TESTIMONY

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By

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Good morning, Chairman Foster and Chairwoman Sherrill, Ranking Members Norman and Marshall, and Members of the Committee. My name is Michael Grimm, and I am the Assistant Administrator for Risk Management for the Federal Insurance and Mitigation Administration (FIMA). I would like to thank you for the opportunity to discuss how the Federal Emergency Management Agency (FEMA) and the National Flood Insurance Program (NFIP) oversee the National Flood Mapping Program (NFMP) and the production of flood hazard and flood risk information.

Introduction to the National Flood Mapping Program

As millions of American families have unfortunately experienced first-hand, flooding is the most common and costly natural disaster in the United States. Ninety-eight percent of counties across our country have experienced a flooding event, and flood waters continue to pose a greater potential for damage than any other natural disaster. Moreover, in the last decade, floods alone have caused over $155 billion in property damages and they continue to account for the majority of federally declared disasters.

FEMA's mission is helping the American people before, during, and after disasters. One of the most effective and fiscally responsible ways to begin is by building a culture of preparedness before these disasters take place. Developing resilient communities ahead of an incident reduces both the loss of life and economic disruption, and every dollar invested in mitigation is estimated to save the American taxpayer six dollars in future spending.

Considering the frequency and high costs of flooding, a key component of widespread preparedness is to help communities better understand the risks posed by floodwaters and to provide them with the information they need to make informed decisions about prudent land development practices and the adoption of building codes. Working in concert with the tools provided by Congress in the National Flood Mapping Program (NFMP) as part of the Biggert-Waters 2012 Reform Act, FIMA seeks to both educate and incentivize our partners to increase their investments in pre-disaster mitigation. The most utilized regulatory tool to help communities manage their flooding risks is the Flood Insurance Rate Map (FIRM), which I will refer to interchangeably throughout the testimony as FIRMs, flood maps, or just maps.

FIRMs are only as good as the data they are based upon, and FEMA works to ensure the methods employed in developing flood maps are scientifically and technically appropriate. FEMA confirms that flood hazard analysis and mapping standards are updated, published, vetted, and peer-reviewed annually to stay aligned with current best practices. The FIRM is built collaboratively with state, local, tribal and territorial communities, and their partners to ensure local knowledge, areas of concern, and data sources are incorporated. Ultimately NFIP-participating communities create, adopt and own the FIRM and are responsible for working with FEMA to keep them up to date.

What are FIRMs used for?

As the most prevalent type of flood map in the United States, FIRMs are used to determine flood insurance premiums as well as a basis for local floodplain management and development decisions. The maps are useful for flood mitigation planning activities – including the establishment of zoning, land-use, and building standards. Local adoption of minimum standards has resulted in $100 Billion in avoided losses over the last 40 years. Without complete or accurate flood maps, local officials face significant difficulties in guiding development away from the most flood prone areas and ensuring that development is properly built to protect lives and property. Similarly, the information within flood maps also provides significant benefit to the private sector, including mortgage lenders, mortgage insurers, mortgage securities, and real estate investors, mortgage securities, and real estate investors.

With FEMA's assistance, more than 22,000 communities have developed, adopted, and taken ownership of their FIRMs as participants in the NFIP, representing more than 5 million flood insurance policies that provide over $1.3 trillion in coverage. History has demonstrated repeatedly that individuals, communities, and businesses that transfer their flood risk through insurance recover faster and more fully after a disaster. If an individual does not have the full value of their home or belongings within their savings account, insurance will help them to fill that financial void when a disaster occurs. Furthermore, while insurance benefits those directly affected by a disaster, it also reduces the need for federal disaster assistance and lowers the overall costs for American taxpayers. But when direct federal disaster assistance is needed, FIRMs play an essential role beyond preparedness to support FEMA response and recovery, such as when staging disaster operations.

Leveraging Technology and Partnerships to Achieve Efficiencies

Since the inception of the NFIP in 1969, our Nation has invested approximately $10.6 billion in inflation adjusted dollars for flood hazard mapping. These cartographic tools have consistently improved both community planning and the construction of vital infrastructure lifelines such as highways, bridges, and water treatment facilities.

Although the type of data needed to create dependable maps has remained relatively consistent over the last five decades, the tools and technology used to gather or share this information has changed substantially. Within the past 20-years, paper-based flood maps have become digitally accessible to millions of Americans. Traditional surveying methodologies of the 20th century have been replaced with more accurate and cost-saving techniques. For example, the 3-Dimensional Elevation Program (3DEP) managed by the U.S. Geological Survey's (USGS) National Geospatial Program collects Light Detection and Ranging (LiDAR) data, allowing FEMA and its state, local, tribal and territorial partners to map flood hazard zones with increasing accuracy by measuring landscapes with laser-based surveying methodologies from aircraft. Many federal agencies contribute funding for LiDAR data acquisition, including NOAA and FEMA. FEMA has invested over $190 million in LiDAR since FY2014 through the 3DEP program.

FEMA has also collaborated with NOAA to incorporate bathymetry studies of submarine topography which play a critical role in forming a more comprehensive understanding of coastal flooding risks. Both LiDAR and bathymetry data are needed to model complex coastal flooding

scenarios. Furthermore, FEMA also utilizes NOAA/National Weather Service Atlas 14 data for the hydrologic modeling used for riverine flood studies.

Another way in which FEMA has improved the production of flood maps through a Base Level Engineering (BLE) initiative, which uses automated flood modeling of more rural riverine floodplain areas where high quality topographic information exists. Because riverine flood studies represent the single largest cost variable, the use of BLE could become a significant cost savings initiative for the program.

Throughout the process of creating FIRMs, FEMA works closely with state, local, tribal and territorial communities and their partners to ensure local knowledge, areas of concern, and data sources are integrated into mapping studies and flood maps. FEMA encourages community officials to submit scientific or technical data in order to support a local revision to these flood maps to leverage partner contributions to enhance flood mapping projects. As an example, the Cooperating Technical Partners (CTP) Program is one way in which FEMA builds partnerships with participating NFIP communities, regional agencies, state agencies, tribes, and universities that have the interest and capability to become more active participants in the flood hazard mapping program.

Maintaining and Expanding the Nation's Flood Hazard Information

The modernization of flood mapping techniques has made digital mapping more adaptable and easier to update and reflect natural changes to landscapes or improved floodplain management techniques. As conditions change, flood maps require maintenance. It is necessary to consistently work with local community partners and reassess the maps approximately every five years to ensure that individual flood insurance rates are accurate and that NFIP communities are provided with the critical information they need to pursue responsible economic development. With current resources we must prioritize which maps need to be updated in accordance with the highest risks or need, and work with our state, local, tribal and territorial partners to begin the cyclical process anew.

While maintaining current flood maps is critical, we are still far from completing the initial job of mapping the entire Nation. There are many counties and communities throughout the Nation identified as not having flood maps at all. FEMA, in coordination with state, local, tribal and territorial governments, has historically prioritized limited mapping resources for areas with the greatest population levels and flood insurance policies on the assumption that these areas represent the highest risk. While this approach has produced accurate and detailed maps in counties and communities with higher population levels, the unfortunate consequence is that areas of potential future development remain unmapped. Furthermore, there are roughly 3,300 communities with maps that are over 15 years old. This is not to say that each of these older maps have limited utility. While FEMA reassesses FIRMs every five years, the age of a flood map is not the only indicator of the map's usefulness. For areas where natural and man-made features have not changed, the actual risk of a one percent annual chance of flooding may remain consistent over a long timeframe.

Additionally, our understanding of flood risk can change with advances in modeling and technology and as we learn from recent flooding events. FEMA and our partners are looking at ways to better leverage knowledge and technological advancements to drive a more accurate and comprehensive understanding of flood risk across the Nation.

Changing Conditions and Current Data Concerns

Despite the progress we have made in modernizing the flood mapping process, there are still ample opportunities for continuous improvement. One of the most notable opportunities for improvement concerns the timeline of production for new flood maps. Although due process and careful deliberation is vital for ensuring both a map's accuracy and the buy-in of local partners, the extended processes necessary to comply with current regulations can result in a situation in which maps have technically expired by the time they are approved and publicly available. A new flood map requires seven years on average to complete, and that juxtaposes present statutes that mandate FEMA reassessment of flood maps every five years for them to qualify as current.

Another data concern often raised regarding current flood maps is the lack of consideration about future weather patterns and changing coastal conditions. These are important factors for a variety of reasons, as exemplified by the acceleration of daily tidal flooding in more than 25 Atlantic and Gulf Coast cities in addition to communities along the Great Lakes. These trends are expected to continue. Disasters are becoming more costly. Direct average annual flood losses have quadrupled from approximately $4 billion per year in the 1980's to roughly $17 billion per year between 2010 and 2018. With 39 percent of Americans now living in coastal areas, our exposure to costly flood related damages has increased; however, simply increasing distance from large bodies of water is no guarantee of protection from flood damage or changing weather patterns. These trends may also be found far from coastlines and well within the American heartland. For example, historic flooding in 2019 due to pluvial (rain) and fluvial (riverine) changes impacted millions of families across mid-western and southern states.

In 2015, the congressionally established Technical Mapping and Advisory Council (TMAC) provided recommendations through the Future Conditions Risk Assessment and Modeling Report. The TMAC recommended FEMA produce non-regulatory products and information that incorporates future flood hazard conditions. We fully support the TMAC's recommendations, and we are looking for ways to implement them with our federal partners such as the National Oceanic and Atmospheric Administration (NOAA) and USGS.

While FIRMs do not currently reflect the ways in which flood risks may change in the future, FEMA strongly encourages communities to incorporate future conditions and information into its projects and plans. Addressing future risks, such as those posed by extreme weather events, is key to FEMA's mission. Wherever possible, FEMA brings data to bear and work in support of state, local, tribal, and territorial needs and priorities. By addressing future risks, FEMA's partners are best prepared for future extreme weather events and can bounce back faster at the individual and community level.

FEMA has conducted several pilot studies on sea level rise and is working to identify any specific research gaps to inform the design of additional future conditions pilot projects. Presently, FEMA is coordinating with New York City through the CTP Program to pilot non-regulatory flood products that address future flooding scenarios for the boroughs. The intent is to ensure that today's designs address future risks by integrating sea level rise data into building code requirements and for floodplain management. FEMA is also working to identify best practices for developing products and tools useful in communicating risk around future conditions to communities.

Additionally, in 2015, FEMA released the State Mitigation Plan Review Guide that serves as FEMA's official policy on the natural hazard mitigation planning requirements. The guide asks states to consider the probability of future hazard events, including changing future conditions, development patterns, and population demographics. The Guide clarifies that the probability of future hazard events must include considerations of changing future conditions, including the effects of long-term changes in weather patterns and climate on the identified hazards.

Moreover, in 2019, FEMA and its partners introduced a new initiative titled "the National Mitigation Investment Strategy", in close coordination with experts across governmental agencies, academia, and non-governmental organizations. The National Mitigation Investment Strategy represents a robust interagency and cross-government planning effort to develop a single national strategy for advancing hazard mitigation investments to reduce future risks such as those posed by changing coastal patterns and extreme weather events. FEMA will continue to work with its partners across all levels of government to strengthen partnerships and access new sources of scalable capabilities.

The Future of Flood Maps and Flood Risk Data

As stewards of taxpayer dollars, we routinely assess our programs, policies, and actions to ensure we operate effectively and efficiently to meet the needs and interests of our stakeholders while fulfilling our statutory requirements. Improving the production and scope of FIRMs within the context of changing conditions is an important aspect of this strategic priority in order to increase the Nation's understanding of flood risk and the actions that can be taken to reduce it. Through an initiative known as the Future of Flood Risk Data (FFRD), FEMA aims to provide a more comprehensive and dynamic picture of the country's flood hazards that can serve as a basis for a range of outcome-oriented regulatory and non-regulatory products.

To begin, FEMA is exploring ways to provide graduated flood risk analyses a more nuanced set of information that would enhance our understanding of probabilities across a broader range of flood scenarios that is beyond the current practice of binary risk assessment. Presently, FIRMs are primarily representative of a single flood hazard and the one-percent-annual-chance of flooding. As a result, FIRMs may give a false impression to communities outside of the one percent annual chance flood plain that they have little to no flood risk. In just the past 3 years, over 40% of claims have been for properties that are either not mapped or mapped outside of the SFHA. Furthermore, FIRMs do not always account for residual risks posed by areas behind dams or levees, and an improved understanding is needed of the nation's levees. In recent years,

FEMA has been working with the U.S. Army Corps of Engineers (USACE) to improve data in the National Levee Database (NLD), which will ultimately support a graduated approach to levee risk. Graduated risk information could more effectively inform decision-making and drive actions to mitigate flood risk. For example, a better understanding of this graduated risk can support our partners' planning efforts for very high-risk areas such as those affected by regular tidal flooding that cannot be adequately depicted by the current binary representation of the flood hazard.

The transition from binary to graduated risk analysis is key component of FFRD. We also believe the future depends on three other elements: continuing to ensure a significant and appropriate role for the private sector and state, local, tribal, and territorial entities; increasing access to flood hazard data for a range of stakeholders; and modernizing the management and delivery of flood risk data through our IT infrastructure and new technologies.

Conclusion

In conclusion, flooding continues to be the most common and costly natural disaster in the United States, with the greatest damage potential of natural hazards worldwide. FIRMs and flood risk information have helped communities, households, and businesses reduce flood risk, support flood risk analysis, expand sound floodplain management practices across the country, and support insurance policies that reduce the financial burden to survivors when floods occur.

Although we remain far from completing the initial job of mapping the Nation, FEMA is continuously exploring how to streamline our mapping efforts and shift from the paradigm of binary risk assessment to delivering a more comprehensive and graduated approach of managing flood risk across a range of probabilities, including future conditions.

The framework for flood mapping as prescribed by the National Flood Mapping Program (NFMP) in the Biggert-Waters 2012 Reform Act recognizes many of these existing needs. While many of the mapping requirements from 2012 are still being addressed, FEMA is exploring ways to leverage new technologies to provide flood information more efficiently, accurately, and consistently across the Nation through the FFRD initiative. In moving towards this future, FEMA must continue to bolster partnerships with other federal agencies whose expertise is essential in building a broader national understanding of flood risk. FEMA must also continue to partner with private sector, and state, local, tribal, and territorial stakeholders. Collectively, these partnerships will ensure that FEMA is leveraging the latest data and technologies and being a good steward of the taxpayer dollar, while better serving the diverse needs of our citizens. Flood risk reduction is most effective when locally implemented, state prioritized, and federally supported. This is exemplified by the $100 Billion in avoided losses associated with local adoption of the minimum flood standards over the past 40 years.

Thank you again for affording me the opportunity to speak with you today about these programs and Flood Insurance Rate Maps. I look forward to answering any questions you may have.