ASSOCIATION OF STATE FLOODPLAIN MANAGERS

ASFPM Issue Brief

FEMA's National Flood Mapping Program and the Importance of Flood Hazard Identification & Risk Assessment to the Nation

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Introduction

The identification of *flood hazards* ("where" and how "much" it will flood) has been occurring since the 1960s and continues today. While models and technologies have evolved, the basic methodologies underpinning flood hazard identification have changed little. What has evolved somewhat more significantly is *flood risk assessment* (what is the "impact" expected from a flood). Through the National Flood Insurance Act (NFIA), the Federal Emergency Management Agency (FEMA) has been given statutory authority and the responsibility to identify flood hazards and assess flood risk throughout the nation. Presently, FEMA's National Flood Mapping Program (NFMP - its current iteration is called Risk MAP), maintains flood hazard identification data for more than 1.1 million miles of streams, rivers and coastlines.

We know that flooding primarily occurs from the overflow of our nation's more than 3.5 million miles of streams, rivers and coastlines. However, an increasingly common flood threat comes from intense storm events that drop large amounts of rain in urbanized areas where our stormwater management systems are overwhelmed. These are called rainfall or pluvial flooding events. Currently, two-thirds of the nation's streams, rivers, and coastlines are not covered by flood maps, and pluvial flood risk is not explicitly included. Other flood threats not depicted include the failure or emergency operations of dams, failure of levees and levee overtopping, ice jams, and areas previously burned by wildfires. Progress in "getting the job done" mapping flood hazards nationwide has been primarily hindered by the limited budget provided by Congress and the substantial investment needed to maintain the existing flood map inventory.

All the while, flood losses in the Nation continue to increase, and risk and the threat of flooding is ever evolving. ASFPM's tracking indicates that average annual flood losses have roughly doubled each decade since the 1990s, where annual flood losses averaged approximately $5.5 billion/year, and are now averaging over $40 billion/year. These loss estimates have been confirmed by the Congressional Budget Office whose September 2024 report indicates that “over the past 10 years, damage from flooding in the United States has averaged $46 billion per year (in 2023 dollars).” (Congressional Budget Office, 2024).

Today, flood risk information is more widely available than ever before from multiple sources using multiple methodologies. For example, the websites realtor.com and Zillow.com use Flood Factor™ developed by First Street for individual properties. A Flood Factor™ score is provided for each property, additional information can be obtained with a subscription. Upon user payment, additional information typically includes estimated depth of flooding at the lowest point around the building for different frequencies of events (from 5-year to 500-year events), and previous event flood risk information. According to its website, The First Street Flood Model is a nationwide, probabilistic flood model that shows any location’s risk of flooding from rain, rivers, tides, and storm surge. Flood Factors are derived entirely from the outputs of this probabilistic Flood Model (First Street, 2025). It should also be noted that at a national scale, these new datasets have proven very useful and insightful. For example, First Street has published a series of National Risk Reports providing critical insights into national issues related to flood insurance, precipitation, housing prices, and climate change.

To those unfamiliar it is a fair question to ask then, if organizations can now develop a national flood model with property specific information at a very low cost, why do we continue to invest in the National Flood Mapping Program? Are proprietary, national probabilistic models suitable replacements for the modelling approaches taken under the National Flood Mapping Program? Do approaches using proprietary national probabilistic models meet the requirements of the law, the NFIP, or the needs of states, communities, and other stakeholders?

The proliferation of flood risk data from diverse sources necessitates a clear framework for evaluation. This paper argues that flood risk datasets should not be judged as simply "good" or "bad," but rather evaluated based on their "fit for purpose." A national-scale algorithmic model may be fit for raising public awareness or informing regional or state planning, while a detailed engineering study is fit for the purpose of site-specific regulation and development decisions. Furthermore, we must distinguish between the data itself and the process by which it is created and used in public programs. The principles of transparency, public availability, reproducibility, accountability, and due process are not inherent qualities of data; they are hallmarks of good governance. This paper will demonstrate that for the regulatory and financial purposes of the National Flood Insurance Program (NFIP), only a system grounded in both technically sound engineering and a process of good governance can meet the statutory requirements of the law and the needs of the nation.

Background

Since the inception of the NFIP in 1968 through 2012, flood hazard identification and flood risk assessments in the nation were largely guided by a more general statutory authorization in the National Flood Insurance Act allowing FEMA to carry out studies to enable the continued operation of the National Flood Insurance Program (NFIP).

The flood analyses for the NFIP included a series of flood models that cover a specific range of possible conditions: the 10-, 25-, 50-, 100-, 250-, and 500-year flood events. These flood models are also Engineering Based Models which are based on the three primary laws of physics: Sir Isaac Newton with laws of momentum in 1687, Julius von Mayer with law of conservation of energy in 1842, and Antoine Lavoisier with the law of conservation of mass in 1785. The laws of physics for these models have been refined and confirmed by countless researchers over the centuries.

Another important aspect is that the FEMA flood analyses for the NFIP are considered non-proprietary flood analyses. These are flood analyses where users have broad and easily accessible rights to review, rerun, duplicate, dispute, change the input data to, or provide alternate algorithmic methods at all levels of the analysis. Typically, these models are developed by specifying which publicly available standards, guidelines, and processes are relevant and must be met. These publicly available standards have, in turn, gone through extensive public review and comment.

Non-proprietary flood analyses commonly use non-proprietary flood modeling software and publicly available input data. Such models commonly undergo peer review, as well as review by the authorizing public agency, before being used. Citizens directly impacted by the data are provided with an overview through public meetings and comment sessions. Both technical and non-technical citizens may challenge the analyses during the public review period to the degree of vigor they feel necessary, ranging from simple editorial notes to full-on reanalysis of the area. Typically, any citizen may request the full input and output files for the model, any maps produced, and the technical report describing the analysis process, all of which are available upon request and at cost.

Because one common purpose of non-proprietary flood models is to advise public agencies on potential development locations and to implement community-level regulations, the data from such models is usually considered a matter of public safety. When data is a matter of public safety, states in the U.S. require Professional Engineering Certification for these flood modeling processes and outputs. The Professional Engineering Certification is to assure the user of the product that the work has been performed or directly supervised by a professional engineer, and to clearly delineate which engineers oversaw the various elements of the analysis.

In the early 2000's under FEMA's first large-scale map update initiative, Map Modernization, was implemented to use evolving mapping tools to improve the quality of the mapping products – moving from paper cartography to a GIS based approach. The lesson learned from this experience was that it was extremely problematic to update maps on a large-scale basis without using updated engineering information and, as a result, the program had to change course. In 2006, FEMA implemented what it called the "Mid-Course Adjustment" of the Map Modernization program, using engineering-based models and more accurate flood data in developed and developing areas, including areas of concern identified by communities, while also producing digital flood maps for a significant portion of the nation.

Statutory Requirements

The 2012 reform of the NFIA (also known as the Biggert-Waters Flood Insurance Reform Act of 2012) established explicit statutory requirements for flood hazard identification and flood risk assessment under 42 USC 4101b. Among the many explicit requirements, notable ones include:

- Requirement to map all populated areas and areas of possible population growth within the 100-year and 500-year floodplain (this would mean any area where land could be developed sometime in the future). Also, requirements to map areas that could be inundated as a result of the failure of a levee, dam, or other flood control structures.
- Assess the accuracy of current ground elevation data used for hydrologic and hydraulic modeling of flooding sources and mapping of the flood hazard and wherever necessary acquire new ground elevation data utilizing the most up-to-date geospatial technologies in accordance with guidelines and specifications of the Federal Emergency Management Agency.
- Provide the most technically effective and efficient studies and hydrologic and hydraulic modeling.
- Include any relevant information from the Corps of Engineers; data from National Oceanic and Atmospheric Administration relating to storm surge modeling as well as the best available science regarding future changes in sea levels, precipitation, and intensity of hurricanes; relevant information of the United States Geological Survey on stream flows, watershed characteristics, and topography; any other relevant information on land subsidence, coastal erosion areas, changing lake levels, and other flood-related hazards; and any other relevant information as may be recommended by FEMA's Technical Mapping Advisory Committee.
- Publish maps in a format that is digital geospatial data compliant and compliant with the open publishing and data exchange standards established by the Open Geospatial Consortium.
- Ensure that maps are adequate for flood risk determinations and for use by State and local governments in managing development to reduce the risk of flooding.
- Require extensive communication with communities affected by mapping or re-mapping efforts including detailed requirements for due process, including allowance of the incorporation of

locally developed data consistent with prevailing engineering principles, and provisions for appealing data.
- Allow for the evaluation and processing of community remapping requests.

In addition, the 2012 Biggert-Waters reforms created the Technical Mapping Advisory Council (TMAC), a federal advisory committee that reviews and makes recommendations to FEMA on matters related to the national flood mapping program. The TMAC includes representatives from Federal, state, local and private sector organizations, including surveyors, mappers, engineers, geographers, NFIP coordinators, floodplain, and flood and stormwater managers, among others. The Council has become a very important resource element of FEMA's mapping efforts, providing recommendations and advice that help the Agency manage the tremendous mapping workload and associated technical and resource needs.

The statutory changes also reflected Congressional direction that modernized map quality should not be sacrificed in order to produce a larger number of maps (Federal Emergency Management Agency, 2006). Elements of the 2012 law included lessons learned from the mid-course adjustment and, by that time it was well understood that most people viewed the flood map inventory produced by FEMA as our nation's default data set for flooding information. The Congressional updates to FEMA's mapping program were therefore necessarily much more detailed, and the law established a primacy of data and information coming from other federal agencies.

Despite, or perhaps partially because of all of these updates to the mapping process, the job of providing floodplain mapping for the country is far from complete. In 2020, ASFPM's Flood Mapping for the Nation report estimated that the cost to fully implement the NFMP was between $3.2 billion and $11.8 billion (Association of State Floodplain Managers, 2020).

Mapping as a Component of the NFIP

One of the most widespread approaches for managing flood risk in the nation is through the National Flood Insurance Program (NFIP). Flood mapping is one of four essential, integrated elements of the program. The other three include:

1. Flood insurance – through the NFIP, FEMA provides flood insurance in any community that agrees to adopt and enforce local land use and building standards consistent with the minimum requirements of the NFIP. FEMA's flood maps and data historically were involved in rate setting and establishing areas where flood insurance is required. However, with the advent of FEMA's new flood insurance rating system, flood maps are now primarily used to establish mandatory purchase areas. For this purpose alone, FEMA flood maps are used between 20 and 30 million times annually.
2. Floodplain management – Communities in the NFIP must locally adopt and enforce flood protection standards in floodprone areas. High quality, precise data on the 100-year and 500-

year flood elevations used in permitting are key outputs of FEMA's flood mapping program. According to the latest US Census' Building Permit Survey data, nationwide permit data for new privately owned housing units in 2024 shows nearly 4,000 permits were issued daily and over 1.4 million permits were issued annually (United States Census Bureau, 2025). This figure does not account for public housing, industrial or commercial development, nor permits for remodeling, additions, or other development that are also necessary. FEMA flood maps and data were an essential, necessary tool in each case for determining whether the new residential units needed to be compliant with flood protection standards.

3. Flood hazard mitigation – The Flood Mitigation Assistance (FMA) program, statutorily authorized as part of the NFIP, focuses on mitigating existing, at-risk buildings. High quality, precise data from FEMA's flood mapping program is used to perform benefit-cost analyses and to determine appropriate flood protection elevations for improving these at-risk buildings, information required during project development and construction. These elevation datapoints are also very important in helping determine flood insurance rates for these flood-protected buildings, as the law mandates that they maintain flood insurance post project completion.

In addition to these uses, FEMA's national flood mapping program (NFMP) products provide critical information to communicate flood risk (i.e. for real estate transactions) and for multiple planning functions. It is also important for several other functions. NFMP products are used by numerous private sector interests to help guide investment decisions. These products can help developers, investors, and financial institutions assess the flood risk of real estate needed for important facilities, or for engaging in other types of investments in flood risk areas. It helps inform investment decisions which can significantly mitigate future business and enterprise losses. Finally, NFMP products are particularly useful in conventional Emergency Management and Response settings. It is frequently relied upon for Evacuation Planning, identifying risk areas, as well as evacuation routes that may become disrupted dependent upon a given magnitude event. Combined with weather forecasting data, it can be used to aid in risk area notifications. It can also be used for pre-positioning resources, locating critical facilities and "safe havens" for first responders, and in targeting post-disaster damage assessment activities important for expedited delivery of recovery resources.

Recent Trends

Proprietary Flood Analyses and Models: While the concept of understanding and mapping flood risk has been around for some time, proprietary flood analysis as a distinct field has evolved more recently, fueled by advancements in computing, data collection, and modeling techniques. More recently, private companies are leveraging advanced techniques like machine learning, AI and complex hydrodynamic models to offer more detailed flood risk assessments that can supplement publicly available data.

It should be noted that with proprietary flood models, the user has limited or no legal rights to inspect the details of the analyses or to modify those details. The user may be provided with broad, even free, access to view and use some of the model's flood data output for various purposes. However, the user is not allowed to see the full input and output to the model and has limited or no ability to modify the software platform or algorithm that runs the model. The calculations, process, code, and algorithms are all protected intellectual property and may be patented or copyrighted. The data can typically only be reproduced by the model's owner. By definition, Proprietary Flood Analyses produce Proprietary Flood Data. Summary output and limited explanatory material from these models are often submitted to state government agencies for insurance purposes. Though these models are of good quality, they are not created for or certified for regulatory/statutory implementation.

This category includes catastrophe models used in pricing private flood insurance in the U.S., such as Moody's/RMS, Verisk/AIR, CoreLogic, KatRisk, and JBA, as well as more broadly marketed models, including Fathom and First Street.

Non-Engineering AI Based Models: Non-engineering AI based models are not physics based and use concepts of AI to give results which have been used in a very short period of time – perhaps less than 5 years of history.

Future of Flood Risk Data Initiative: In 2019, FEMA initiated an effort to develop a more comprehensive picture of the country's flood hazards and risk—known as the Future of Flood Risk Data (FFRD)—to provide communities with additional information for understanding their flooding risks beyond what is available in FIRMs. The vision for more comprehensive data through FFRD is built upon a need to serve multiple users and uses, fulfil statutory requirements for comprehensive flood data, ensure a significant and appropriate role for the private sector, and supported by a collaboration with many partners. It takes a much more robust approach that distinguishes graduated and incremental levels of risk for properties from a 5-year recurrence interval to a 2,000-year recurrence interval as well as accounting for pluvial flooding and residual flood risks from dams and levees. Three FFRD pilots are to be completed in 2025 and 2026.

Risk Rating 2.0: FEMA's new pricing system for Flood Insurance premiums, designed to reflect an individual property's specific flood risk, as opposed to being placed in a general risk category based on location and property type. Premiums are calculated based on specific features of an individual property, including distance from water, type of flooding, flood frequency, structure foundation type, height of the lowest floor relative to BFE, prior claims, and the structure's replacement cost value. Risk Rating 2.0 uses a combination of different proprietary catastrophic risk models. More generally proprietary catastrophic risk models are common and widely used in rating insurance, particularly for high-severity, low-frequency events like hurricanes, earthquakes, and floods. Thus, they tend to be a better fit for insurance rating. However, the lack of transparency of these models used for the NFIP has caused public and legislative concern.

Framework for Evaluation: Fit for Purpose

As stated earlier, this paper argues that flood risk datasets should not be judged as simply "good" or "bad," but rather evaluated based on their "fit for purpose." Below, we explore different dimensions of this fit for purpose framework.

Transparency

Local knowledge is solicited and built into the NFIP mapping process. FEMA does this, through a network of regional office staff, contractor support and Cooperating Technical Partners (CTP). The FEMA process, particularly through the CTP program, is built on transparency starting with public discovery meetings to gather local knowledge before modeling begins. Preliminary results are presented for community review where the models, methods, and data are open for inspection. This collaborative process builds trust and results in a better, more accurate product that communities will actually adopt and use.

During the mapping process, countless numbers of citizens, business owners, and community officials proactively engage, actively participate (even to the point of some appealing map determinations), and willingly and voluntarily assume ownership of the mapping and flood risk information developed for, and with, their communities. They are aware, they are informed, and they are proactive. Undoubtedly, not every community has done this, either because of a lack of resources or a lack of concern, but for each of those there is an opposite success story to be told. A story that most likely would not exist if the flood risk data development process did not encourage engagement and therefore is not influenced by local knowledge and awareness. The process also includes the effort over decades to gather huge amounts of information and incorporate it into flood risk data sets.

This contrasts sharply with the "black box" nature of proprietary models where the underlying assumptions and specific data inputs are often opaque. Private companies do not possess the resources needed to coordinate jurisdiction-by-jurisdiction, talking to state local officials, engineers, public works staff, emergency managers, and even individual property owners. This can result in a simple, uninformed exercise of “jumping online” and paying for what may or may not be entirely accurate, locally informed data.

Reproducibility & Consistency

FEMA produces and twice-yearly updates to its publicly available Guidelines and Specifications for developing flood maps. This approach ensures that flood data is reproducible and consistent. Why is this important? Because development doesn’t happen all at once, reproducibility and consistency are incredibly important to manage flood risk over time. It also ensures that a study performed today in one county or community can be trusted to be consistent with a study done next year in an adjacent jurisdiction. Proprietary models can change their algorithms at any time without public notice or review, creating instability for long-term planning and permitting.

Regional FEMA floodplain management staff receive hundreds of calls every year from citizens or business owners who want to, have done, or are aware of recent work in the floodplain. They need answers about how that impacts (or has impacted) the community's or their own flood risk. As a result of their inquiries, and utilizing reproducible, consistent data, FEMA is able to help them identify those changes, and the corresponding decreased or increased risk to real people, real structures–homes, and businesses. This could become very challenging in a pay-as-you-go flood risk data environment. In order to identify the effects of floodplain modifications, without an understanding of the process used to develop the data, property owners and other citizens may need to pay substantial amounts for re-studies or for other processes that will provide the answers.

Conversely, when working with FEMA's established maps and data, completed using public guidelines and specification, it is a relatively straightforward process to adjust the data to reflect proposed or changed conditions. Qualified engineers and other professionals have access to FEMA's map development standards and data so they can help provide answers, potentially at a lower cost, and the output is recognizable nationally.

Availability

All FEMA flood maps and supporting data are freely and widely available to the public. In fact, under the NFIP, there is a requirement for participating communities to have a public repository of FEMA flood data. FEMA also maintains the public facing, web based, Flood Map Service Center which allows anyone to download a map showing the effective regulatory floodplain boundary and supporting data for any property. This data is also available to academics, private innovators, local governments and can be built upon it without restriction, fostering innovation. By contrast, private proprietary models and data are usually behind a paywall. These private companies have done expensive and far-reaching data acquisition activities. If the data is to be useful over a period of time, they must continue to do such activities. That can be expensive, and to cover their costs, and participate in a for-profit model, they must sell their data.

Over time, the company that can deliver data sufficient for most users at the least cost is likely to prevail. In many industries this is a recipe for market success. However, in the world of flood risk, often that cheaper, good-enough data is not sufficient. A homeowner whose mitigated home is facing a Category 3 hurricane storm surge is going to want to know that the data they used to fortify their home was based on the Gold Standard of Science, not good-enough data. Additionally, the public availability of FEMA mapping data means anyone—academics, private innovators, local governments—can build upon it without restriction, fostering innovation. Proprietary data, even if a "score" is free, keeps the detailed underlying data behind a paywall, stifling broader use and innovation.

The importance of a publicly funded and freely accessible national mapping program is underscored by the experience in other developed nations. In Canada, for example, a lack of comprehensive public flood maps has created a critical information gap. A 2025 report from the Canadian Climate Institute notes that while private firms have developed valuable data, "the cost of these services often puts them out of reach for municipalities or private citizens." This creates information inequity, where large institutional investors have access to risk data that homeowners, small developers, and local governments do not. FEMA's commitment to providing flood maps and data as a free public good prevents such inequities and fosters broader innovation and risk awareness.

Accountability

The certification of flood hazard data by a Professional Engineer (PE) is the bedrock of accountability in the NFIP. When a PE affixes their seal to a study, they are attesting that a legally recognized standard of care was met using established and defensible scientific principles. This creates a clear line of professional and ethical responsibility for which they are legally liable. An algorithm, no matter how sophisticated, cannot be held to a professional standard of care. There is no ethical board for an algorithm and no individual license to revoke if its proprietary process leads to a flawed outcome that causes harm. This professional accountability is non-negotiable in a system that directly impacts the financial and physical safety of the public. This accountability extends to the public through due process. The NFIP is bound by 42 USC 4101b(d) to provide a scientific, evidence-based path for recourse if citizens believe a map is incorrect. This is a fundamental right. In contrast, proprietary models offer no such recourse. First Street Foundation’s own policy, for example, states that as a rule, it "does not update Factor scores based on individual requests or disputes." This lack of accountability and due process is a critical flaw for any data intended for regulatory use. The challenges faced by the public regarding the opaque nature of FEMA's own Risk Rating 2.0 serve as a powerful lesson: when public programs with significant financial consequences rely on "black box" systems, it erodes public trust and invites legal and legislative challenges.

Collaborative

The law mandates, and FEMA implements, a highly collaborative process for developing flood mapping standards and for updating flood maps and data. While FEMA’s current mapping approach is highly collaborative utilizing its existing mapping contractors and processes, in the 1990s FEMA initiated an informal partnership program which evolved in the mid 2000’s into the more formalized Cooperating Technical Partners (CTP) program. One of the primary objectives of the CTP program is to maximize limited public funding by combining resources, including technical assistance and training, to align state, local, regional, tribal and territorial goals with FEMA's national objectives. It also helped develop and maintain capability at the state and local level to perform FEMA flood mapping and is entirely consistent with the Administration's desire to have states and communities to take more responsibility in managing its hazard risk. In the fiscal year, 2023, there were over 300 CTPs. For an investment of $85 million of the FEMA mapping program, CTP's contributed an additional $5.8 million in in-kind services, data, and cash and leveraged an additional $120 million from other mapping partners.

Due Process

The requirements in the mapping process for due process are explicit in law and over the past several years, Congress has paid close attention to this aspect of flood map and data development. Due process is also essential for promoting community and property owner acceptance of the data. Through public notices, certified mail, review meetings, and open houses community leaders and property owners are provided a scientific, evidence-based path for recourse if they believe the map is incorrect for their specific property. This is not just a feature; it is a fundamental right in a system that has regulatory and financial consequences. It also affords the ability for states and communities to supplement the FEMA data with better data that may have been developed through studies for individual developments or other data, as long as it is consistent with FEMA guidelines and specifications. The lack of this in proprietary models is a critical flaw for regulatory use.

Restoring the Gold Standard Science Executive Order

President Trump's Executive Order "Restoring Gold Standard Science" was issued May 23, 2025. This E.O. commits the Federal Government to science conducted in a manner that is: transparent, reproducible, communicative of error and uncertainty, and collaborative and interdisciplinary, skeptical of its findings and assumptions, structured for falsifiability of hypotheses, subject to unbiased peer review, accepting of negative results as positive outcomes, and without conflicts of interest. In the table below, we compare engineering-based models versus non-engineering AI based models using the dimensions indicated above:

EO Gold Standard Engineering vs Non-Engineering (AI Based) Models		
Standard	**Engineering Based Models**	**Non-Engineering AI Based Models**
Reproducible	YES	NO
Transparent	YES	NO
Communicative of error and uncertainty	YES	NO
Collaborative and interdisciplinary	YES	NO
Skeptical of its findings and assumptions	YES	UNKNOWN
Structured for falsifiability of hypotheses	YES	UNKNOWN
Subject to unbiased peer review	YES	NO
Accepting of negative results as positive outcomes	YES	UNKNOWN
Without conflicts of interest	YES	NO
OTHER ITEMS (Not Gold Standard)		
Free and Open to the Public	YES	NO
Private Property Rights Protected	YES	NO

Conclusions

1. **Engineered Flood Maps Provide Indispensable Value for Regulatory Use.** An approach using engineered flood maps provides indispensable value that is fit for the purpose of regulation. Its adherence to the principles of transparency, reproducibility, accountability, and due process meets both legal requirements and the needs of multiple users. This rigor is essential for regulatory applications and is a justifiable public investment.

2. **Private Proprietary Data is a Valuable, Complementary Tool.** Private, proprietary data is unsuitable to implement the floodplain management and hazard mitigation functions of the NFIP, a fact acknowledged by First Street itself, which states its data "should be viewed as complementary to FEMA flood maps." These datasets are extremely valuable for raising national risk awareness, informing high-level planning, and screening for potential areas of concern. As practitioners, ASFPM members leverage these tools for their intended purpose. For example, the Illinois State Water Survey (ISWS) has utilized First Street data for statewide planning to identify potential areas of concern, demonstrating its utility as a complementary screening tool.
3. **FEMA's FFRD is the Right Path Forward.** FEMA's next-generation mapping approach, Future of Flood Risk Data (FFRD), correctly maintains the rigor of an engineered-based approach while intelligently leaning into the efficiencies gained through automated techniques where appropriate. FFRD marks a substantial advancement that will increase flood risk awareness and empower risk-informed decision-making at all levels of government as well as by private individuals and organizations while upholding the statutory requirements for transparency and accountability. It expands the limited data approach focused on the 100- and 500-year flood to a much more robust probabilistic analysis spanning from the 5-year to 2000-year events, more accurate reflecting the graduated risk of flooding resulting from a much wider range of scenarios.
4. **The Nation's Mapping Program Requires Sustained and Increased Funding. The** job of providing floodplain mapping for the Nation will never be completed without continued and stable funding. Annual flood losses now average over $40 billion, yet recent appropriations for mapping are insufficient to complete the job for unmapped areas while maintaining the existing inventory. Investing a fraction of the annual losses into better data to guide safer development is a fiscally sound and common-sense priority for the nation.

About ASFPM

ASFPM and its 38 state chapters represent more than 20,000 local and state officials as well as private sector and other professionals engaged in all aspects of floodplain management and flood hazard mitigation, including management of local floodplain ordinances, flood risk mapping, engineering, planning, community development, hydrology, forecasting, emergency response, water resources development and flood insurance. All ASFPM members are concerned with reducing our nation's flood-related losses. For more information on the association, our website is: www.floods.org.