



December 27, 2016
The Honorable Julián Castro
Secretary
U.S. Department of Housing and Urban Development
451 7th Street, S.W.
Washington, D.C. 20410

(Submitted electronically via website www.regulations.gov)

RE: HUD-2016-0124-0001

Dear Secretary Castro,

The Natural Resources Defense Council (NRDC) appreciates the opportunity to provide comment to the Department of Housing and Urban Development (HUD) on the proposed rule: “Floodplain Management and Protection of Wetlands; Minimum Property Standards for Flood Hazard Exposure; Building to the Federal Flood Risk Management Standard” (“the Proposed Rule”). NRDC is an international nonprofit environmental organization with more than two 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, protecting human health, and ensuring safe and sufficient water for people and the environment.

The Proposed Rule would update HUD’s floodplain management regulations to be consistent with the requirements of Executive Order 13690 and the Federal Flood Risk Management Standard (“flood protection standard”). The Obama Administration issued the executive order and the flood protection standard to improve the nation’s resilience to flooding, reduce the cost to the Federal government of disaster response, and to better prepare the United States for the impacts of climate change. Climate impacts, such as sea level rise and extreme precipitation events, continue to intensify. With flooding already the most common and costly natural disaster in the United States, increases in frequency and severity of flood events exacerbated by these climate impacts portend significant economic and social consequences nationwide. With more than \$260 billion in flood-related damages since 1980, the Federal government has a duty to account for this future flood risk when funding infrastructure development to not only minimize the cost to the taxpayer of repeatedly paying to rebuild flood-damaged properties, but also to avoid placing people in harm’s way. HUD’s adoption of the Proposed Rule will ensure the agency is fulfilling that duty.

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NRDC supports enactment of the Proposed Rule, but recommends that HUD take the following actions to better achieve the intent of EO 13690 and the flood protection standard to increase the nation's resilience to future flooding:

- a) Provide guidance on how to determine the horizontal extent under the Freeboard Value Approach
- b) Reconsider the current proposal for allowing a community to voluntarily limit the horizontal extent of the Freeboard Value Approach beyond the 100-year floodplain
- c) Utilize the Climate-Informed Science Approach as the baseline determinant of flood risk for critical actions, which constitute federally-funded projects
- d) Encourage the use of nature-based approaches when practicable alternatives to locating in the flood protection standard floodplain are being considered.

I. The Freeboard Value Approach is an Effective and Proven Method for Protecting Non-Critical Infrastructure

NRDC supports the Proposed Rule's selection of the Freeboard Value Approach (FVA) for protecting non-critical, federally-funded infrastructure. Elevating or floodproofing homes and other infrastructure is a proven method for mitigating flood risk. Multiple states and local communities have already implemented elevation requirements that either meet or exceed the elevation requirements required under the Proposed Rule. Indiana, Montana, New York, and Wisconsin have a two-foot freeboard requirement for all development, both private and public, occurring in the 100-year floodplain.¹ Additionally, 232 communities across the nation have minimum elevation requirements of two feet for any new home located in the 100-year floodplain.² The Proposed Rule's requirement that non-critical HUD-funded infrastructure be protected two-feet above the 100-year floodplain is a common practice across the United States for mitigating flood risk. Moreover, as part of the Federal Emergency Management Agency's (FEMA) own proposed rule for implementing Executive Order 13690, FEMA published a study that showed the cost-effectiveness of adopting standards like those proposed by HUD.³

Additionally, NRDC supports HUD's proposal to use the FVA to delineate the horizontal extent of the flood protection standard floodplain. The expanded floodplain footprint will help guide the siting of projects beyond the boundary of the 100-year floodplain as depicted on the FEMA's Flood Insurance Rate Maps (FIRMs). Such action is necessary as the depiction of flood risk on FIRMs is often inaccurate. Uncertainties in riverine hydrology, changes in flood risk over time, and development in the floodplain all contribute to the underestimating of the "true" size of the 100-year floodplain.⁴ As a result, the 100-year floodplain is not accurately depicted on FIRMs, which encourages development to occur in high risk flood areas.⁵ For example, it is estimated

¹ See Association of State Floodplain Managers, *States and Other Communities in FEMA CRS with Building Freeboard Requirement* (2015) (compiling a list of states and communities with freeboard above 2 feet).

² *Id.*

³ FEMA, *2016 Evaluation of the Benefits of Freeboard for Public and Nonresidential Buildings in Coastal Areas 22* (Draft 2016).

⁴ Association of State Floodplain Managers, Gilbert F. White National Flood Policy Forum 2004 Assembly: Reducing Flood Losses: Is the 1% Chance (100-year) Flood Standard Sufficient? 63 (2004).

⁵ *Id.*

that people living outside of the 100-year floodplain file 20 percent of National Flood Insurance Program claims and receive one-third of disaster assistance for flooding.⁶ An expanded floodplain footprint will ensure employment of a more conservative estimate of flood risk, reducing the amount of damages and the amount of post-disaster assistance HUD expends in response.

Further, the FVA is crucial for protecting people and property from the effects of climate change, which is projected to increase the size of coastal and riverine floodplains, on average, by 45 to 50 percent.⁷ As current FIRMs do not account for future conditions, but instead rely on historical flood data, the boundaries of mapped 100-year are not an accurate depiction of flood risk new construction will face. The higher vertical elevation and expanded footprint will hold HUD accountable for the inclusion of these future conditions when using taxpayer dollars to fund infrastructure development. To rely solely on the boundaries of the 100-year floodplain, as well as the maps demarcating this zone which fail to account for changing future conditions, only serves to further endanger federally-funded facilities., Expanding the floodplain footprint horizontally, in addition to vertically, ensures that future conditions are accounted for when HUD carries out actions that will affect a floodplain.

II. The Proposed Rule Requires Revision to Better Attain the Aims of Executive Order 13690 and the Flood Protection Standard

a. Provide Guidance on How to Determine the Horizontal Extent of the FVA

NRDC urges HUD to provide guidance on determining the horizontal extent of the FVA. This guidance will assist applicants and other recipients of HUD funding in satisfying the requirements of the Proposed Rule, which could help reduce time and costs committed. NRDC recommends that HUD adopt FEMA's proposal of comparing the ground elevation on U.S. Geological Survey maps at the proposed site to the elevation established using the FVA.⁸ If the ground elevation is less than the FVA elevation, then the site is in the flood protection standard floodplain. Adopting FEMA's recommendation not only provides applicants a readily available source of information, but it also provides consistency between HUD and FEMA in implementing the FVA. This is particularly important, given both agencies' roles in providing post-disaster assistance. Providing guidance on the determination of the horizontal extent would not prevent HUD from "preserv[ing]the option to use new methodologies to determine horizontal extent as they become available,"⁹ if HUD leaves open the ability for applicants to submit ground elevation data that may differ than that found using the above-described method.

⁶ See *Flood Facts*, FEMA https://www.floodsmart.gov/floodsmart/pages/flood_facts.jsp (last visited December 22, 2016).

⁷ AECOM, *The Impact of Climate Change and Population Growth on the National Flood Insurance Program Through 2100* ES-6 (June 2013) (assessing climate change and population growth impact on floodplains throughout the United States).

⁸ See 81 Fed. 57402

⁹ See 81 Fed. 74967, 74973

b. The Proposal to Allow Communities to Voluntarily Limit the Horizontal Extent of the FVA is Too Broad, and Potentially Subject to Abuse or Misuse

The proposal to allow HUD to enter into voluntary agreements with communities to limit the horizontal extent of the FVA beyond the 100-year floodplain lacks appropriate detail and could be subject to abuse or misuse. As described, HUD would permit the limiting of the horizontal extent to the 100-year floodplain where “(1) the best available and actionable climate data shows the area and horizontal extent of the two-foot freeboard (or three-foot for a Critical Action) FFRMS exceeds local, relative sea-level rise rates or other climate-related projections and the 500-year floodplain including wave heights; and (2) there are limited or no safely or sustainably developable sites in a community outside of the two-foot FVA (or three-foot for a Critical Action).”

First, HUD fails to define what constitutes “limited or no safely or sustainably developable sites.” As written, this requirement is highly subjective, unclear as to who would make such a determination, and susceptible to abuse. If HUD is seriously considering adopting this exemption, the agency must better detail the factors that would constitute such a site.

Second, HUD fails to justify why a community would need an exemption from application of the horizontal extent of the FVA if limited, developable sites exist outside the currently mapped 100-year floodplain. As a practical matter, if there are limited options outside the 100-year floodplain to locate a project, those are still options to be considered. Even if those options are rejected the project, by default, would be located in the 100-year floodplain, and thus, still be subject to the elevation requirements of the FVA. In contrast, by permitting communities to not identify the horizontal extent of the FVA, HUD will essentially increase the vulnerability to flooding these communities face by keeping the public and project proponents uninformed about locations that might be safer to build on, likely due to the decreased risk of flooding. To permit the limiting of the horizontal extent to the 100-year floodplain, HUD may unintentionally reinforce a false sense of security about building in areas that are likely to flood in the future.

Lastly, the idea of limiting the horizontal extent to the boundary of 100-year floodplain runs contrary to the intentions of Executive Order 13690 and the flood protection standard to increase the resilience of communities to flooding and to reduce the disaster response costs to taxpayers. The expanded horizontal extent, as described above, will help account for the uncertainties and inaccuracies associated with the current depiction of the 100-year floodplain. HUD’s current proposal for limiting the horizontal extent is too vague to ensure that these uncertainties are actually addressed, which will result in development in high risk areas. As one-third of disaster assistance goes to recipients located outside the area of the 100-year floodplain, any attempt to restrict the size of the flood protection standard floodplain, without sound and valid justification for such action, is a repudiation of the goal to protect federally-funded infrastructure from an increasing risk of major flood events nationwide.

As currently proposed, NRDC is opposed to permitting the horizontal extent of the FVA to be limited beyond the 100-year floodplain.

c. Utilize the Climate-Informed Science Approach as the Baseline Determinant of Flood Risk for Critical Actions, which Constitute Federally-Funded Projects

While NRDC supports the use of the FVA for non-critical infrastructure, NRDC believes critical infrastructure should be subject to the Climate-Informed Science Approach (CISA). HUD's proposed use of the FVA or the 500-year floodplain for determining the flood protection standard floodplain and corresponding level of resiliency to which critical projects must be built is inadequate. Given that critical projects, like the rebuilding of a hospital after a flood, are deemed projects for which even a slight chance of flooding would be too great, these projects must account for the impacts of climate change. This assertion is especially true for coastal areas, which are susceptible to the impacts of sea level rise.

Rising sea levels must be considered in the planning and designing of critical projects to fully account for future flood risk. Sea levels may rise between two to six feet by the end of the century.¹⁰ The FVA only requires critical infrastructure to be elevated to three feet above the BFE. If a Flood Insurance Rate Map, which HUD proposed to use to determine the BFE, does not account for sea level rise and other climate impacts, as recommended by the Technical Mapping Advisory Council, then any critical infrastructure designed and built according to that baseline will be at risk of inundation. Failure to evaluate sea level rise over the next several decades would be an egregious oversight when deciding what to build, where to build, and how to build in coastal environments. The CISA should be the primary approach for determining the flood protection standard floodplain and the corresponding level of resilience to which critical infrastructure projects must be built.

d. Encourage the Use of Nature-Based Approaches When Practicable Alternatives to Locating in the Flood Protection Standard Floodplain are Considered

NRDC supports ensuring that natural features, including green infrastructure, are included as practicable alternatives for preserving the floodplain, but remain concerned that the proposal does not provide adequate guidance on how to incorporate nature-based approaches into the analysis. We urge HUD to provide guidance on how to consider natural systems, ecosystem processes, and nature-based approaches specifically for riverine systems and to direct recipients of HUD grants who must comply with these standards to credible sources of information.

III. Over the Long-Term, Executive Order 13690 and the Flood Protection Standard Will Significantly Reduce the Costs of Post-Flood Recovery and Promote Sound Investment of Taxpayer Dollars

The risk of flooding is increasing throughout the country. As such, Executive Order 13690 and the flood protection standard are a critical component of the nation's efforts to prepare for the unavoidable impacts of climate change. HUD's Proposed Rule, which incorporates the intentions of the executive order and flood protection standard into the agency's floodplain management regulations, will increase the resilience of federally-funded infrastructure to flooding, and thus, reduce the level of post-flood damage costs.

¹⁰ Climate Central, *Surging Seas*, <http://sealevel.climatecentral.org> (last visited December 22, 2016).

The Proposed Rule's requirement of additional freeboard above the base flood elevation is a widely practiced and cost-effective method to reduce flood risk.¹¹ For residential and commercial buildings, the cost of adding freeboard at the time of construction is modest in comparison to the benefit of avoided flood damages, particularly in coastal areas subject to wave effects.¹² The American Institute for Research has found that higher levels of elevation are achievable for single family structures, and that the benefits exceed the costs. Future conditions, which portend higher base flood elevation levels, increase the benefits of freeboard over the costs.¹³

In addition, a recent FEMA study of the benefits of freeboard for nonresidential buildings in coastal areas found that for critical infrastructure, such as hospitals, elevation above the 100-year flood level has significantly positive benefit-to-cost ratio.¹⁴ When sea level rise is accounted for in the analysis, there is a consistent increase in benefits of elevation over the costs.¹⁵ Thus, the implementation of the Proposed Rule will reduce the costs of post-flood recovery and promote sound investment of taxpayer dollars.

Overall, NRDC supports HUD's Proposed Rule as a step in the right direction for building a more resilient nation. We look forward to working with you on this important matter.

Sincerely,



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¹¹ FEMA, *2016 Evaluation of the Benefits of Freeboard for Public and Nonresidential Buildings in Coastal Areas* 22 (Draft 2016).

¹² *Id.* See generally, American Institute for Research, *The Evaluation of the National Flood Insurance Program: Evaluation of the National Flood Insurance Program's Building Standards* (2006).

¹³ American Institute for Research, *The Evaluation of the National Flood Insurance Program: Evaluation of the National Flood Insurance Program's Building Standards* xi (2006).

¹⁴ See FEMA, *2016 Evaluation of the Benefits of Freeboard for Public and Nonresidential Buildings in Coastal Areas* 13 (Draft 2016) (listing a benefit-cost-ratio of 16.92 for a hospital constructed with two feet of freeboard).

¹⁵ *Id.* at 13-14.