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RE: Request for Information on the National Flood Insurance Program's Floodplain Management Standards for Land Management and Use, and an Assessment of the Program's Impact on Threatened and Endangered Species and Their Habitats

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KEEPING THE NATIONAL FLOOD INSURANCE PROGRAM AFLOAT: UPDATING MAPS, PREMIUMS, AND MINIMUM STANDARDS

Flooding outpaces all other natural disasters in terms of its direct economic impacts and geographic reach, causing billions of dollars in damage each year in the United States.¹ Unfortunately, the climate crisis has dramatically increased the flood risk faced by communities nationwide.² The National Flood Insurance Program (NFIP) and minimum floodplain management standards remain important tools to respond to this looming threat, but these programs are critically endangered by the financial burdens associated with their current structure.³

The Intergovernmental Panel on Climate Change (IPCC) states in their August 2021 report that increased extreme precipitation – and subsequently a heightened risk of coastal and pluvial flooding – are very likely to occur across the United States.⁴ The IPCC has “high confidence” that North America will experience annual precipitation increases in mean and extremes. They have “medium confidence” of increased river and pluvial (flash) flooding. The increasing flood risk due to climate change will likely result in significantly greater costs. For example, recent research finds that in a scenario in which the global average temperature rises 3 degrees Celsius by 2050, expected annual damages due to flooding in New Jersey would

¹ Saman Armal et al., *Assessing Property Level Economic Impacts of Climate in the US, New Insights and Evidence from a Comprehensive Flood Risk Assessment Tool*, 8 *Climate* 116 (2020); NOAA, *Billion-Dollar Weather and Climate Disasters*, (Nov. 18, 2021), <https://www.ncdc.noaa.gov/billions/>.

² Cameron Wobus et al., *Climate Change, riverine flood risk and adaptation for the conterminous United States*, 16 *Env. Research Letters* 094034 (2021).

³ U.S. Gov’t Accountability Off., GAO-21-119SP, *Dedicated Leadership Needed to Address Limited Progress in Most High-Risk Areas* (2021).

⁴ Intergovernmental Panel on Climate Change, *Regional Fact Sheet – North and Central America* (2021), https://www.ipcc.ch/report/ar6/wg1/downloads/factsheets/IPCC_AR6_WGI_Regional_Fact_Sheet_North_and_Central_America.pdf.

increase by 41.4 percent compared to 2020.⁵ Across the country, this trend could place additional strain on the NFIP program and negatively impact public welfare.

Repetitive or multiple loss coastal properties, which have received more than a single payment from the NFIP, take up a disproportionately large share of resources.⁶ Despite constituting only 1.3 percent of all policies, these properties account for 25 percent of all NFIP payments since 1978.⁷ NFIP's current structure has sent the program towards a crash course, and change is necessary to curb the impending damage. The NFIP program is approximately \$20.5 billion in debt, suggesting that payouts far exceed premiums received and that development in flood-prone areas persists.⁸

We have identified four options FEMA has available to alter this trajectory, any combination of which may lead to improved outcomes. The following options are informed by a combination of academic literature review and the professional judgment of the contributors to this document.

Option 1: Revision of floodplain maps to incorporate climate change risks.

Previous iterations of floodplain maps do not adequately reflect the regions that are at risk of severe flood damage. For example, following Hurricane Harvey, nearly three quarters of damaged residential structures were located outside the 100-year floodplain indicated on then-current maps.⁹ Merely 17 percent of homeowners within the eight most directly affected counties

⁵ Saman Armal et al., *Assessing Property Level Economic Impacts of Climate in the US, New Insights and Evidence from a Comprehensive Flood Risk Assessment Tool*, 8 *Climate* 116 (2020); NOAA, *Billion-Dollar Weather and Climate Disasters*, (Nov. 18, 2021), <https://www.ncdc.noaa.gov/billions/>.

⁶ Union of Concerned Scientists, *Overwhelming Risk: Rethinking Flood Insurance in a World of Rising Seas* (Aug. 14, 2013), <https://www.ucsusa.org/resources/overwhelming-risk-rethinking-flood-insurance-world-rising-seas#.WN6KD2Vd2JU>.

⁷ *Id.*

⁸ Scott Colby & Katherine Zipp, *Excess vulnerability from subsidized flood insurance: housing market adaptation when premiums equal expected flood damage*, 12 *Climate Change Econ.* 2050012 (2021).

⁹ Sarah Pralle, *Drawing Lines: FEMA and the politics of mapping flood zones*, 152 *Climate Change* 227 (2019).

in Texas possessed flood insurance, highlighting the importance of revising floodplain maps to ensure coverage in critical areas.¹⁰

This trend is reflected nationwide, with an average of 30 percent of homeowners in high flood-risk areas possessing flood insurance.¹¹ As was the case following Hurricane Harvey, low insurance rates leave a greater proportion of homeowners unable to bear the costs of extreme flooding, placing the financial burden of disaster relief onto federal taxpayers.¹² Additionally, increasing the number of insured under the NFIP is key to reducing the program's deficit.¹³

For this reason, revised and accurate maps are necessary for the NFIP to achieve its goals of mitigating costs and shifting them away from taxpayers.¹⁴ Only properties within the 100-year floodplain are designated as "special flood hazard areas" and thus legally required to obtain flood insurance.¹⁵ Accurately identifying which properties fall within this area can ensure that the most vulnerable properties are covered through NFIP or private flood insurance.

Second, FEMA floodplain maps are some of the few tools that can be used to guide smarter community development. Homebuyers, businesses, and property developers engage in various cost-benefit analyses before deciding whether to move into or construct in specific geographic regions. The risk of natural disasters is of increasing importance for homebuyers, and without reliable data, their economic calculus is inherently flawed.¹⁶ Homeowners may also use

¹⁰ Heather Long, *Where Harvey is hitting hardest, 80 percent lack flood insurance*, Washington Post (Aug. 29, 2017), <https://www.washingtonpost.com/news/wonk/wp/2017/08/29/where-harvey-is-hitting-hardest-four-out-of-five-homeowners-lack-flood-insurance/>.

¹¹ Risk Management and Decision Process Center, *Closing the Flood Insurance Gap*, University of Pennsylvania (2021), <https://riskcenter.wharton.upenn.edu/policy-incubator/upgrading-flood-insurance/closing-the-flood-insurance-gap/>.

¹² Mary Williams Walsh, *Homeowners (and Taxpayers) Face Billions in Losses From Harvey Flooding*, NY Times (Aug. 28, 2017), <https://www.nytimes.com/2017/08/28/business/dealbook/flood-insurance-harvey.html>.

¹³ Michel-Kerjan, *Catastrophe Economics: The National Flood Insurance Program*, 24 J. of Economic Perspectives 165 (2010).

¹⁴ Sarah Pralle, *Drawing Lines: FEMA and the politics of mapping flood zones*, 152 Climate Change 227 (2019).

¹⁵ Fed. Emergency Mgmt. Agency, *Flood Zones* (2021), <https://www.fema.gov/glossary/flood-zones>.

¹⁶ Sara Wisker Chen, *Natural Disaster Threats Are Now Front and Center for Homebuyers*, Realtor.com (Sep. 27, 2021), <https://www.proquest.com/docview/2576607183?pq-origsite=primo&accountid=15078>.

this information to make decisions about the types of individual efforts they might undertake to protect their property from flood damage, such as installing sump pumps, elevating buildings, raising outlets, and re-grading their property.

Furthermore, it is critical to consider the impacts that updating floodplain maps will have on low-income communities and communities of color. In over two-thirds of states, areas with more residents of color have a greater amount of unmapped flood risk.¹⁷ For example, current FEMA maps do not indicate that any properties lie within the 100-year floodplain in the majority African American neighborhood of Englewood, Chicago. However, when utilizing First Street Foundation's floodplain model, which accounts for climate risk, the New York Times found that nearly a third of Englewood's properties fall within the 100-year floodplain.¹⁸

Revised maps can create opportunities for these communities to receive insurance coverage, though they may result in some adverse outcomes. The market value for homes located within the floodplain can range anywhere from approximately 3.5 to 12.2 percent lower than those outside of the floodplain.¹⁹ On top of this, NFIP premiums would be required to increase an average of 4.5 times nationwide to adequately cover actual risk.²⁰ Because low-income communities and communities of color are disproportionately located in previously unmapped regions, these communities are likely to bear some of this financial burden.

¹⁷ Christopher Flavelle, et al., *New Data Reveals Hidden Flood Risk Across America*, New York Times (Jun. 29, 2020), <https://www.nytimes.com/interactive/2020/06/29/climate/hidden-flood-risk-maps.html>.

¹⁸ *Id.*

¹⁹ Lei Zhang & Tammy Lee, *Flood Hazards Impact on Neighborhood House Prices*, 58 J. Real Estate Finan. Econ. 656 (2019).

²⁰ First Street Foundation, *The Cost of Climate: America's Growing Flood Risk* (Feb. 2021), https://assets.firststreet.org/uploads/2021/02/The_Cost_of_Climate_FSF20210219-1.pdf; Tim Frazier et al., *Socioeconomic implications of national flood insurance policy reform and flood insurance rate map revisions*, 103 Natural Hazards 329 (2020)

Ultimately, however, revising floodplain maps to reflect accurate risks will allow insurance coverage to protect these communities from potentially devastating losses associated with severe floods. As of 2020, 35 percent of Americans stated that they did not have \$400 in liquid assets in case of an emergency, while 12 percent stated they would not be able to pay for this expense by any means.²¹ Proper flood insurance coverage would thus be necessary for individuals without sufficient assets to recover after a severe flood event.

Option 2: Setting premiums in proportion to actual risk as planned with Risk Rating 2.0 and introducing means-tested subsidies.

The NFIP is spending more than it is receiving. Exacerbating the NFIP's debt is the practice of "grandfathering," through which a property constructed prior to the establishment of a flood insurance rate map or experiencing a reclassification to a higher-risk flood zone may pay insurance rates based on the original lower-risk status or base flood elevation.²² Coastal regions currently see their premiums subsidized by as much as a third, while their flood damages may increase by as much as 8 percent.²³ In the absence of actual-risk calculations and scaling of premiums, the gap between the premium rate and damages for grandfathered properties will increase.²⁴ Should revisions to floodplain maps occur, more grandfathered properties might be subsidized, and the growing imbalance would result in additional program losses.²⁵ FEMA's

²¹ US Fed. Reserve, *Report on the Economic Well-Being of Households in 2020* (May 2021), <https://www.federalreserve.gov/publications/2021-economic-well-being-of-us-households-in-2020-dealing-with-unexpected-expenses.htm>.

²² Benjamin Miller et al., *Reasonable and Risk-Based? Replacing NFIP Generally Subsidized Rates with a Means-Tested Subsidy*, 85 S. Econ. J. 1180 (2019).

²³ Congressional Budget Office, *The National Flood Insurance Program: Financial Soundness and Affordability*, (Sep. 1, 2017) <https://www.cbo.gov/publication/53028>.

²⁴ Scott Colby & Katherine Zipp, *Excess vulnerability from subsidized flood insurance: housing market adaptation when premiums equal expected flood damage*, 12 Climate Change Econ. 2050012 (2021).

²⁵ *Id.*

planned revisions under Risk Rating 2.0 address these concerns, increasing revenue and reducing the financial burden on unsubsidized properties.²⁶

A downside to the planned revisions is their potential to lead to “climate gentrification,” where vulnerable, often low income and communities of color, are displaced from coastal communities due to rising housing prices.²⁷ Setting premiums based on property risk is likely to result in a substantial increase in cost for homeowners in high-risk regions.²⁸ As mentioned earlier, while higher-income households may be able to absorb these costs, the welfare of low and middle income households could be impacted more severely by higher premiums.²⁹ Though premiums can be reduced by undertaking additional mitigation measures such as retrofit elevation or regrading, even these measures can be prohibitively expensive.³⁰

The inequities introduced by setting insurance rates based on actual risk can be mitigated by replacing the practice of grandfathering with a means-tested subsidy designed to support low-income households in floodplains. In a New York City case study, researchers determined that implementation of a means-tested subsidy awarded based on income and proportionate housing expenditures resulted in approximately \$182 million of additional program revenue.³¹ Though the proportion of savings may not be identical in communities across the country, these results

²⁶ Benjamin Miller et al., *Reasonable and Risk-Based? Replacing NFIP Generally Subsidized Rates with a Means-Tested Subsidy*, 85 Southern Economic J. 1180 (2019); FEMA, *Risk Rating 2.0: Equity in Action*, (Apr. 2021), https://www.fema.gov/sites/default/files/documents/fema_rr-2.0-equity-action_0.pdf.

²⁷ Aparna Nathan, *Climate is the Newest Gentrifying Force, and its Effects are Already Re-Shaping Cities*, Harvard University Science Policy Blog (Jul. 15, 2019), <https://sitn.hms.harvard.edu/flash/2019/climate-newest-gentrifying-force-effects-already-re-shaping-cities/>.

²⁸ Zachary Paganini, *Underwater: Resilience, radicalized housing, and the national flood insurance program in Canarsie, Brooklyn*, 104 Geoforum 25 (2019).

²⁹ Scott Colby & Katherine Zipp, *Excess vulnerability from subsidized flood insurance: housing market adaptation when premiums equal expected flood damage*, 12 Climate Change Economics 2050012 (2021).

³⁰ Zachary Paganini, *Underwater: Resilience, radicalized housing, and the national flood insurance program in Canarsie, Brooklyn*, 104 Geoforum 25 (2019).

³¹ Benjamin Miller et al., *Reasonable and Risk-Based? Replacing NFIP Generally Subsidized Rates with a Means-Tested Subsidy*, 85 S. Econ. J. 1180 (2019).

suggest that means-tested subsidies may result in greater revenue while addressing the concerns of the most vulnerable members of the population.

Option 3: Incorporating managed retreat/buyout programs into the NFIP.

Incorporating managed retreat and buyouts into the structure of NFIP allows for a one-time investment rather than routine annual cost.³² These are not novel programs, having been implemented in Soldier's Grove, Wisconsin as early as 1978.³³ However, existing voluntary buyout programs in the absence of other systematic coastal adaptation strategies have resulted in limited buyouts in scattered regions, which has hindered their success in promoting flood resilience.³⁴

FEMA currently supports buyout programs through its Hazard Mitigation and Flood Mitigation Assistance grant programs.³⁵ Local communities apply to receive federal funds to help administer buyouts and may have up to 100 percent of their program costs covered by federal contribution.³⁶ However, homeowners may not accept buyout offers despite facing significant flood risk due to potential impacts to their social networks or fears of displacement.³⁷ Research suggest that property owners are less likely to consider a buyout the longer they reside in one location.³⁸

³² Robin Kundis Craig, *Coastal adaptation, government-subsidized insurance, and perverse incentives to stay*, 152 *Climatic Change* 215 (2019).

³³ *Id.*

³⁴ *Id.*

³⁵ Environmental Law Institute, *Floodplain Buyouts: An Action Guide for Local Governments on How to Maximize Community Benefits, Habitat Connectivity, and Resilience*, University of North Carolina (Apr. 2017), <https://www.eli.org/sites/default/files/eli-pubs/actionguide-web.pdf>.

³⁶ FEMA, *Hazard Mitigation Assistance Cost Share Guide* (May 2016), https://www.fema.gov/sites/default/files/2020-08/fema_hma_cost-share-guide.pdf.

³⁷ A. R. Siders, *Social Justice Implications of US managed retreat buyout programs*, 152 *Climatic Change* 239 (2019).

³⁸ Eugene Frimpong et al., *Measuring Heterogeneous Price Effects for Home Acquisition Programs in At-Risk Regions*, 85 *S. Econ. J.* 1108 (2019).

To address these concerns, it is critical that buyout programs are structured to reduce the potential social inequities that may be generated through their implementation. For example, buyout programs may exacerbate social inequity if participants are relocated to areas where flood risk is identical, or areas which are more impoverished and isolated from resources.³⁹ Providing relocation assistance to support individuals in selecting a new area to live is vital to mitigating this.⁴⁰ FEMA can reduce the risk of these inequities by maintaining transparency as to the criteria for and decision-making process of buyout/relocation programs.⁴¹

Lastly, the NFIP program could be structured so that insurance payments are treated as payment for property as opposed to compensation for damage.⁴² For example, “twice and out” policies where properties receiving two payouts totaling double the value of the home are treated as a purchase of property.⁴³ This policy would disincentivize continued settlement of regions with high flood risk, while preventing the “checkerboard” acquisition of property that prevents the implementation of adaptation strategies such as the creation of natural buffer zones.⁴⁴

Option 4: Raising minimum freeboard elevation and setback requirements for new developments in floodplains.

Current freeboard elevation and setback requirements for developments in floodplains may no longer be effective considering growing flood hazards. In the Great Lakes region, for example, historic high-water levels in January 2020 resulted in significant damage to shorelines

³⁹ A. R. Siders, *Social Justice Implications of US managed retreat buyout programs*, 152 *Climatic Change* 239 (2019).

⁴⁰ *Id.*

⁴¹ *Id.*

⁴² Robin Kundis Craig, *Coastal adaptation, government-subsidized insurance, and perverse incentives to stay*, 152 *Climatic Change* 215 (2019).

⁴³ *Id.*

⁴⁴ *Id.*

and led to a federal disaster declaration for Milwaukee, Racine, and Kenosha counties.⁴⁵ This damage occurred despite the implementation of shore protective structures, such as breakwaters, and setback distances for coastal improvements such as engineered wetlands.⁴⁶

Setting higher freeboard elevation requirements can mitigate the risk of extensive damage to properties within the floodplain which, as discussed above, can be significantly populated by low-income and communities of color.⁴⁷ Current base flood elevation (BFE) and freeboard levels are determined utilizing FEMA flood insurance rate maps, which are based on historical data and may no longer reflect accurate land characteristics and risk.⁴⁸ As climate change results in an increase in the frequency of intense precipitation levels, current BFE measures may become inaccurate. Setting minimum requirements for freeboard elevation above BFE to match FEMA's current elevation recommendations accommodates for growing flood hazards.⁴⁹

Additionally, setback requirements for new construction could be modified to require a minimum riparian corridor green space allocation. In addition to providing for threatened and endangered species and promoting urban biodiversity, green space corridors can help to reduce flood risk as well as provide positive treatment effects with respect to stormwater runoff during lesser events.⁵⁰

⁴⁵ FEMA, *President Donald J. Trump Approves Major Disaster Declaration for Wisconsin* (Mar. 11, 2020), <https://www.fema.gov/news-release/20200514/president-donald-j-trump-approves-major-disaster-declaration-wisconsin>.

⁴⁶ Ricardo Torres, *Evers asks Trump for federal aid for lakeshore damage; state eligible for \$10 million*, Milwaukee Journal Sentinel (Feb. 12, 2020), <https://www.jsonline.com/story/news/local/milwaukee/2020/02/12/lake-michigan-evers-asks-trump-federal-aid-damaged-shoreline/4735622002/>.

⁴⁷ Christopher Flavelle, et al., *New Data Reveals Hidden Flood Risk Across America*, New York Times (Jun. 29, 2020), <https://www.nytimes.com/interactive/2020/06/29/climate/hidden-flood-risk-maps.html>.

⁴⁸ FEMA, *Elevating Floodprone Buildings Above Minimum NFIP Requirements* (Apr. 2017), https://www.fema.gov/sites/default/files/2020-07/elevating-flood-prone-buildings_iowa-floods-2016.pdf.

⁴⁹ *Id.*

⁵⁰ Jeremy G. Carter, et al., *Adapting cities to climate change- exploring the flood risk management role of green infrastructure landscapes*, 61 J. of Env. Plan. and Mgmt. 1535 (Jun. 2017), <https://web-p-ebcohost-com.ezproxy.lib.uwm.edu/ehost/pdfviewer/pdfviewer?vid=0&sid=e509172e-4be7-451d-a9ff-75b45e5bdbed%40redis>.

Summary

Significant changes must be made to the structure of the NFIP and minimum floodplain management standards for the program to remain viable and achieve its goals. The following options may be used in combination with one another to improve the success of the program.

Option 1: If FEMA aims for its maps to accurately categorize regions based on their flood risk, it should revise current maps. New research shows large swathes of the country, particularly low-income communities, and communities of color, are at risk of flooding but not classified as within the 100-year floodplain. Updating the maps will allow the public to make more informed decisions regarding land management and their housing while promoting participation in the NFIP program. Without more, this will likely increase premiums and lower housing prices in floodplain properties. However, these impacts can be mitigated through implementation of subsequent options below.

Option 2: If FEMA wants to increase its financial sustainability, yet avoid an inequitable burden on lower income households, it should go forward with its Risk Rating 2.0 and phase out “grandfathered” subsidies. We recommend going further and replacing the old subsidies with means-tested subsidies. As the frequency of major flood events increases, so will the NFIP’s losses. The current grandfathered subsidies create significant imbalance between the expected cost and premiums, contributing to the NFIP’s dire financial situation. Eliminating grandfathered subsidies may close this gap but likely result in imposition of higher costs on low-income and communities of color. For this reason, FEMA should replace them with means-tested subsidies calculated using income and proportionate housing expenditures to mitigate equity issues.

Option 3: If FEMA wants to address the financial burdens posed by multiple/repetitive loss properties, it should incorporate a managed retreat/buyout program. Approximately 1.3

percent of all NFIP plans account for a quarter of payments. For example, “twice and out” buyout programs in which payouts totaling double the value of a property are treated as payment for the property can discourage remaining in high-risk regions and reduce costs.

Option 4: If FEMA wants to reduce the hazard risk for new developments in floodplains, it should establish higher freeboard elevation and greater setback requirements. Current BFE levels have not scaled in proportion with growing flood risk. Establishing higher minimum elevation requirements will ensure that new developments are better positioned to withstand extreme flood events. Lastly, setting “green corridor” setback requirements will provide for natural buffer zones which promote biodiversity and reduce flood impacts by absorbing storm runoff.