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Written testimony of Jerry Theodorou
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Before the United States Senate
Senate Committee on Banking, Housing, and Urban Affairs
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Chairman Brown and Ranking Member Toomey:

Thank you for the opportunity to offer testimony on the reauthorization of the National Flood Insurance Program (NFIP). My name is Jerry Theodorou, and I am the director of the Finance, Insurance and Trade program at the R Street Institute (R Street). R Street is a nonprofit, nonpartisan public policy research organization whose mission is to engage in policy research and outreach to promote free markets and limited, effective government. The issues covered in today's hearing are of special interest to R Street because since its founding, R Street has analyzed the NFIP, including contributing to development of the 2012 Biggert-Waters Flood Insurance Reform Act.

We believe that a five-year reauthorization, instead of the current short-term sunsets, would afford Congress the opportunity to conduct a thorough review of the performance of the program and introduce much-needed reforms. A reformed NFIP would benefit homeowners, limit drag on the U.S. Treasury, unleash the power of the private market and ultimately reduce damage to the U.S. economy from flood risk.

The NFIP was established in 1968 by the federal government with two main objectives:

1. To encourage state and local governments to constrict development of land exposed to flood hazards and guide future development away from such locations; and
2. To provide flood insurance through a cooperative public-private program with equitable sharing of costs between the public and private sectors.[1]

Attainment of the two objectives would reduce economic losses caused by flooding. The two objectives have not been met. First, development in flood-prone areas is not being restricted—rather, it is expanding.[2] In the four decades following the NFIP's establishment, from 1970 to 2010, the U.S. population living in coastal counties grew by 50.9 million, a 45 percent increase. The percentage of Americans who live in coastal counties has risen by 15.3 percent since 2000,

[1] 42 US Code, Section 401; National Research Council, et al., *Affordability of Flood Insurance Program Premiums: Report 1* (The National Academies Press, 2015), pp. 23-34. https://nap.nationalacademies.org/read/21709/chapter/4.
[2] Rob Jordan, "Stanford researchers reveal that homes in floodplains are overvalued by nearly $44 billion," Stanford News, April 26, 2021. https://news.stanford.edu/2021/04/26/flood-risks-impact-home-values.

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and numbers approximately 95 million people, representing 29.1 percent of the total U.S. population.[3]

Regarding the second objective, there is no equitable sharing of costs between the public and private sectors. The private sector is only peripherally involved in bearing flood risk. The involvement of the private insurance sector is restricted to administration of the program, for which insurers are remunerated by the NFIP.[4] The participation of private insurers in flood insurance as a risk-bearer is *de minimis*, writing less than a tenth the premium collected by the NFIP.

Instead of attaining the overarching goal of reducing economic losses caused by flooding, flood-related economic losses have increased. In the past decade, U.S. economic losses caused by flooding were $943 billion, close to five times more than the $211 billion cumulative flood-related losses in the prior decade.[5] In this testimony, we highlight five issues standing in the way of the NFIP falling short of achieving its mission, and propose solutions to remedy those problem areas.

In addition to its two foundational goals, other goals of the NFIP include making flood insurance affordable and making the NFIP solvent. These are competing goals. If flood insurance becomes more affordable and costs less than is actuarially sound, the finances of the NFIP are adversely impacted. If flood insurance is priced at the risk-appropriate level, it becomes more expensive and less affordable. Therefore, a balance between the two competing goals should be sought if both are desired.

The NFIP has focused more on affordability rather than program solvency, with the result that NFIP flood insurance has been historically underpriced, and the program has accumulated close to $37 billion in debt, $16 billion of which was forgiven in 2017.[6] The NFIP regularly operates at a financial loss.[7] Losses and expenses outstrip revenues, contributing to annual deficits, which

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[3] Darryl Cohen, "About 60.2M Live in Areas Most Vulnerable to Hurricanes," United States Census Bureau, July 15, 2019. https://www.census.gov/library/stories/2019/07/millions-of-americans-live-coastline-regions.html#:~:text=About%2060.2M%20Live%20in%20Areas%20Most%20Vulnerable%20to%20Hurricanes&text=About%2094.7%20million%20people%2C%20or,a%2015.3%25%20growth%20since%202000.
[4] Federal Emergency Management Agency, "Work With the National Flood Insurance Program," U.S. Department of Homeland Security, last accessed Jun 13, 2022. https://www.fema.gov/flood-insurance/work-with-nfip.
[5] "Economic damage caused by floods and flash floods in the U.S. from 1995 to 2020," Statista, last accessed June 13, 2022. https://www.statista.com/statistics/237420/economic-damage-caused-by-floods-and-flash-floods-in-the-us.
[6] National Research Council, et al., *Affordability of National Flood Insurance Program Premiums: Report 1* (The National Academies Press, 2015). https://doi.org/10.17226/21709; "A Brief Introduction to the National Flood Insurance Program," Congressional Research Service, Dec. 9, 2021. https://sgp.fas.org/crs/homesec/IF10988.pdf.
[7] "Budget Basics: The National Flood Insurance Program," Peter G. Petersen Foundation, Feb. 12, 2020. https://www.pgpf.org/budget-basics/the-national-flood-insurance-program.

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have led to the NFIP being $20.5 billion in debt to the Treasury following Treasury's 2017 $16 billion debt forgiveness.[8]

We are not alone in concluding that the NFIP, now in its 55th year, is in urgent need of review and reform. The NFIP has had an unenviably long-standing presence on the Government Accountability Office (GAO) High-Risk Report.[9] The NFIP has been on the High-Risk list since 2006, because of its "financial and management challenges."[10] The High-Risk report identifies government "programs and operations that are vulnerable to waste, fraud, abuse, or mismanagement, or in need of transformation."[11] The GAO has found that the NFIP merits inclusion on the High-Risk list because Congress has not yet enacted comprehensive reforms to address the spectrum of challenges confronting the NFIP, and the Federal Emergency Management Agency (FEMA) has not yet completed action on key open recommendations.

Structurally, the NFIP is positioned within FEMA. The program provides federally backed flood insurance to homeowners, renters and businesses in communities that participate in the program by adopting protection standards. The NFIP also seeks to reduce flood risk by encouraging floodplain management.

There are numerous aspects of the NFIP's operation that deserve scrutiny. In the analysis that follows, we focus on five salient areas where reform would improve management of flood risk and address problems facing the program that have made it unsustainable, and in need of reform. In one of the areas—actuarially sound rating (discussed in section 3 below)—progress has already been made. We encourage Congress to continue to review NFIP operations and introduce improvements.

1. Development of a Private Market for Flood Insurance

The private insurance market for flooding is dwarfed by the NFIP's participation in the market. Private insurers are unable to compete effectively with the NFIP because NFIP policies are priced

[8] Gloria Gonzalez, "Trump signs bill forgiving $16 billion in NFIP debt," Business Insurance, Oct. 27, 2017. https://www.businessinsurance.com/article/20171027/news06/912316843/trump-signs-disaster-relief-bill-forgiving-16-billion-dollars-nfip-debt.
[9] "National Flood Insurance Program," U.S. Government Accountability Office, last accessed June 13, 2022. https://www.gao.gov/highrisk/national-flood-insurance-program.
[10] "National Flood Insurance Program: Fiscal Exposure Persists Despite Property Acquisitions," U.S. Government Accountability Office, June 2020. https://www.gao.gov/assets/gao-20-508.pdf.
[11] Ibid.

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below actuarially sound rates. If private market insurers were to compete with the NFIP on the basis of rates, they would operate at a loss. The NFIP's losses are borne by the Treasury, and ultimately by taxpayers. When private insurers operate at a loss, their capital and surplus are adversely impacted, worsening their financial condition, and potentially threatening their ability to continue. For this reason, private market insurers find it hard to compete with subsidized, below-market NFIP rates, and refrain from doing so.[12]

The private flood insurance market measures approximately $300 million in annual net premium written, less than one tenth of the $3.6 billion in premium written by the NFIP in 2021.[13] The private insurance market is no stranger to flood insurance. Congress first proposed providing flood insurance in the 1950s, after it became clear that private insurance companies could not profitably provide flood coverage at a price that consumers could afford, primarily because of the catastrophic nature of flooding and the difficulty of determining accurate rates. The box below provides a concise history of the early involvement of the private market with flood insurance. It is noted that a program proposed in 1952 stated that a government program for flood insurance should not compete with private insurance companies.

The Private Market in the History of the NFIP

Flood insurance was offered by private insurers between 1895 and 1927. Severe losses in 1927 and 1928 from flooding of the Mississippi River led insurers not to cover flood losses in their homeowners insurance policies. Without private insurance, the government stepped in to provide disaster relief. Following flooding in the Midwest in 1951, President Harry Truman proposed a national program of flood insurance. The program was to be "based upon private insurance with reinsurance by the Government."[14] Significantly, in the draft legislation presented to Congress in 1952, which was not passed, it was stipulated that the private sector insurance market would play a central role for the private sector, and that the program "should not compete with private insurance companies."[15]

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[12] "Flood Insurance: Potential Barriers Cited to Increased Use of Private Insurance," U.S. Government Accountability Office, July 14, 2016. https://www.gao.gov/products/gao-16-611.
[13] "Spotlight on: Flood Insurance," Insurance Information Institute, Nov. 30, 2021. https://www.iii.org/article/spotlight-on-flood-insurance; Federal Insurance & Mitigation Administration, *The Watermark*, Federal Emergency Management Agency, 1:17 (2022). https://www.fema.gov/sites/default/files/documents/fema_fy2022-q1-watermark.pdf.
[14] National Research Council, et al. https://doi.org/10.17226/21709.
[15] Ibid.

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Following the exit of private insurers from the flood market in the 1920s, insurers refrained from re-entering for two reasons. First, they lacked sufficient data on flood risk to be able to price it correctly. Insurers rely on historical loss data for their ratemaking. When insurers lack sufficient historical loss data, they either refrain from offering coverage, or load the premium to account for uncertainty surrounding unmodeled risk. Second, insurance buyers knew more about their flood risk than insurers. This constitutes reversal of the information asymmetry in insurance—policyholders buy insurance because they do not know the precise magnitude of risk, whereas data-rich insurers have more information on risk, and can price policies with greater confidence. As a result, when private insurers offered flood insurance, it was on terms buyers were unwilling to accept.

Insurers have more tools at their disposal today to satisfactorily price flood risk than they did in the 1980s and prior. Since Hurricane Andrew in 1992, the insurance industry has benefited from the development of catastrophe risk modeling.[16] Enabled by modern computing power, catastrophe risk models employed by insurers incorporate vast amounts of granular data on precise geographic, geological, climate and building factors to generate stochastic calculations of risk magnitude, allowing insurers to price risk with much greater confidence than possible without the model.

When modeled risk is higher than reflected in NFIP pricing, private insurers will refrain from competing with such underpriced NFIP policies. But when modeled risk is lower than reflected in NFIP pricing, private insurers will pursue such business, leaving the NFIP with a higher proportion of underpriced policies. This phenomenon is known as adverse selection, and to the extent that it occurs, the finances of the NFIP are adversely impacted.

The private market for flood insurance can be encouraged by the NFIP pricing its policies at actuarially sound rates. If NFIP rates were risk-based, private insurers could compete on the basis of service and product offerings. NFIP policies are relatively rigid. For example, the limit of insurance for homeowners is a flat $250,000 and $500,000 for commercial buildings damaged by flooding.[17] Private insurers would offer more coverage and deductible options, affording policyholders more choice.

2. Reduction of Subsidies

The NFIP practice of subsidizing policies is a driver of rate inadequacy in the program. Policies with subsidies, or discounts, do not reflect the full risk of flooding. The aggregate value of NFIP

[16] "Catastrophe modeling: A vital tool in the risk management box," Insurance Information Institute, Feb. 1, 2008. https://www.iii.org/article/catastrophe-modeling-vital-tool-risk-management-box.
[17] "A Brief Introduction to the National Flood Insurance Program." https://sgp.fas.org/crs/homesec/IF10988.pdf.

discounts is $0.7 billion, approximately 20 percent of the NFIP's $3.5 billion total premium revenue. Approximately one million NFIP policies are discounted, representing approximately 20 percent of the NFIP's five million policies.[18] Subsidized FEMA policies feature discounted premium for policyholders who became NFIP customers prior to the development of Flood Insurance Rate Map (FIRM) rates.[19] Subsidized rates are generally offered to properties in high-risk locations (special flood hazard areas) that were built before flood maps were created. FEMA estimates that, on average, premiums for those pre-FIRM properties are set at about 55 percent to 60 percent of the expected cost.[20]

Another category of underpriced, subsidized policyholders is customers who continue to have access to discounted premiums and who are grandfathered into subsidies because their homes were found to have higher flood risk than originally estimated. Grandfathering premiums was introduced by FEMA to allow property owners meeting specified conditions to continue to have a lower rate in the event that an updated FIRM showed that they were at a greater flood risk than originally believed. FEMA allows some property owners whose properties are remapped into higher-risk flood zones to continue to pay the premium rate from the lower-risk zone. FEMA data shows that approximately 9 percent of NFIP policies were receiving grandfathered rates as of June 2019.[21]

The subsidies, which result in discounted premiums, contribute to the NFIP's unsound financial condition. Subsidies were originally introduced in the NFIP's 1968 founding legislation to make coverage available at affordable rates, to incentivize broad participation in the program and to encourage floodplain management by communities. The Congressional Budget Office (CBO) found that most of the subsidized policies were for properties built before the issuance of a local flood map.[22]

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[18] "Budget Basics: The National Flood Insurance Program." https://www.pgpf.org/budget-basics/the-national-flood-insurance-program; "The National Flood Insurance Program: Financial Soundness and Affordability," Congressional Budget Office, last accessed June 13, 2022. https://www.cbo.gov/system/files/115th-congress-2017-2018/reports/53028-nfipreport2.pdf.

[19] Federal Emergency Management Agency, "Discount Explanation Guide," U.S. Department of Homeland Security, April 2022. https://www.fema.gov/sites/default/files/documents/fema_discount-Explanation-Guide.pdf.

[20] "Congressional Budget Office: Cost Estimate," Congressional Budget Office, Oct. 4, 2019. https://www.cbo.gov/system/files/2019-10/hr3167.pdf.

[21] "National Flood Insurance Program: The Current Rating Structure and Risk Rating 2.0," Congressional Research Service, April 4, 2022. https://sgp.fas.org/crs/homesec/R45999.pdf.

[22] "The National Flood Insurance Program: Financial Soundness and Affordability." https://www.cbo.gov/system/files/115th-congress-2017-2018/reports/53028-nfipreport2.pdf.

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The practice of subsidizing policy premiums sends false price signals to the market, which not only distorts the market, but also encourages unsound behavior, such as building in coastal areas. Most NFIP policies are priced below the level of actuarial soundness. The CBO defines actuarial soundness to mean:

> adequacy of premiums charged by the National Flood Insurance Program (NFIP) to cover both the expected costs of flood claims and the administrative costs associated with issuing and servicing flood insurance policies. When income from premiums is too low to cover those costs, an actuarial shortfall is said to exist.[23]

Full-risk premium rates would remove subsidies from those who do not require them. Furthermore, they would help improve solvency, and send more accurate price signals on true flood risk levels to property owners. We recommend that FEMA collect data to analyze the effect of grandfathered policies on NFIP's fiscal exposure.

It is recommended that FEMA subsidies be replaced with means-tested assistance programs. Means testing would allow low-income policyholders with properties in high-risk flood areas to afford flood insurance, and would limit the provision of subsidized flood insurance to those who are least able to afford it.

3. Introduction of Actuarially Sound Rates

The NFIP practice of underpricing its policies dates back to the early days of the program. Initial growth of the program was slow, with limited uptake of policies by homeowners and modest partnership with communities. Because the main focus of the program was to increase the number of participating communities and the number of policyholders, the program reduced rates three times from 1972 to 1974 as a stimulus to increase the size of the insurance premium pool.[24]

The most significant development in the recent history of the NFIP is the introduction of Risk Rating 2.0.[25] Risk Rating 2.0 replaces the NFIP's legacy rating methodology. Risk Rating 2.0 was introduced for new business on Oct. 1, 2021, and for renewal business on April 1, 2022.

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[23] Ibid.

[24] Flood Insurance Work Group, "The National Flood Insurance Program: Challenges and Solutions" American Academy of Actuaries, April 2017. https://www.actuary.org/sites/default/files/files/publications/FloodMonograph.04192017.pdf.

[25] Federal Emergency Management Agency, "Risk Rating 2.0 – Equity in Action," U.S. Department of Homeland Security, April 18, 2022. https://www.fema.gov/flood-insurance/risk-rating.

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With the introduction of Risk Rating 2.0, the NFIP has stronger tools at its disposal to address inherently overpriced and underpriced business by incorporating more flood risk variables into rate calculations. Among the variables used in the Risk Rating 2.0 methodology are flood frequency, multiple flood types—river overflow, storm surge, coastal erosion and heavy rainfall—and distance to a water source, in addition to property-specific characteristics such as elevation and cost to rebuild.[26]

Policyholders with lower-valued homes currently pay more than the actuarially determined rate, while policyholders with higher-valued homes pay less than actuarially sound risk-adjusted rates. Risk Rating 2.0 considers rebuilding costs, allowing FEMA to distribute premiums across all policyholders more equitably, on the basis of a home's value and the property's unique flood risk.[27]

Although it may take some policies several years—as many as 12—with application of the highest permitted rate increase before they reach actuarially sound rates, we support the introduction of Risk Rating 2.0.[28]

4. Addressing Repetitive Losses

Properties that have had numerous losses are one of the most significant contributors to the NFIP's poor financial results. Properties that have experienced multiple flood losses account for a disproportionately large component of overall NFIP losses.[29] Historically, repeatedly flooded properties have accounted for only one percent of properties with NFIP policies, but absorb close to 40 percent of flood loss dollars. Cumulatively, repeatedly flooded properties have cost the NFIP more than $12.5 billion. This is equivalent to roughly half of the program's $23 billion debt.[30]

The GAO has conducted reviews of locations with two or more claims in the past 10 years. Such properties accounted for approximately 38 percent of all claim dollars since 1978. Approximately half were still insured, amounting to one percent of then-insured properties.[31]

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[26] Ibid.
[27] Ibid.
[28] Author correspondence with Lloyd "Tony" Hake and David Maurstad, (Zoom), May 24, 2021.
[29] "National Flood Insurance Program: Fiscal Exposure Persists Despite Property Acquisitions." https://www.gao.gov/assets/gao-20-508.pdf.
[30] "Repeatedly Flooded Properties Cost Billions" The Pew Charitable Trusts, October 2016. https://www.pewtrusts.org/-/media/assets/2016/10/repeatedly_flooded_properties_cost_billions.pdf.
[31] Flood Insurance Work Group. https://www.actuary.org/sites/default/files/files/publications/FloodMonograph.04192017.pdf.

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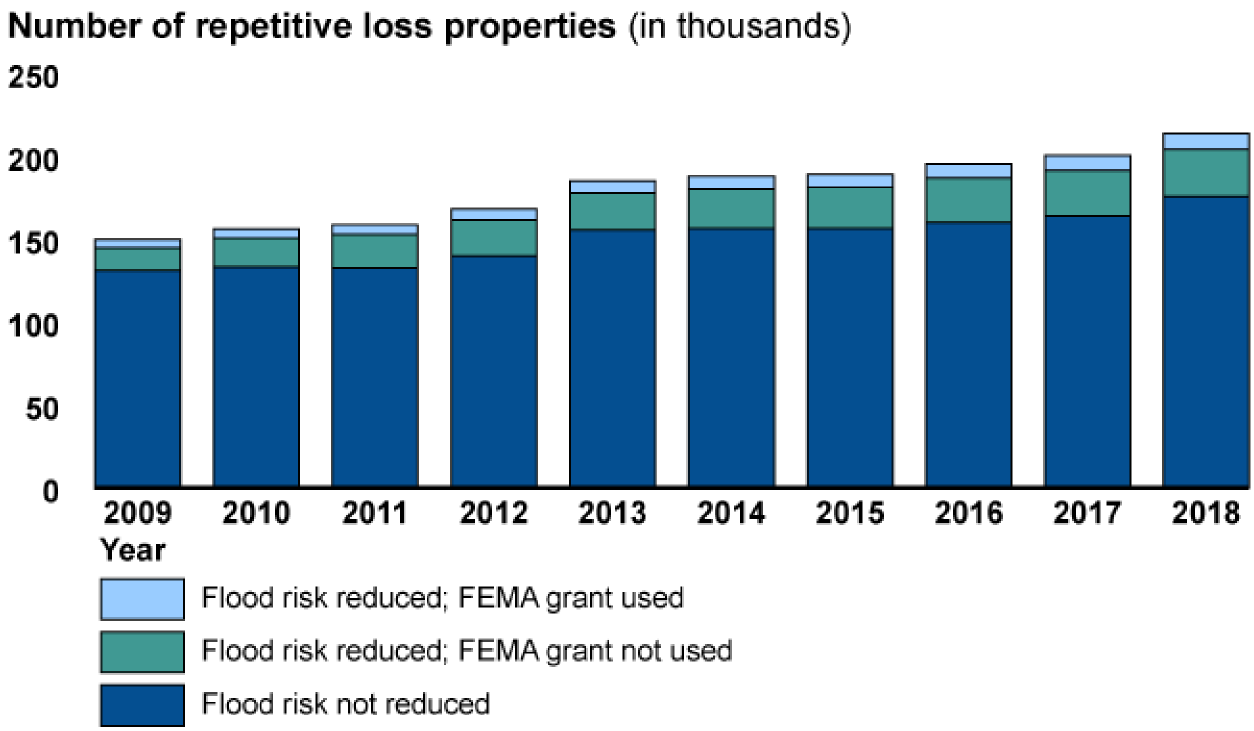
The NFIP has not satisfactorily dealt with repetitive loss properties. An extreme example of a property with numerous losses is a $69,000 Mississippi home that was flooded 34 times in 32 years, costing the NFIP $663,000 in claims payments.[32]

Properties with Repeated Flooding, 2009-2018



Source: GAO analysis of Federal Emergency Management Agency (FEMA) data. | GAO-20-508

If flood insurance were provided to the above-referenced Mississippi homeowner by the private market, the insurer would likely require that measures be taken to mitigate the flood risk in order to obviate a steep rate increase. Without such a common-sense approach, policyholders, secure in the knowledge that the NFIP will pay all the claims following each of the losses, lack a price signal incentivizing them to take appropriate preventive measures.

[32] "Repeatedly Flooded Properties Cost Billions." https://www.pewtrusts.org/-/media/assets/2016/10/repeatedly_flooded_properties_cost_billions.pdf.

The NFIP and FEMA do take some measures to try to reduce losses from repeatedly flooded properties. These measures include elevation of homes and buyouts or relocations of homes to areas not prone to flooding.[33] From 1989 to 2018, FEMA has assisted states and localities to mitigate over 50,000 properties. Acquisition of properties has accounted for approximately 80 percent of mitigated properties nationwide. In some states, elevation was more commonly used. The number of non-mitigated repetitive loss properties—those which experienced flooding two or more times in 10 years—has grown. The volume of mitigation efforts varies by state. In some states, such as Missouri and North Carolina, there were numerous mitigations compared to the number of their repetitive loss properties, while in others, such as Florida, New York, Louisiana and Texas, there were fewer mitigations.[34]

5. Need for Reauthorization

The most recent reauthorization of the NFIP was in 2012.[35] The NFIP's five-year reauthorization ended on Sept. 30, 2017, and since then, the program has been funded by a series of short-term measures. Prior to 2012, the history of NFIP authorization was one of numerous short-term sunsets or extensions, rather than longer-term reauthorizations. The program was extended 17 times between 2008 and 2012, at which time the NFIP was reauthorized again for five years. That multi-year reauthorization was the NFIP's last long-term renewal to date. Since its expiration in 2017, the NFIP is now on its 21st short-term extension.[36]

Congress must periodically renew the NFIP's statutory authority to operate. On March 11, 2022, President Joe Biden signed legislation passed by Congress to extend the NFIP's authorization to Sept. 30, 2022.[37] Congress must now reauthorize the NFIP by September 30 to avoid a lapse in authority. We believe that a multi-year reauthorization, combined with substantive reforms, will

[33] Federal Emergency Management Agency, "Moving to Higher Ground" U.S. Department of Homeland Security, last accessed June 13, 2022. https://www.fema.gov/case-study/moving-higher-ground.
[34] "National Flood Insurance Program: Fiscal Problems Persist Despite Property Acquisitions." https://www.gao.gov/products/gao-20-508#:~:text=From%201989%20to%202018%2C%20FEMA,Mitigation%20efforts%20varied%20by%20state.
[35] Brett Mattson, "Reauthorize the National Flood Insurance Program," National Association of Counties, Jan. 24, 2022. https://www.naco.org/resources/reauthorize-national-flood-insurance-program.
[36] "What Happens If the National Flood Insurance Program (NFIP) Lapses?," Congressional Research Service, June 9, 2022. https://sgp.fas.org/crs/homesec/IN10835.pdf.
[37] Federal Emergency Management Agency, "Congressional Authorization for the National Insurance Flood Program" U.S. Department of Homeland Security, March 15, 2022. https://www.fema.gov/flood-insurance/rules-legislation/congressional-reauthorization.

enable the NFIP to continue its work to reduce flood risk. An extended NFIP reauthorization would create an opportunity to take bold steps to reduce weaknesses in the program.

Thank you again for the opportunity to testify. I look forward to answering any questions you may have.

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