



March 11, 2018

Nicholas A. Shufro  
Assistant Administrator, Risk Management  
Federal Insurance & Mitigation Administration  
Federal Emergency Management Agency  
400 C Street SW, Suite 313  
Washington, DC 20472-3100

**Re: Comments on the Draft National Mitigation Investment Strategy**

Dear Assistant Administrator Shufro:

The Natural Resources Defense Council (NRDC) appreciates the opportunity to review and comment on the Draft National Mitigation Investment Strategy (“Draft Strategy”). Large-scale climate and weather-related disasters inflict a heavy economic, environmental, and social toll on the United States. Climate change will continue to exacerbate the frequency and magnitude of these events.

Fostering greater coordination between and more efficient use of mitigation funding, tools, and techniques is vital to reducing risk, and for maximizing the cost-savings, in terms of avoided damages, that mitigation investments can provide. The Draft Strategy has the potential to effectuate such change.

NRDC is an international nonprofit environmental organization with more than 2 million members and online activists. Our organization works to safeguard the earth—its people, its plants and animals, and the natural systems on which all life depends. Our organizational goals include curbing global warming, safeguarding human health, and ensuring safe and sufficient water for people and the environment.

NRDC supports the objectives of the Draft Strategy, however, we believe the Draft Strategy could be bolder by proposing more detailed and specific recommendations for achieving risk reduction. NRDC offers the following concepts for inclusion in the recommendations:

- Propose adoption of a flood protection standard for federally-funded infrastructure projects;
- Encourage greater accessibility, disclosure, and transparency of flood hazard data;
- Emphasize the importance of community compliance with the National Flood Insurance Program’s minimum building and land use requirements to reduce risk; and

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- Consider innovative ways to utilize the State Revolving Funds and the Water Infrastructure Finance and Innovation Act to support mitigation investments.

Enhancing preparedness and resilience to the impacts of climate change and natural disasters must be a priority for all.

***Propose adoption of a flood protection standard for federally-funded infrastructure projects***

Federally-funded infrastructure projects must factor in a higher margin of safety against flooding in siting and design. As such, the Draft Strategy should propose adoption of a federal flood protection standard for federally-funded projects under recommendation 6.1.

Floods present serious risks to the nation’s physical infrastructure, such as roads, bridges, and water and wastewater treatment facilities, which are essential to its economic well-being.<sup>1</sup> Between 1980 and 2013, flooding cost the US economy \$260 billion with more than 20 individual flood events each exceeding \$1 billion in damage.<sup>2</sup> The federal government often shoulders a significant amount of that financial burden. For example, the Federal Emergency Management Agency (FEMA) spent \$48.6 billion through its Public Assistance program in the wake of floods and coastal storms to repair or replace public buildings (\$12.6 billion), public utilities (\$7.4 billion), roads and bridges (\$5.5 billion), and water-control facilities like levees, dams, and pumps (\$1 billion), with the remainder spent on clean-up and emergency actions.<sup>3</sup>

Current practice only requires federally-funded infrastructure to be protected to the elevation of the 100-year flood (a flood that has a 1 percent probability of occurring in any given year).<sup>4</sup> Reliance on this standard assumes that historical floods are representative of future conditions. However, as the climate changes, historical patterns — particularly those related to extreme weather events — no longer provide reliable predictions of the future. Coastal areas and riverine communities will become increasingly susceptible to flooding as sea levels rise and rainfall events become more intense and more frequent.<sup>5</sup>

Per a new National Oceanic and Atmospheric Agency report, sea level rise, which is already impacting coastal communities, is projected to rapidly worsen high-tide flooding in the coming decades.<sup>6</sup> In the Southeast, the average number of days with high-tide floods has more than doubled since 2000, to three per year, while the number in the Northeast has increased by about 75 percent, to six per year. By the end of the century, the coastal Northeast could annually

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<sup>1</sup> See U.S. Gov’t Accountability Office, GAO-13-242, Climate Change: Future Federal Adaptation Efforts Could Better Support Local Infrastructure Decision Makers 1 (2013).

<sup>2</sup> Nat’l Oceanic & Atmospheric Admin., Billion-Dollar U.S. Weather and Climate Disasters 1980-2014 (2014).

<sup>3</sup> NRDC, The Need for Flood Protection Standards (2015) available at <https://www.nrdc.org/sites/default/files/NRDC-fema-assistance-grants-graphs.pdf>.

<sup>4</sup> Exec. Order No. 11988, 3 C.F.R., 1977 Comp., p. 117.

<sup>5</sup> U.S. Global Change Research Program, “Extreme Weather,” National Climate Assessment (2014) available at <https://nca2014.globalchange.gov/downloads>.

<sup>6</sup> Nat’l Oceanic & Atmospheric Admin., NOAA Technical Report NOS CO-OPS 086, Patterns and Projections of High Tide Flooding Along the U.S. Coastline Using a Common Impact Threshold (2018) available at [https://tidesandcurrents.noaa.gov/publications/techrpt86\\_PaP\\_of\\_HTFlooding.pdf](https://tidesandcurrents.noaa.gov/publications/techrpt86_PaP_of_HTFlooding.pdf).

witness high-tide flooding 45 to 130 days. Such climate change impacts would significantly affect the reliability and operability of the nation's public infrastructure.

However, even absent any accounting of future flood conditions, current depictions of the 1 percent chance annual flood are vastly underestimated. According to a new study, *Estimates of Present and Future Flood Risk in the Conterminous United States*, 41 million U.S. residents that live along the nation's rivers are at risk of flooding, which is 2.6 – 3.1 times higher than amount determined based on the regulatory flood maps produced by FEMA.<sup>7</sup> As such, federally-funded infrastructure that is designed to withstand and operate within the magnitude of a 1 percent annual chance flood is and will increasingly become highly vulnerable to flood damages.

A federal flood protection standard that requires a higher margin of safety against flooding could protect people and property, reduce disaster costs by avoiding future damages, preserve riverine and coastal floodplains, and save taxpayer dollars over the long-term. Such a standard should: discourage building in floodplains, promote the use nature-based solutions and natural features where possible, and require structures to better withstand the impacts of flooding and extreme weather. The recently revoked Federal Flood Risk Management Standard provides a well-developed example of such a standard.

#### ***Encourage greater accessibility to and transparency of flood hazard data***

The Draft Strategy, under recommendation 4.1, states federal departments and agencies should enhance the availability and usability of federal risk data. To strengthen this recommendation, the Draft Strategy should specifically encourage FEMA to provide greater accessibility to and transparency of flood hazard data collected by the National Flood Insurance Program (NFIP).

Greater accessibility to and transparency of NFIP data is crucial to accurately informing homeowners, the broader public (including researchers, risk management professional, city planners) and other governmental agencies about flood risk. Access to and transparency of NFIP data also ensures accountability at the federal, state, and local levels.

FEMA has detailed information related to flood damages, the number and cost of policies, repeatedly flooded properties, costs of the program to the nation, and the level of compliance by participating communities with the NFIP's minimum building and land use requirements to reduce risk. However, much of this information is not publicly available and when it is, it can be difficult to locate. This lack of easy access hinders informed decision-making at both the individual and public levels to adequately address and mitigate flood risk. This must change.

The Draft Strategy should recommend that FEMA: (1) provide homeowners a "right to know" from FEMA about a property's complete history of NFIP flood claims and damages, and (2) respecting privacy rights, provide the public complete access to FEMA's NFIP data, including, but not limited to, information on property-specific claims, repeatedly flooded-properties, and community compliance.

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<sup>7</sup> Oliver EJ Wing *et al.*, *Estimates of Present and Future Flood Risk in the Conterminous United States*, Environ. Res. Lett. 13 (2018).

Providing property owners better access to their property's flood history could help encourage homeowners to consider purchasing and maintaining flood insurance or undertaking mitigation actions to lower their property's flood risk. Additionally, requiring FEMA to create a public, open-database to share NFIP data would provide more detailed information about flood risk than is currently available on FEMA flood maps, thus, encouraging better decision-making about development. Taken together, this information would provide a better understanding of flood risk and the exposure faced by the NFIP, especially important, as sea levels rise and extreme rain storms become more common, exacerbating flooding nationwide.

***Emphasize the importance of community compliance with the National Flood Insurance Program's minimum building and land use requirements to reduce risk***

In Recommendation 6.1, the Draft Strategy calls for the passage and enforcement of up-to-date model building codes. NRDC supports this recommendation, but believes this recommendation could be strengthened by emphasizing the importance of community compliance with the NFIP's minimum building and land use requirements.

Congress established the NFIP to be a key mechanism to reduce flood damages nationwide, and to lighten the financial burden on the federal government of aiding communities' recovery after flood disasters. The NFIP requires communities to adopt and enforce building and zoning codes that reduce flood risk, and in exchange their residents are eligible to purchase federal flood insurance coverage.

However, inadequate compliance with the NFIP's requirements for local land use regulations is a recognized problem of the program.<sup>8</sup> The NFIP's ability to reduce flood damages and minimize insurance claim payments is completely dependent on communities abiding by NFIP's minimum criteria for floodplain development. If communities fail to adopt and implement NFIP building and land use standards, people and property are put at risk and avoidable costs accrue to the NFIP, and the federal government. Yet the FEMA seldom takes enforcement action against non-compliant communities. Indeed, data received through a Freedom of Information Act request by NRDC indicate that some communities have been out of compliance with the NFIP for years.

The most recently available study, published by the American Institutes for Research (AIR) in 2006, found that FEMA almost never imposes probation—its strongest enforcement sanction—against non-compliant communities, even though, nationwide, 250 communities every year are likely in substantial violation of program requirements and thus candidates for probation.<sup>9</sup> Consequently, AIR concluded, there is a “widespread perception” that FEMA is unlikely to impose sanctions against communities in direct violation of the program. This in turn can encourage “bad actors” and discourage good ones, undermining hazard mitigation and jeopardizing the flood-reduction goals of the program at cost to the American taxpayer.

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<sup>8</sup> See Jacquelyn Monday et al., *An Evaluation of Compliance with the National Flood Insurance Program Part A: Achieving Community Compliance* xii (2006).

<sup>9</sup> *Id.* at 106.

In addition to encouraging state and local governments to enforce up-to-date building codes, the Draft Strategy should recommend greater pressure be exerted on federal actors, like FEMA, to ensure such enforcement action is undertaken. Adopting up-to-date building codes is important step, but ensuring their enforcement is the action that will ultimately reduce disaster costs and damages.

***Consider innovative ways to utilize the State Revolving Funds and the Water Infrastructure Finance and Innovation Act to support mitigation investments.***

In Recommendation 2.2, the Draft Strategy recommends innovative funding mechanisms to finance mitigation. The State Revolving Funds and the Water Infrastructure Finance and Innovation Act provide existing mechanisms that could be altered to provide greater mitigation funding opportunities.

State Revolving Funds for Water Infrastructure

Among the underutilized sources of funding for mitigation activities are the Clean Water and Drinking Water State Revolving Funds, overseen by USEPA (hereafter referred to collectively as “the SRFs”). These funds have provided \$151.2 billion to local communities since their inception<sup>10,11</sup> to support drinking water, wastewater, and stormwater projects. But the projects supported by the SRFs often do not adequately account for the risks associated with natural hazards or the future potential for natural hazards due to climate change.

The result can be the construction of water infrastructure than is not well-designed to withstand floods, coastal storms, future sea level rise, or droughts. In fact, some SRF financed projects may even be designed or sited so as to create additional vulnerabilities for the communities they serve. Between 1998 and 2014 the Federal Emergency Management Agency spent \$7.4 billion just to repair water and sewer infrastructure damaged by floods and coastal storms.<sup>12</sup> This amount represents approximately 15% of the total federal appropriations through EPA to support the SRFs over a similar time period, illustrating the need to incorporate natural disaster mitigation into the design of the nation’s water infrastructure. To adequately address the rising number of floods and droughts, as well as sea level rise, the nation may need an estimated \$448 - \$944 billion in additional funding by the year 2050.<sup>13</sup>

EPA should be requiring states to consider climate change impacts and the potential for natural hazards into their criteria for SRF project eligibility. USEPA and FEMA should also cooperate on an assessment of SRF expenditures and Public Assistance grants to determine how often the SRFs were used to build water infrastructure projects that later required FEMA public assistance

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<sup>10</sup> Since 1987 the CWSRF has provided \$118.7 billion to communities, <https://www.epa.gov/cwsrf> (viewed Feb 12, 2018).

<sup>11</sup> Since 1996 the DWSRF has provided \$32.5 billion to communities, <https://www.epa.gov/drinkingwatersrf/how-drinking-water-state-revolving-fund-works#tab-1> (viewed Feb 12, 2018).

<sup>12</sup> NRDC, The Need for Flood Protection Standards, November, 2015. Available at <https://www.nrdc.org/sites/default/files/NRDC-fema-assistance-grants-graphs.pdf>.

<sup>13</sup> National Association of Clean Water Agencies and Association of Metropolitan Water Agencies, *Confronting Climate Change: an early analysis of water and wastewater adaptation costs*, p. ES-1, October, 2009.

grants to repair or rebuild. Such an assessment would identify specific instances where the SRFs not only failed to support effective mitigation strategies, but may have also contributed to the construction of maladaptive water infrastructure.

Additional financial capacity to support more resilient water infrastructure could come, in part, from the states themselves. States have the authority to issue bonds in order to grow their SRFs' financial capacity, but twenty-two states have done no bonding to leverage their existing SRF resources. Of the states that have done so, a relatively small number account for the vast majority of leveraged resources that are made available through the SRF programs. Only four states, New York, Massachusetts, Ohio, and Indiana, regularly issue bonds to grow the financial capacity of their SRF programs. If more states did so, additional funding could be made available to support the construction of much more resilient drinking water, wastewater, and stormwater systems that fully account for the current and future potential of floods, coastal storms, sea level rise and drought.

Similarly, state SRF programs have the ability to support communities' efforts to build more resilient water infrastructure systems through the issuance of loan guarantees. Loan guarantees have been recognized by EPA as a best practice for supporting green infrastructure in the past<sup>14</sup>, but they are a financing tool that is appropriate for all forms of resilient water infrastructure. EPA believes government-backed loan guarantees could play a bigger role financing water infrastructure and they are a core component of the agency's implementation of the Water Infrastructure Finance and Innovation Act.<sup>15</sup>

Despite the obvious benefits to communities, states have failed to take advantage of this capability. As of 2016, New York was the only state to have issued a loan guarantee through its CWSRF to provide credit assistance. The one and only SRF-backed guarantee issued in the United States was in New York for \$24.3 million in financing (a miniscule 0.15 percent of the \$15.5 billion in assistance New York's CWSRF has provided over its history).<sup>16,17</sup>

According to a GAO study, "the Environmental Financial Advisory Board recommended that EPA take an active leadership role in facilitating states' use of the loan guarantees, particularly in funding environmentally innovative infrastructure projects. EPA regional officials we spoke with reported that, although state SRF programs have the authority to issue loan guarantees, the programs have not traditionally done so..."<sup>18</sup>

An Environmental Financial Advisory Board report specifically looked at how CWSRFs could better finance green infrastructure projects and found that "for each dollar of recycled CWSRF program equity, \$3 to \$14 of CWSRF guarantee capacity could be provided to fund green

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<sup>14</sup> EPA, *Financing Green Infrastructure: a best practices guide for the Clean Water State Revolving Fund*, 2015, p. 9. Available at [https://www.epa.gov/sites/production/files/2016-01/documents/final\\_gi\\_best\\_practices\\_guide\\_12-9-15.pdf](https://www.epa.gov/sites/production/files/2016-01/documents/final_gi_best_practices_guide_12-9-15.pdf).

<sup>15</sup> See 81 FR 91822, *Credit Assistance for Water Infrastructure Projects*, EPA, December 19, 2016.

<sup>16</sup> EPA CWSRF Data.

<sup>17</sup> Government Accountability Office (GAO), *State Revolving Funds: Improved financial indicators could strengthen EPA oversight*, August 2015, p. 35.

<sup>18</sup> *Id.* at 35.

infrastructure projects in addition to current project funding levels. This translates into \$6 billion to \$28 billion in potential green infrastructure funding capacity nationwide.”<sup>19</sup>

An estimated \$6 billion to \$28 billion capacity for loan guarantees for green infrastructure represents a major leap forward in funding that states are currently refusing to take. And there is nothing unique about loan guarantees to green infrastructure -- all forms of water infrastructure could benefit from loan guarantees. It is our understanding that the EFAB chose to focus their analysis on green infrastructure, due to the chronic lack of SRF support for these projects nationwide.

Clearly, the SRFs have the potential to provide tremendous financial capacity and should be an integral part of a National Mitigation Investment Strategy. This is particularly true given that drinking water, wastewater, and stormwater systems are among those systems most vulnerable to natural hazards, due to their function and the fact that these systems are often sited in low-lying areas that are vulnerable to floods and coastal storms.

#### Water Infrastructure Finance and Innovation Act

Another important source of funding for more resilient water infrastructure comes from USEPA’s implementation of the Water Infrastructure Finance and Innovation Act (WIFIA). Among the project types that WIFIA is prioritizing are those that do not generally receive widespread support from existing state SRF programs such as

- efforts to make water infrastructure systems more resilient to extreme weather events such as floods and hurricanes, as well as the impacts of climate change;
- green infrastructure; and
- water efficiency, reuse, and recycling.

WIFIA is still a developing program and in the midst of completing its first round of financing. But the potential is there to ensure that these funds are used to achieve a set of broader nationwide mitigation investment priorities.

#### ***Pre-disaster mitigation is key to building a safer, stronger, and more sustainable nation***

Proposals that seek to foster preparedness and resiliency on a national, state, and local scale must be pursued. Extreme weather events are increasing in frequency and severity, causing billions of dollars in disaster-related damages. The most cost-effective way to reduce the loss of life and property from a natural disaster is to mitigate the impacts before a disaster strikes. Pre-disaster mitigation by federal, state, local, and private actors should remain the overarching theme of the Draft Strategy.

Thank you for your consideration of NRDC’s comments. We would be happy to answer any questions you may have or provide you with further information if it is needed.

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<sup>19</sup> EPA Environmental Financial Advisory Board, “Utilizing SRF Funding for Green Infrastructure Projects,” January, 2014.

Sincerely,

A handwritten signature in black ink, appearing to read "Joel Scata". The signature is written in a cursive, flowing style with a long horizontal stroke extending to the right.

Joel Scata  
Attorney, NRDC