm’s way while creating permanent open space in the process. In areas where structural solutions might be limited or simply not cost effective, or for areas that have been rebuilt multiple times following disasters, the most effective form of mitigation to ensure lasting protections may be the purchase of properties from willing sellers.

We encourage Congress to examine ways for federal agencies to incorporate the value of nature-based flood solutions into their decision-making and project prioritization frameworks.

Stop Growing Risk

The National Flood Insurance Program (NFIP) has been an essential component of our nation’s management of flood risk for nearly 50 years. However, the program is in dire need of reform, particularly in the context of a changing climate.

The New York University Furman Center has estimated that over 15 million Americans live in the 100-year floodplain spread across coastal and inland states.⁷ And the population living in these risky areas has grown slightly faster than those living outside of them, according to an analysis undertaken by Governing magazine.⁸ This demographic data and the reality of a sea-level altered coastline should compel Congress to consider the extent to which subsidized flood insurance contributes to growing investment in high-risk areas.

As Congress looks to reform this program it is important to consider the history of the NFIP. When the NFIP was started, its proponents were wary of flood insurance providing an indirect subsidy for development in risky areas.⁹ The program’s drafters were cognizant of the fact that land use decisions and building practices affect flood risk and that those decisions are made, not

⁶U.S. Army Corps of Engineers, “Charles River Natural Valley Storage Area,” draft master plan presentation, April 2017,

http://www.nae.usace.army.mil/Portals/74/docs/Civil%20Works/Charles%20River/Charles_River_Natural_Valley_Storage_Area_Presentation.pdf.

⁷ NYU Furman Center, “Report: More than 30 Million People Live in U.S. Floodplains,” The Stoop, December 18, 2017, <https://furmancenter.org/thestoop/entry/new-data-from-the-nyu-furman-center-finds-that-more-than-30-million-people>.

⁸ Maciag, Mike, “Analysis of the U.S. With Most Floodplain Population Growth, Governing, August 2018, <https://www.governing.com/gov-data/census/flood-plains-zone-local-population-growth-data.html>.

⁹ See e.g., U.S. Task Force on Federal Flood Control Policy, “A Unified National Program for Managing Flood Losses,” House Document No. 465, 89th Congress, second session, (August 10, 1966) <https://www.loc.gov/law/find/hearings/floods/floods89-465.pdf>.

at the federal level, but by individual communities. They saw federal flood insurance as a means of leveraging improved floodplain management by local governments to reduce overall risk.¹⁰

At the outset, it was assumed that the need for subsidies would diminish over time as local floodplain management improved and as older structures were leveled by storms or rebuilt entirely. As we have seen over the intervening years, these assumptions unfortunately proved incorrect and have resulted in costly expenditures to the federal government, continued financial exposure to taxpayers, and more communities exposed to the threats of pervasive flooding.

While a reformed NFIP program may still need to offer assistance to those currently living in risky areas, whose homes were built years ago, it should not be used to buy down the true costs of new development in risky areas. For this reason, Pew strongly supports FEMA's current efforts to modernize its risk-rating calculus and increase the transparency of flood risks to current NFIP policyholders as well as prospective homebuyers and renters. We urge the implementation of this new rating methodology called Risk Rating 2.0, and we also recommend that Congress consider limiting the availability of federally-backed flood insurance for new construction.

Finally, we urge the Special Committee to speak with floodplain managers, city planners, administrators, and elected officials from various-sized localities to assess how best to help them understand not just the currently predicted risks, but also the factors that are likely to affect those risks over time. Localized, actionable data and scenario-building tools could help local policymakers set resource priorities and make critical land-use decisions to protect people and property from the damages of future extreme weather events. Only with an understanding of risk and the changing nature of risk will local decisionmakers be able to develop and implement ongoing, iterative programs to prepare for climate-related impacts.

On behalf of The Pew Charitable Trusts, thank you for the opportunity to present ideas on ways federal policies and tools can make our communities and infrastructure more flood-ready.

I commend the Committee for its initiative, and look forward to working together on this critical issue.

¹⁰ Ibid. See also, Federal Emergency Management Agency, "A Chronology of Major Events Affecting the National Flood Insurance Program," (October 2002) prepared by The American Institutes for Research, The Pacific Institute for Research and Evaluation, and Deloitte & Touche LLP, https://www.dhs.gov/xlibrary/assets/privacy/privacy_pia_mip_apnd_h.pdf ; Michel-Kerjan, Erwann O., 2010 *Catastrophe Economics: The National Flood Insurance Program* Journal of Economic Perspectives, 24 (4): 165-86, http://create.usc.edu/sites/default/files/publications/catastropheconomics-thenationalfloodinsuranceprogram_0.pdf.