NEWS & VIEWS

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ASFPM Board Unanimously Approves BRIC Resolution

Resolution outlines deficiencies, makes recommendations for improvement

By Mary Bart

An exceedingly complex application process, a significant bias toward large infrastructure projects, a lack of transparency in the selection process, and proportionally less money available in state set-asides.

These are just some of the concerns identified in a resolution unanimously approved by the ASFPM Board of Directors at its November 10 meeting. Nearly four pages in length, the resolution methodically outlines what the association believes are shortcomings of FEMA's new Building Resilient Communities and Infrastructure (BRIC) grant program and makes detailed recommendations on how the program could be improved.

Fiscal Year 2020 was the first year for BRIC. The pre-disaster hazard mitigation program replaced the PreDisaster Mitigation (PDM) program and upped funding to $500 million. Although ASFPM was cautiously optimistic that BRIC would routinely fund flood mitigation efforts for buildings, like elevation, buyouts, and small floodproofing projects, after the FY2020 grant winners were announced, it was clear that would not be the case.

"Most of the traditional flood mitigation projects as well as mitigation planning and capacity building grants were funded through the state set aside, not from the competitive grants," ASFPM's Larry Larson wrote in his Policy Matters column in August. "Especially discouraging is that state priorities for mitigation grants were replaced with FEMA priorities, which seem to favor large infrastructure projects."

The resolution notes that FEMA was granted significant discretion to shape BRIC and in the end it created a program with a significantly different focus and priorities—including a focus on community

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infrastructure and lifelines as well as FEMA pre-disaster mitigation priorities, as compared to the legacy PDM program. In fact, soon after the law was changed in 2018 as part of the Disaster Recovery Reform Act, ASFPM spoke numerous times to FEMA leadership detailing concerns and opportunities as the BRIC program was being created.

"An official resolution with specific recommendations helps elevate the discussion and demonstrates both the seriousness of the issue and our willingness to work with FEMA to help improve this important program."

- Chad Berginnis, Executive Director, ASFPM

"Two primary concerns we had at the time were the loss of focus on traditional flood mitigation — techniques that we know are effective—and the need to have more stable and enhanced funding for state mitigation programs which could, in turn, result in much greater capacity to provide technical assistance to communities," said Chad Berginnis, ASFPM's Executive Director. "Realizing that the formula for BRIC could mean dramatically more funding in the future, especially in significant disaster years, we knew early on that there needed to be much more capacity nationwide to apply for, manage, and distribute future BRIC funds. ASFPM suggested modeling a program, that would be funded under BRIC, based on the successful Community Assistance Program. "

"CAP has made a real difference in our nation's capacity to administer the floodplain management part of the NFIP and it wouldn't be difficult to do the same for state mitigation programs so that they could more effectively manage BRIC and other FEMA hazard mitigation programs.," he said.

Resolution Outlines Concerns with BRIC

During the months following the announcement of FY 2020 selections for funding, ASFPM continued to hear from numerous members who were unhappy with how things played out in the BRIC program's first year and the association felt it was important to take additional action.

"An official resolution with specific recommendations helps elevate the discussion and demonstrates both the seriousness of the issue and our willingness to work with FEMA to help improve this important program," said Berginnis.

Some of the key concerns with BRIC that were identified in the resolution:

- A proportionally significant reduction in the state set aside amount when considering the total funding available.
- Significant limitations on the eligibility of mitigation planning funding (including a complete disallowance of mitigation planning projects from the competitive grants).
- A complex application process, which makes it difficult for disadvantaged communities to apply.
- A significant bias toward large-scale infrastructure projects rather than more traditional "incremental" hazard mitigation projects.
- An award bias toward coastal communities vs. inland communities ($474.6 million awarded for projects in coastal communities vs. only $27.3 million for non-coastal projects).
- More dollars and projects went to wealthier, greater resourced communities rather than to less wealthy communities with fewer resources.
- A review of the grant projects that have been identified for further review demonstrates that FEMA did not prioritize vulnerable communities even though it expressed a desire to do so.

ASFPM leadership worked with a handful of members of its Flood Mitigation Committee in developing the resolution. Since sharing the resolution, the feedback has been overwhelmingly positive. Ron Davis, CFM, with the Illinois Office of Water Resources, wrote in an email: "This captures what I have been hearing from the locals about the program. Many feel left out and don't see a reason to keep applying." Like the rest of the Midwest, Illinois can expect to see very little FY 2020 funding from BRIC, with only a 0.6% application success rate, according to analysis from Headwaters Economics.

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Recommendations for Improving BRIC

The resolution features seven recommendations for how BRIC can be improved. We're outlining them briefly here, but encourage you to download the resolution to read them in their entirety.

- FEMA should allow states, communities, tribes, and territories decide which projects are awarded.
- FEMA should minimize adding its priorities to BRIC funding.
- BRIC competitive grants should include eligibility for mitigation planning and capacity building projects.
- FEMA should adjust the BRIC grant scoring criteria involving building codes to ensure consideration of non-building code standards that have equal or higher success in reducing overall hazard risk.
- The BRIC grant selection process should be made more transparent.
- FEMA should continue to simplify the grant program processes so that more applications can be submitted by less resourced communities, and to streamline program delivery.
- FEMA should use BRIC funding to create a program, similar to FEMA's Community Assistance Program State Services Support Element (CAP-SSSE).

ASFPM shared the resolution with FEMA in mid-November and is looking forward to engaging with FEMA, Congress, and partner organizations to build support for and make improvements to the BRIC program.

Read the resolution.

Reminder of FY 2021 BRIC and FMA Deadlines

The Fiscal Year 2021 BRIC application process is currently underway with $1 billion in funding available. Applications are due Jan. 28, 2022.

FEMA will distribute BRIC grants in the following manner:

- **State/Territory Allocation**: $56 million (up to $1 million per applicant). All 50 states, the District of Columbia, and U.S. territories may apply under the State/Territory Allocation.
- **Tribal Set-Aside:** $25 million. All federally recognized Tribal Governments may apply under the Tribal Set-Aside.
- **National Competition for Mitigation Projects**: $919,000,000 (estimated). Any funds that are not awarded from the State/Territory Allocation will be re-allocated to the national competition. Any funds that are not awarded from the Tribal Set-Aside will be re-allocated to the non-financial Direct Technical Assistance for tribes.

Go to FEMA's BRIC page to learn more. There is also $160 million available for projects that reduce repetitive loss through the Flood Mitigation Assistance Program. Visit the FMA page for details.

From the Director's Desk

By *Chad Berginnis, CFM*
Executive Director, ASFPM

Historic Opportunity for Lasting Change

According to one definition, the Thanksgiving holiday is meant to celebrate the harvest and other blessings of the past year. So, in sitting down to write my final column of 2021, I not only reflected on this past year but also on the nearly 30-year career I've been blessed with in flood risk management. I think about both the progress and setbacks that have occurred along the way in order to give some context to this latest year's efforts. The word that I keep coming back to is "historic."

During ASFPM's weekly calls with our policy team, for several months there has been a feeling that we've never had more things happening from a policy standpoint than we do right now. In fact, it is nothing short of amazing since many of our colleagues, especially those in Washington DC, are still working remotely due to COVID. Yet, it feels like our time has come. Just think about what has been accomplished over the past year:

- The restoration/reinstatement of the federal flood risk management standard.
- Funding of nearly $3.5 billion for HMGP as a result of the COVID disaster declaration.
- Passage of the STORM act (with funding through the infrastructure bill) that will provide yet another approach to do mitigation through state revolving loan programs.
- Passage of the Digital Coast Act, which will fill data needs and gaps for critical coastal management issues and improve the integration of key data sets.
- Significant progress on the creation of a national Atlas 14 program with legislation pending in Congress and funding provided through the infrastructure bill recently signed into law.
- A $3.5 billion surge in additional Flood Mitigation Assistance funding to address repetitive loss properties (a recommendation ASFPM made in Congressional testimony this past spring).
- Implementation of DRRA Section 1206, which provides financial assistance for post-disaster floodplain management responsibilities, such as substantial damage determinations as well as the standing up of ASFPM's related Disaster Assistance Response Team initiative.
- Filing of and favorable response to a petition for rulemaking to update the NFIP minimum standards, which haven't been changed since the mid-1970s.
- USACE leadership among federal agencies in making flood inundation maps available through its National Inventory of Dams.
- Possible passage of the Build Back Better bill that would include NFIP debt forgiveness, the creation of a means-tested flood insurance premium assistance program under the NFIP, and some additional funding for flood mapping.

In any given year, two or three of these accomplishments would have been significant, but to have 10 of them (and that is counting only those that came to mind as I was writing this) in a single year is…well… historic! Or in horse racing terms, I would argue that we have hit the Superfecta! And nearly all of these were, at one time or another, ASFPM policy priorities.

What all of this means to me is that we have a once in a career — maybe even a once in a lifetime — opportunity to make lasting change and finally alter the trajectory of flood losses in the nation for the better. Can you envision a world where the NFIP minimum standards were much more robust, resulted in flood resilient subdivisions, and actually had the impact of steering development away from our most hazardous areas? Or that the federal government led by example by ensuring its investments had a high

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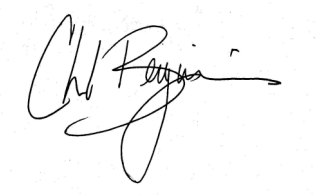
degree of flood protection and considered future conditions? Or that we used the FMA funding to eliminate many of the severe and repetitive loss properties that not only resulted in less damage, but also contributed to the financial stability of the NFIP? Or that our flood maps were based on current precipitation/frequency information and we had the ability to forecast future flood risks? Or that we collectively better understand the comprehensive risk of flooding, including risks of dam and levee failures by having information readily available?

Indeed, I would argue that these may be some of the most exciting times that I have ever experienced as a floodplain manager. But, it is going to be incumbent on all of us to make sure that these investments, policies, and programs make a lasting and tangible difference in reducing flood risk and protecting our nation's valuable floodplain resources.

That is where you will always find a partner in ASFPM. We will continue to fight to realize our vision of an adaptable nation resilient to flooding and prepared for tomorrow's changing climate. We will continue to engage federal agencies, Congress, and our national, regional, and state partners and reflect the voice of the practitioner who has the job of actually implementing the myriad of flood risk reduction programs. As always, we welcome contributions of your time, talent, and resources. If you are a member of ASFPM, we thank you! If you are not, or haven't renewed in a while, remember that membership constitutes ASFPM's single largest source of revenue and ensures we can continue to work on these important programs.

As we kick off the holiday season, I wish to give thanks and gratitude for all of the work that you do and hope that, like me, you are proud of what we have and can accomplish together.

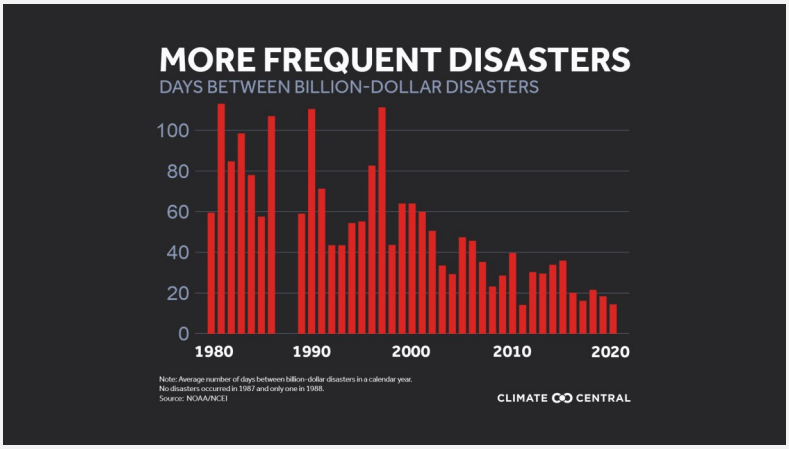
Your partner in loss reduction,



Time Between Major Disasters Decreasing

It's not just the total number of disasters—but **how often** they happen—that strains the resources available for communities to manage risks and recover quickly.

Using NOAA/NCEI data, Climate Central identified a marked increase in the frequency of billion-dollar weather and climate disasters in the United States since 1980. Less time between disasters can mean less time to prepare and fewer resources available to respond and recover.



The average time between billion-dollar disasters has dropped from 82 days in the 1980s to 26 days in the 2010s. In the last five years (2016-2020), there have been just 18 days on average between billion-dollar disasters. Learn more.

Policy Matters!

By Larry Larson, P.E., CFM
Director Emeritus – Senior Policy Advisor, ASFPM

WOO for the Nation's Floodplain Managers

A WOO is a Window of Opportunity. Floodplain managers have a rare WOO right now to provide input on how the National Flood Insurance Program (NFIP) should be improved to better protect lives and property from flood damage and to reduce taxpayer burden on the increasing costs and numbers of flood disaster declarations. Floods are the costliest of all natural hazards, with annual costs now in the $20 million range. An amount that has doubled in each of the last two decades.

Some of us have been working with the NFIP since its early years of the 1960s and 70s. We at ASFPM have long asked FEMA to upgrade its standards and regulations for mapping, floodplain management, and flood mitigation. All those elements are critical to effectively managing flood risk in the nation. The NFIP has become the de facto program for managing flood risk in the nation. That work is done through a joint local, state, and federal approach.

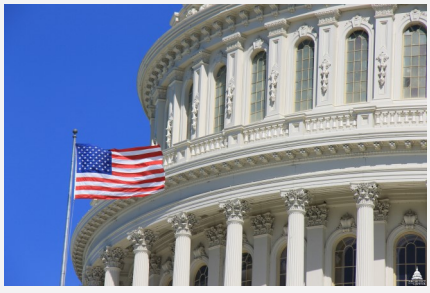
FEMA has just extended the deadline for public comments until Jan. 27, 2021. My plea in this column is to help all of you reading this to understand how rare this opportunity is and to urge you to do your part and give your ideas on how the NFIP can better serve the nation. These standards and rules in the NFIP have not been upgraded in 45 years. All of you know how much development continues to occur in high-risk flood areas and how some communities and states are not helping reduce flood losses. You also know communities that are doing some great work to avoid development in high-flood risk areas. Many federal programs, like the Disaster Relief Act, do not reward those good communities, but instead seem to incentivize development in high-risk areas with a larger federal taxpayer cost-share for disaster relief time and again.

As we see and experience the impacts of more intense rainfall events and sea level rise, these problems will get worse unless the NFIP takes these future conditions into account in their flood maps, development standards and regulations, and how they assist communities and states to effectively manage flood risk.

Everyone reading this newsletter is involved in managing flood risk and no doubt has some very good ideas on how the NFIP can be modified to be more effective. The notice in the Federal Register provides detailed background on the NFIP and a number of questions to help guide your response. In addition, ASFPM is working to develop the association's formal comments. If you would like to have your ideas and perspectives integrated into our response, please send them by Jan. 12 to Meg Galloway at meg@floods.org.

Monthly ASFPM Policy Briefing Webinars

If you're an ASFPM member, be sure to join the ASFPM policy team each month for a review of the most pressing national policy issues of interest to the floodplain management community. Watch your inbox for details! Not a member? This is just one more reason why you need to join ASFPM. Learn more about member benefits here.



Infrastructure Bill Paves the Way for Better Flood Resilience

By Mary Bart

The Infrastructure Investment and Jobs Act signed into law on Nov. 15 represents a historic investment in our infrastructure and an unprecedented opportunity to do significant flood mitigation work in our communities.

Included in the $1.2 trillion package is $6.8 billion that FEMA will invest in community-wide mitigation to reduce disaster suffering and avoid future disaster costs in the face of more frequent and severe climate-related events — from wildfires and droughts to hurricanes, tornados, and floods, according to a White House press release.

These funds are complementing previous award programs that FEMA has amplified to make the nation more resilient. In August 2021, FEMA committed $3.46 billion through the Hazard Mitigation Grant Program across the 59 major disaster declarations issued due to the COVID-19 global pandemic. FEMA also committed $1.16 billion earlier this year for the Building Resilient Infrastructure and Communities (BRIC) and Flood Mitigation Assistance (FMA) grant programs in the Fiscal Year 2021 application cycle.

Here are some highlights with regards to how the bill will help address flood risk across the nation, keeping in mind that most of these items are five-year spending plans:

- $8.7 billion for the newly created Promoting Resilient Operations for Transformative, Efficient, and Costsaving Transportation (PROTECT) grant program, which provides formula funding to states and competitive grants to eligible entities to make our surface transportation infrastructure more resilient, including through the use of natural infrastructure, to the effects of extreme weather and natural disasters.
- $3.5 billion for FEMA's FMA grants over five years — $700 million per year, for Fiscal Years 2022-2026. In previous years, the annual grant cycle for the FMA program ranged from $150-$200 million per year. The Act more than triples the amount available to states and communities to reduce risk of flood damage to homes and businesses through buyouts, elevations, and other activities.
- $1 billion over five years for FEMA's BRIC grant program. That figure is in addition to the funding FEMA provides through setting aside up to 6% of the assistance the agency provides following major disaster declarations through the Public Assistance and Individuals and Households Program. The funding is based off an estimated 180 days after each declaration and does not include funding made available through the Hazard Mitigation Assistance grant programs.
- $800 million for dam safety ($725M for FEMA's National Dam Safety Program and $75M for Water Infrastructure Finance and Innovation Act).
- $800 million for dam removal ($400M for NOAA's Community-Based Restoration Grant Program, $200M US Fish & Wildlife Service - National Fish Passage Program, $115M US Army Corps of Engineers - Section 206 Aquatic Ecosystem Restoration Program, $75M under FEMA's High Hazard Dams Program, and $10M to US Forest Service for removal of non-hydropower federal dams).
- $500 million for the Safeguarding Tomorrow through Ongoing Risk Mitigation (STORM) act. Administered through FEMA, STORM is a revolving loan program available to states and local governments for projects that reduce risk from disasters and natural hazards. With $100

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million per year for five years, this new grant program may finance water, wastewater, infrastructure, disaster recovery, community and small business development projects.
- $492 million for NOAA mapping, observations, and modeling that can protect lives and property during extreme weather events. We anticipate the funding can be used for priority items like coastal mapping, Atlas 14, and flood inundation maps. Atlas 14 is critical to creating and updating flood maps, for land use planning, and for sighting and designing most critical infrastructure.
- Another $492 million for NOAA/NFWF Coastal Resiliency Fund to improve resilience of coastal communities to flooding and inundation by restoring natural ecosystems and increasing protection for communities from coastal hazards.
- $216 million over five years for Tribal Climate Resilience, adaptation, and community relocation planning, design, and implementation of projects that address the varying climate challenges facing tribal communities ($130M for community relocation and $86M for climate resilience and adaptation projects).

The next big legislative package on the horizon, the Build Back Better Act, was passed by the House on Nov. 19. The reconciliation package includes less money than originally proposed for two flood-related programs, but funding is up overall. Specifically, according to E&E News, the bill would provide roughly $600 million for flood maps — down from the $3 billion originally proposed but more than double the $263 million appropriation in recent years. The BBB would also give FEMA $600 million to launch a subsidy program to help low- and moderate-income households buy flood insurance. The original draft allocated $1 billion. Now the bill is onto the Senate where the measure faces a difficult and uncertain road. ASFPM continues to monitor the situation and weigh in as needed.

Webinars, Podcasts & More

FEMA Region 3 is hosting a **coffee break webinar series** for hazard mitigation planners and other partners interested in reducing risk in their communities. These hour-long webinars provide mitigation best practices and highlight the work happening at federal, regional, state, and community levels to reduce risk across the region. See full schedule.

The US Army Corps of Engineers' **Engineering with Nature podcast** features conversations on how the innovative EWN approaches are being applied to address such challenges as climate change, coastal resilience, flood risk management, and more. Episodes from all three seasons are available here.

Combining land use planning and development decisions with strong building codes can reduce vulnerabilities to buildings and infrastructure as well as save lives. Learn more by visiting **FEMA's YouTube channel** to watch the webinar, "Where and How We Build: Using Land Use and Building Codes to Increase Resilience."

If you didn't catch Cimpatico TV's interview with Chad Berginnis and Joel Scata, you can now watch the recording of **Changing Flood Insurance for the Changing Climate** to learn more about the need to update NFIP standards. Watch it here.

NOAA's Office for Coastal Management recently launched an updated version of the **Adapting Stormwater Management for Coastal Floods** tool, which is found on the Digital Coast. Communities can use the scenario-driven "Analyze" section to help determine the coastal water level thresholds for their community that signify potential problems for their stormwater management systems. Access the tool here.

Call for Nominations: 2022 ASFPM Awards

We are now accepting nominations for the 2022 ASFPM Awards. These annual awards recognize the outstanding contributions made by individuals, agencies, and organizations to keep communities safe from flood loss, promote resiliency, and advance the association's mission.

Please preview the submission form before submitting your nomination. See form for individual awards and the chapter award.

Winners will be honored at the 2022 ASFPM Annual Conference in Orlando, Florida. **The deadline is Feb. 10, 2022**.

AWARD CATEGORIES

Tom Lee State Award for Excellence is given annually to recognize an outstanding floodplain management program or activity at the state level.

James Lee Witt Local Award for Excellence recognizes outstanding local programs or activities at the front lines of floodplain management. Eligible entries include local units of government such as cities, towns and counties.

Larry R. Johnston Local Floodplain Manager of the Year Award honors outstanding individual efforts and contributions at the local level. It recognizes an individual responsible for the development of a distinguished local program or activity, or one who struggles to implement flood hazard reduction at the local level in the absence of sophisticated programs and support.

John R. Sheaffer Award for Excellence in Floodproofing is presented for completed work involving a particular project, work, research, design or publication that exhibits the incorporation of accepted procedures, practices and constraints of flood proofing, or promotes the field or knowledge of flood proofing by enhancing the awareness and use of new procedures, methods, designs and/or products. Individuals, private organizations or governmental units and agencies are eligible.

Outreach/Media Award acknowledges efforts of media to increase information and/or awareness of flood issues with the general public. It is also open to an individual, agency, or organization for exceptional outreach efforts.

John Ivey Award for Superior Efforts in Certification recognizes exceptional efforts to promote the professional certification of floodplain managers.

Meritorious Lifetime Achievement in Floodplain Management Award recognizes individuals who, throughout their career, have achieved success in a significant aspect of floodplain management. These efforts include policy, outreach, implementation, education, government, research, litigation or other actions that demonstrate the advancement of flood loss and risk reduction within the nominee's professional realm.

Outstanding Chapter Award recognizes an ASFPM chapter for exemplary practices and activities that deserve national recognition. It acknowledges distinguished works by a chapter in going above and beyond its mission in a way that can be shared and replicated by other ASFPM chapters.

Goddard-White Award is given to individuals who have had a national impact carrying forward the goals and objectives of floodplain management.

Jerry Louthain Distinguished Service Award is the highest award ASFPM gives to recognize individuals who, through their long-term efforts, have clearly influenced the work of the association.

Go here submit your nomination. To learn more, **visit the ASFPM website.**

Subway Flood Expert Explains What Needs to Be Done to Stop Underground Station Deluges

Subway stations in New York were inundated with water following heavy rain on Sept. 1, 2021. But the Big Apple isn't alone – over the last year we have seen similar images in other major cities, including London and Zhengzhou in China.

The Conversation spoke with Klaus Hans Jacob, a geophysicist and flood expert who analyzed New York's subway system before and after 2012's Hurricane Sandy, about the ongoing – and increasing – flood risk to coastal underground transportation systems and what city planners can do to prepare and protect.

Are instances of major subway floods increasing? And if so, why?
In New York over the last month or so we have had three subway floods — first due to a heavy downpour, then from Tropical Storm Henri and now Hurricane Ida. Meanwhile, we have seen similar floods in cities across America and the world.

I think the message should be pretty clear by now: Climate change isn't a matter of the future; its effects are happening right now. Warmer oceans means more moisture in the atmosphere, and as that moisture encounters cold air, it all comes down on the cities like the proverbial cats and dogs.

It is not necessarily a problem just for coastal cities. Ida, for example, left havoc across the entire interior of the eastern United States. But, of course, many major metros — from London to Amsterdam to Marseilles to New York — have been built next to major rivers or on the coast. This makes them vulnerable to excess water through rising tides or heavy rain. In the latest case in New York, it was from above, but the flooding from Sandy came from coastal surge.

How does the age of some of these subway systems affect flood risk?
When the subway was initially built in New York starting in 1904, no one was thinking of sea level rise or torrential rains. And so the fundamental design of the underground system did not take those phenomena into account.

We know better now. For the past 20 years, it has been clear that more severe storms are an inevitable outcome of human-made climate change. But despite having a couple of decades to do something about it, we are still in a reactive mode rather than being proactive. Essentially city officials are cleaning up the mess after the storm, rather than taking measures like relocating infrastructure or protecting it.

So what can cities do to better protect aging subways systems?
In the case of older subway systems, we cannot reasonably expect them to be relocated over the next few decades. Instead we need to fix them.

Odd as it may seem, water in itself is not the problem. Rather, it is a mismatch of the amount of rainfall we are seeing and where the openings are in our subway systems — not just where people go in and out, but also the ventilation grates where air goes in and out and where the electric cables enter the system. All of these openings allow for water to run off the streets and into the subway.

These are known engineering problems that can be fixed. In New York, the Metropolitan Transportation Authority fixed a large proportion of the problem caused by coastal storm surges by installing things such as gates and barriers — some installed permanently, some that need to be inserted into place before the water shows up. These prevent water getting into the subway system. When working as designed, they can result in a 98% reduction in coastal flood potential, according to my calculations. But these measures work for coastal flooding. The problem we saw on Sept. 1, 2021, was the result of

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runoff water from the streets that gets into the system. With coastal storm surges, the water comes into the subway system only at a low level — perhaps at entrances just a few feet above sea level. With the rain, even at higher elevations in a city, subways can flood.

How do you address this runoff street water problem?
You have to approach it in two ways: Avoid street flooding in the first place and protect entrances to subways.

Avoiding street flooding can be achieved through increasing the capacity of street gutters and the sewer system to take up the runoff water from streets. This can be done by widening or adding new gutters, but also by having larger-diameter sewer pipes in the roads.

And then you can make the ground more absorbent by planting more trees on streets and putting in permeable surfaces. For example, rather than concrete parking lots, put in gravel which is a permeable surface that allows the ground to absorb water.

Individual property owners can, if they have a flat or near-flat roof, put gardens on their roofs rather than have gutters. Green roofs can absorb the water coming down from the sky; and catch basins — devices that collect storm water — and then release that water slowly over days, for each house; they can help to ensure sewer systems don't get overwhelmed. These measures work best in areas with lots of single-family houses.

Trash on the streets can amplify the problem by clogging up drainage, but it isn't the systemic issue. It just makes a bad situation worse.

When it comes to protecting existing subway entrances, you can build berms — mini levees or raised banks — of several feet at every entrance. That does make it more difficult for people with disabilities, so you have to also modify elevators to take people down.

All it needs is good engineering — there is no mystery. Well, it is engineering, and political will and money.

Are we seeing this engineering in newer subway systems?
These are not new problems; the fact that water flows downhill has been known since the beginning of mankind. But newer underground systems are dealing better with this. Tokyo deals with flooding, Taipei likewise. They have had problems in the past but are faster to adapt. For example, transport officials in Tokyo installed sliding doors in underground passages that are able to withstand the pressure from storm floods 15 meters deep.

Newer subway systems also tend to have entrances at high points compared to their surroundings. The key is not letting water build up near entrances in the first place — so don't put subway entrances near low points of a street.

You mentioned political will and money…
It isn't cheap. To effectively protect a city's subway system from flooding costs tens of billions of dollars. But it is cheaper to fix the problem before extreme events than having to fix the problem after the damage is done.

Unfortunately, the current trillion-dollar infrastructure bill going through Congress has a totally insufficient amount for subways — far more of it, around US$110 billion goes to bridges and roads than public transportation modes, which are set to receive around $39 billion.

Dave Fowler Wins Lifetime Achievement Award from Wisconsin Chapter

Congratulations to ASFPM's own Dave Fowler, CFM, who was recently honored with a Lifetime Achievement Award from the Wisconsin Association for Floodplain, Stormwater, and Coastal Management (WAFSCM). The award was presented at the WAFSCM and MnAFPM Joint Annual Conference, held in La Crosse, WI, Nov. 3-5.

Laura Herrick, WAFSCM awards committee chair, presents Fowler with his Lifetime Achievement Award.

Fowler was instrumental in the formation of WAFSCM in 2000. He was one of its founding members, its first chair, a long-time conference chair, and he continues to play a key role today. In the nomination materials, it's noted that "Without his blood, sweat, and tears, this organization would not exist. WAFSCM's past, current, and future members are forever grateful."

Fowler's distinguished career includes 36 years with the Milwaukee Metropolitan Sewerage District as the environmental policy coordinator and senior project manager and watercourse maintenance manager. In these capacities he worked on flood management policy and the planning, design, and construction of flood mitigation projects ranging from $50,000 to $120 million. Throughout his career at MMSD, he was a strong advocate for structural and non-structural flood mitigation projects in Milwaukee and surrounding communities, and his efforts can be seen and felt throughout the region.

According to the nomination, "Dave's enthusiasm for the environment and life in general is so contagious it has won him the respect and admiration of not only his co-workers, but also members of the Wisconsin Department of Natural Resources, the United States Geological Survey, the U.S. Army Corp. of Engineers, the U.S. National Park Service, the Association of State Floodplain Managers, local elected officials, local municipal engineers, environmental groups, and citizens alike."

Currently, Fowler serves as a senior project manager for ASFPM's Flood Science Center, a position he's held since 2018. In addition to this award from WAFSCM, Fowler's previous awards include the Louthain Award for Distinguished Service to ASFPM (2016); the Sweet Water Coalition's Individual Watershed Champion (2016); and the River Network's National River Hero (2005). Way to go, Dave!

East River Resilience Collaborative Field Trip

When he's not receiving awards, you can find Dave Fowler spreading the word about flood mitigation. In October, Fowler joined the East River Resilience Collaborative (ERRC) on a field trip to Van Beaver Park in Green Bay, WI.

He spoke on the importance of resilient flood mitigation strategies, such as buyouts, elevating structures, and different policy measures (e.g. zoning, codes and ordinances). ERRC is a community of practice committed to increasing flood resiliency in Wisconsin's East River Watershed.

FloodNet: Hyperlocal Flood Sensors to Support Real-Time Flood Monitoring, Flood Response, and Urban Resilience Planning

By Rebecca Fischman

Whether the result of tidal flooding, extreme events like Hurricanes Henri and Ida, or more intense rainfall, flooding affects public health and safety, mobility, infrastructure, and the economy. In the face of climate change, which is likely to increase the frequency and severity of such events, cities need access to real-time data providing critical information on when and where flooding occurs.

One of the initial sensors deployed is over the Gowanus Canal to monitor water level changes due to tidal influence.

In New York City, there has been no quantitative, systematically-collected data on street-level flooding outside of reports made to the city's 311 service request line. A multi-institutional collaboration, FloodNet, is addressing this challenge through the design, manufacture, and deployment of novel, low-cost, open-source sensors in flood-prone areas across NYC.

The FloodNet project is a consortium of researchers from New York University (NYU), the City University of New York Advanced Science Research Center (CUNY ASRC), the Science and Resilience Institute at Jamaica Bay (SRIJB), the New York City Mayor's Office of Climate Resiliency (NYC MOCR), and the Mayor's Office of the Chief Technology Office (NYC MOCTO) who convened to develop and deploy a platform to provide real-time, street-level flood information — including the presence, frequency, and severity of local flood events — to various stakeholders. These stakeholders range from policymakers to residents to emergency response teams. The platform includes a physical sensor network, its connectivity, as well as data storage and sharing infrastructure.

The FloodNet team sees significant potential in integrating this sensor data into real-time situational awareness, alerts, future forecasting, and long-term planning. The sensor data can:

- **feed** into an early warning system throughout the city, informing road closures or travel bans;
- **connect** to electronic and variable signage to notify drivers of potential roadway hazards;
- **alert** communities on emergency preparedness and response, including mitigation measures such as installing sandbags or removal of valuables from basements;
- **identify** areas that most urgently need post-storm assistance; validate existing flood models and hone predictions; and
- **inform** long-term stormwater and tidal flooding resiliency planning.

FloodNet ultrasonic sensors are designed to be low-cost, easy to construct with an open-source design, and flexible for multiple use cases and installation scenarios. These design principles facilitate local engagement and stewardship and allow for self-sufficiency in power and data transmission. The current

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design consists of a low-power microcontroller with integrated LoRaWAN radio, a 2200 mAh battery, solar controller and 1.2W solar panel, and a MaxBotix industrial-grade range sensor. The LoRaWAN gateways use the open-source Internet of Things (IoT) platform to transmit data.

Each neighborhood typically requires a single gateway to provide coverage to an unlimited number of sensors. Gowanus, Brooklyn and Hamilton Beach, Queens are FloodNet's two testbed neighborhoods and have been recording flood events since their installation in 2020, including significant flash flooding that occurred during Tropical Storm Henri and post-Hurricane Ida in 2021.

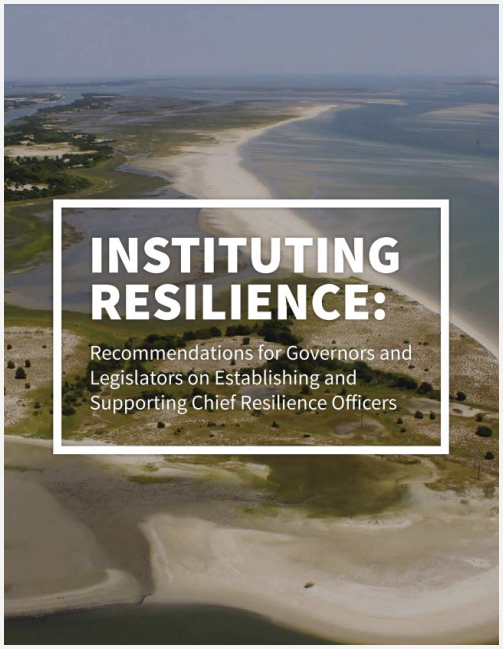
Looking ahead, the FloodNet team is working with a software developer to create a dashboard that will house the sensor data and additional flood-related information on the program's website: www.floodnet.nyc/. The team piloted 10 sensors, has 20 sensors ready to be deployed in the coming months, and is scoping an expansion to 500 sensors over the next five years. FloodNet will undertake a concurrent community engagement process, organizing and convening workshops to identify high-impact flooding locations, explain sensor functions and uses, collect and communicate community feedback to the project team, produce educational materials on FloodNet and its functions, and train local residents to use the dashboard and report flooding and its impacts.

FloodNet is building a baseline dataset of the scale and scope of flooding in NYC that will help government, researchers, and communities better plan for and adapt to increased flooding due to climate change.

Rebecca Fischman is a senior policy advisor for waterfront resiliency in the NYC Mayor's Office of Climate Resiliency.

New Report Provides Roadmap for Establishing and Supporting Chief Resilience Officers

As climate impacts intensify across the country, many states and municipalities have established Chief Resilience Officers (CRO) to provide coordinated statewide leadership to reduce risks and protect communities, businesses, vital infrastructure and the environment.



Instituting Resilience, a new report from the Environmental Defense Fund (EDF), Environmental Council of the States (ECOS), and National Emergency Management Association (NEMA), outlines specific recommendations for how governors and legislatures can establish and support CROs to meet the challenges of a changing climate.

"State leaders must take proactive steps to reduce the risks from climate change and other disasters today," said Trina Sheets, Executive Director, NEMA. "Chief Resilience Officers serve important roles in helping states plan ahead to keep people safe and reduce the costs of future disasters. This roadmap provides important lessons from states that have done this successfully."

Download the report.

Crowdsourcing Flood Risk Awareness

By Mary Bart

With 85% of Americans owning a smartphone (Pew Research, 2021), states, cities, and counties are increasingly turning to the public and our ubiquitous phones to help assess local flooding and storm damage. Whether through apps, web portals, or geo-tagged tweets, crowdsourcing flood risk information can help agencies see in real time where flooding is happening, while also boosting flood awareness among citizens.

Here's a quick round up of how a few different local government agencies are enlisting public support in identifying flood events:

MyCoast – With projects of varying sizes running in 10 states, MyCoast is one of the largest crowd-sourced platforms. Each state's mobile app and website features a portal to collect and analyze pictures and data related to flooding. The public is encouraged to take photos of nuisance flooding, precipitation-caused flooding, and coastal storm damage and upload them through the MyCoast mobile app or the website. The app uses data from the photo to determine the location, date, and time the photo was taken; the tool then pulls the corresponding tidal and weather information. Local officials can use the information collected to visualize the impacts of flood events so that steps can be taken to reduce flood risks.

The following states have projects running on the MyCoast platform: Florida, Maine, Maryland, Massachusetts, New Hampshire, New Jersey, Rhode Island, South Carolina, Texas, and Washington.

CoastSnap – This beach monitoring project was started in Australia in 2017 with the goal of developing algorithms to map shoreline changes based on images shared by members of the public. CoastSnap relies on repeat photos at the same location to track how the coast is changing over time due to processes such as storms, rising sea levels, human activities, and other factors. Since the pilot project, it has since expanded to other countries, including two regional applications in the United States that use the CoastSnap platform: CoastSnap Delaware and CoastSnap Woods Hole in Massachusetts.

In Delaware, the program has set up smartphone cradles with instructional signage at three different locations: Herring Point in Cape Henlopen State Park, Broadkill Beach, and Delaware Seashore State Park on the south side of Indian River Inlet. For Woods Hole, the cradles are currently set up at Town Neck Beach in Cape Cod and State Beach, Oak Bluff in Martha's Vineyard.

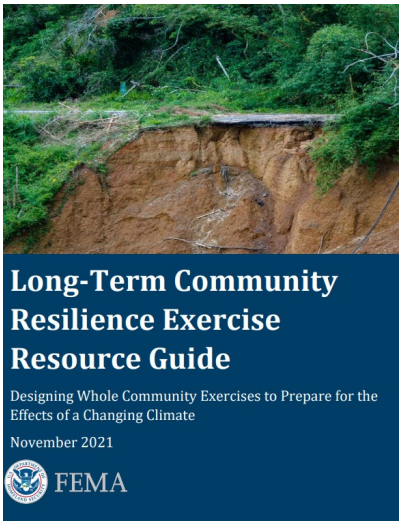
DC Flood Risk Portal – Residents of Washington, DC can share social media posts related to flooding which are then analyzed and layered with maps with FEMA Flood Insurance Rate Maps (FIRMs), maximum extents of hurricane storm surges, and sea level rise projections. As flood risk evolves over time, the city plans to use information compiled through the portal to identify trends and target areas that would benefit from mitigation. Visit the site.

FEMA NEWS

Updates from the Federal Emergency Management Agency

FEMA Releases Community Resilience Guide

Across the United States, increasingly intense storms, more extreme heat waves, and a surge in severe flooding and wildfires are no longer a far-off possibility but rather an immediate threat for many communities.



As the frequency, duration, and severity of these disasters change and the threat of overlapping disasters accelerates, focusing on long-term hazard mitigation, community resilience, and climate adaptation becomes increasingly important, particularly for vulnerable communities with limited capacity to prepare for and cope with extreme weather and climate-related threats.

The Long-Term Community Resilience Exercise Resource Guide, a new preparedness toolkit from FEMA, provides a low-risk and cost-effective way for all types of communities to increase preparedness for all threats and hazards.

It provides three types of information:

- Guidance and basic principles to inform community exercises, including climate adaptation, hazard mitigation planning, and building community resilience as they relate to current threats, hazards, future conditions, and risks.
- Tools and templates for building exercises that include climate considerations and hazard mitigation practices.
- Resources identifying climate-related programs, funding and training across all levels of government, nonprofit organizations, private sector entities, and the academic community.

Preparedness exercises focused on climate adaptation can provide a path to increasing community resilience and support adaptation planning for long-term climate risk. Climate adaptation exercises offered in the guide use different scenarios and modeling to look at time horizons of 20, 30 and 50 years, the cascading impacts of predicted climate change and related severe weather events.

Download it here

NFIP Comment Period Extended to Jan. 27

FEMA is extending the public comment period until Jan. 27 for its request for information on floodplain management standards that communities should adopt to result in safer, stronger, and more resilient communities. The agency is also seeking information on how the NFIP can better promote protection of and minimize any adverse impact to, threatened and endangered species and their habitats.

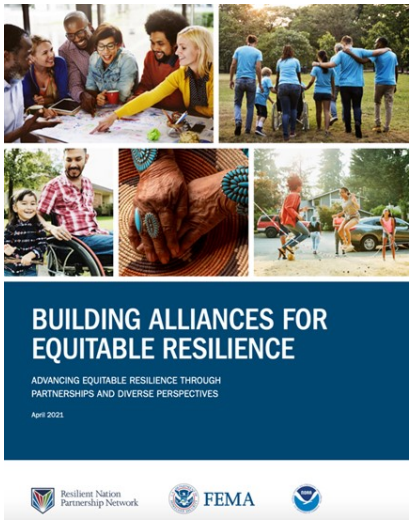
ASFPM is working with members to develop a comprehensive response. To ensure your perspectives are included in our response, please send your comments to Meg Galloway (meg@floods.org) by Jan. 12. You may also submit your comments directly through the Federal Register.

FEMA is holding an additional public meeting on December 15, 2021. More details here.

FEMA and Partners Collaborate on Equitable Resilience Resources

The Resilient Nation Partnership Network, with support from the National Oceanic and Atmospheric Administration, released "Building Alliances for Equitable Resilience" and the accompanying "Partner Voices" Audio Series.

Following the 2020 RNPN Virtual Forum on "Alliances for Equity," this resource is the result of collaboration by 26 partners in the fields of equity and resilience, who seek to inspire the whole community to make equitable and resilient practices a part of their day-to-day activities. Readers will find guidance, perspectives, personal stories, resources and more. While just a first step, the network hopes this will lead to increased awareness and action to make equitable resilience possible for all.



The Resilient Nation Partnership Network, NOAA, and FEMA thank all the contributors who generously donated their time to this effort. A full list of the partners who helped make this possible is featured at the end of the resource along with contact information.

For more information, please reach out to FEMA-ResilientNation@fema.dhs.gov

Building Codes Timeline from 1979 to Today

A timeline depicting the history of FEMA's participation in the building code and standards development process is now available.

The timeline highlights key building code regulations and events. Each event is designated a color to indicate whether that event was a federal law/mandate, a FEMA action or a building code action. The timeline also includes details about each calendar entry.

The timeline's audience includes the general public, officials and community planners. Hazard-resistant building codes are a low-cost, high-impact solution that will be central to breaking the cycle of disaster damage and reconstruction.

Download the timeline

Hazus Risk Assessment Library Now Available

Hazus, FEMA's loss estimation software, provides standardized tools and data for estimating risk from hazards. It also provides information on physical damage, economic impacts, social impacts, and cost effectiveness. FEMA has released the Hazus Loss Library, an online collection of risk assessment information for planners and emergency managers to search, view, and download Hazus-generated risk information. The Hazus Loss Library is a collection of products that includes modeling for flood, hurricane, earthquake, and tsunami events across the country.

FEMA created the Hazus Loss Library to make measurable risk information accessible to all. The library will support all phases of emergency management at the local, state, and federal levels. Specifically, it can support risk assessments in mitigation plans; identify where to focus resources and program benefits in emergency management; provide losses-avoided studies for mitigation grants; and more.

The release provides the first open and authoritative collection of Hazus risk assessment studies to be shared publicly. As a public collection of risk information, it will expand the use of Hazus data and remove technical, time, and cost barriers.

Users can search, view and download risk information for communities across the United States. Studies are organized by location, type, and hazard, so users can quickly find risk information for their emergency management projects. Economic losses, building damage, and social impacts from both historic disasters and planning scenarios are available for download in spatial formats, spreadsheets, and reports.

The Hazus Loss Library also includes loss information from **high-resolution flood inundation depth grids**. These depth grids come from the U.S. Geological Survey's Flood Inundation Mapper platform. The data is visualized, summarized, and available for download in the Hazus Loss Library. This tool makes flood loss studies even more accessible for use in planning, mitigation, and response.

The application is free and easy to navigate for both technical and non-technical users. Go here to view the library and find the risk information available for your community.

Incorporating Future Conditions in Mitigation Plans

As the frequency and intensity of natural disaster events increase, it is important to account for future conditions when developing a hazard mitigation plan for approval. Future conditions include the impacts of a changing climate, the built environment, and changes in population and land use. It's crucial to recognize how these conditions will impact people, including those who are disproportionately impacted by natural disasters and underserved in the resources they receive to recover.

The online training program "Investing in Our Future, Planning Now: Addressing Future Climate, Population and Land Use in Mitigation Planning" provides ideas, resources, and examples of how to integrate information on future conditions into the hazard mitigation planning process to increase overall resilience.

Watch the training on **FEMA's YouTube channel.**

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FEMA NEWS

Updates from the Federal Emergency Management Agency

Getting Started with Nature-Based Solutions

As climate change elevates the threats posed by natural hazards, many states, localities, tribes, and territories are exploring nature-based solutions to help keep communities safe.

Nature-based solutions are sustainable planning, design, environmental management, and engineering practices that weave natural features or processes into the built environment to promote adaptation and resilience. This new resource page from FEMA explains the different types of nature-based solutions, planning strategies for governmental and non-governmental collaborations, and funding opportunities with PA and HMA grant programs. Learn more.

Initiatives to Advance Climate Change Resilience

The creation of a Climate Adaption Enterprise Steering Group and development of a new strategic plan are two key steps FEMA announced it is taking to advance resilience to climate change. The steering group is focused on developing a unified agency approach to address the impacts of climate change across all agency programs and operations. It is co-chaired by leadership from FEMA's Office of Response and Recovery, Office of Resilience and FEMA Regions.

As the agency develops its 2022-2026 Strategic Plan, FEMA is seeking input from internal and external stakeholders and will work with partners to increase climate literacy among emergency managers, build climate resilient communities, and empower risk-informed decision making.

New LiMWA Viewer Developed by FEMA R1

The FEMA Region 1 Risk Analysis Branch has released a new Limit of Moderate Wave Action (LiMWA) Viewer for the New England states.

This tool is designed to supplement the flood insurance rate maps (FIRMs) and the National Flood Hazard Layer (NFHL) available on the FEMA Map Service Center in an effort to reduce confusion for anyone trying to make a determination if a property is located in a Coastal AE zone/LiMWA area. The LiMWA line delineates Coastal AE flood zones, that portion of an AE zone lying directly behind a VE zone with wave heights between 3.0 feet and 1.5 feet. The tool can be found here.

Group Flood Insurance Policy Limit Increased

The Group Flood Insurance Policy (GFIP) limit increased to $75,800 (contents and building combined) on October 1. That's up from the previous limit of $72,000. FEMA bases the adjustment on an increase in the Consumer Price Index for all urban consumers of 5.3 percent for the 12-month period, which ended in August 2021.

You can see what's covered and what's not in this new brochure from FEMA.

2022 Future Leaders Scholarship Application Period is Now Open

We are pleased to announce that applications are now being accepted for the Fall 2022 to Spring 2024 Future Leaders Scholarship. We continue to look for the best and brightest to make sure we sustain a strong floodplain management community into the future. If our current and past Future Leaders Scholarship (FLS) recipients are any indication, we are well on our way.

To ensure full consideration, students wishing to apply will need to submit their applications and all required attachments so that they are received by the ASFPM Foundation no later than midnight EST on Tuesday, February 1, 2022.

In 2018, ASFPM Foundation established the FLS to provide direct, financial assistance, mentoring, and support to a deserving college student interested in pursuing a career in a field related to floodplain management. The FLS is a two-year scholarship awarded every other year to a college student entering their junior year of undergraduate studies or the last two years of a five-year or dual degree undergraduate program. Learn more.

- As many of you know, the inaugural scholarship was awarded to University of Arizona engineering student, Jesus Mulgado. Jesus completed his master's degree in 2020, and is currently working as a flood risk management professional with Atkins in Arizona. Please visit the Foundation's YouTube page to watch Jesus speak at the 2019 ASFPM Annual National Conference and share how the FLS has had a profound impact on his life.
- The 2020 FLS recipient, Elizabeth Lacey, is an honors student in civil engineering at Colorado State University. Elizabeth's inspiration to study in the floodplain management field was influenced by her experiences early-on. You can also see Elizabeth's acceptance remarks on YouTube.

Duration of scholarship:
This scholarship is awarded for up to a two-year duration and to a student entering their junior year in a four-year undergraduate degree program or entering the last two years of a five-year or dual degree undergraduate program.

Amount of scholarship and what it covers:
The scholarship will be in the amount of up to $20,000 per year for two years. The funds will pay the recipient's college or university directly for any tuition costs which exceed any existing financial aid or scholarships up to $20,000 per year. Funds remaining after tuition payment may be used for other educational expenses, room and board in a college dormitory, or an equivalent stipend if living off-campus. The precise amount of the stipend will be negotiated by the Foundation with the scholar prior to the beginning of the academic year. The successful recipient will also receive assistance finding a paid summer internship in a relevant professional setting.

Minimum eligibility requirements:
To be eligible for consideration, the FLS applicant must satisfy the following requirements:

- Be a U.S. citizen or have U.S. permanent resident alien status
- Have graduated from high school prior to August 2020
- Have completed a minimum of one year of studies at a college or university on or before January 2022

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- Be entering their junior year or their fourth year of a five-year dual degree program in fall 2022
- Have a cumulative, minimum GPA of 2.5 (or equivalent) at the completion of the fall semester 2021
- Be attending an accredited public or private college or university in the United States or its territories
- Be pursuing a course of study related to the missions of the ASFPM or the ASFPM Foundation, which entail flood risk management or any of its related components.

To learn more and/or apply, visit the ASFPM Foundation website. **Any questions may be directed to** asfpmfoundation@floods.org.

Your help is appreciated! We are asking that you use your networks within the floodplain management community, including your relationships with colleges and universities, to share information about this incredible opportunity. We believe our hope for a strong and resilient future begins with the support the Foundation provides through the Future Leaders Scholarship. ***Help us find our next rising star!***

#GivingTuesday a Resounding Success!

Because of the generosity of members of the Floodplain Management Community, the ASFPM Foundation exceeded its goal! We raised more than $26,000 to help fund the 2022 Future Leaders Scholarship. Thank you!

More details will be provided in the next edition of the ASFPM News and Views.

$24 Million Available Through Emergency Coastal Resilience Fund

The National Fish and Wildlife Foundation announced the release of the **Emergency Coastal Resilience Fund 2021 Request for Proposals (RFP)**. This funding comes directly from the Extending Government Funding and Delivering Emergency Assistance Act to support projects that increase the resilience of wildlife habitat and coastal communities impacted by hurricanes and wildfires in 2020 and 2021.

NFWF will award approximately $24 million in grants through this RFP for practices that help restore wetlands, build living shorelines, improve hydrologic flow, reduce hazardous fuels, and generally enhance natural systems.

Eligible projects must be located within the NCRF coastal areas and those counties that received a federal Major Disaster Declaration with a Public Assistance designation as a result of hurricanes or wildfires in 2020 and 2021.

The deadline is **February 3, 2022**. Due to the emergency nature of these funds, a non-federal match is not required.

The RFP can be found here. A webinar is slated for December 7 at 3:00 p.m. ET. Register here.

Deadline Jan. 15, 2022

ASFPM Foundation's 12th Annual Student Paper Competition Deadline is Rapidly Approaching

Teams consisting of one or more graduate or undergraduate students currently enrolled in a college or university are encouraged to **submit abstracts on subjects relating to floodplain or stormwater management no later than January 15, 2022**. The abstracts will be judged by a panel of floodplain management professionals and three finalists will be invited to submit their papers in April 2022. These three finalists will receive free registration to the ASFPM Annual National Conference in Orlando and travel expense assistance to present their papers at a special student conference session.

First Place: $1,000 scholarship

Second Place: $500 scholarship

Third Place: $250 scholarship

Visit the ASFPM Foundation's Scholarships web page for information on eligibility, submission process and timeline, topic areas of consideration, and abstract criteria.

You can also download a flyer to help get the word out to your colleagues, family members, and friends who may know of an up-and-coming student interested in the competition.

Urban Flood Risk and Inequality

A collection of resources from the Graham Sustainability Institute at the University of Michigan is helping municipalities incorporate justice and equity into their adaptation planning. We encourage you to visit this webpage to access the resources, including an in-depth report titled Centering Racial Justice in Urban Flood Adaptation, a series of policy briefs, a planning toolkit, and an interactive story map.

Part 1 of the report, which centers on cities in the Great Lakes region, examines the intersection of flood risk and race in six Great Lakes cities: Buffalo, Chicago, Cleveland, Detroit, Flint, and Milwaukee. In all cities, current and future flood risk is unevenly distributed, and maps reveal areas with high potential for investment and policy to address both racial inequality and flood risk and adaptation needs.

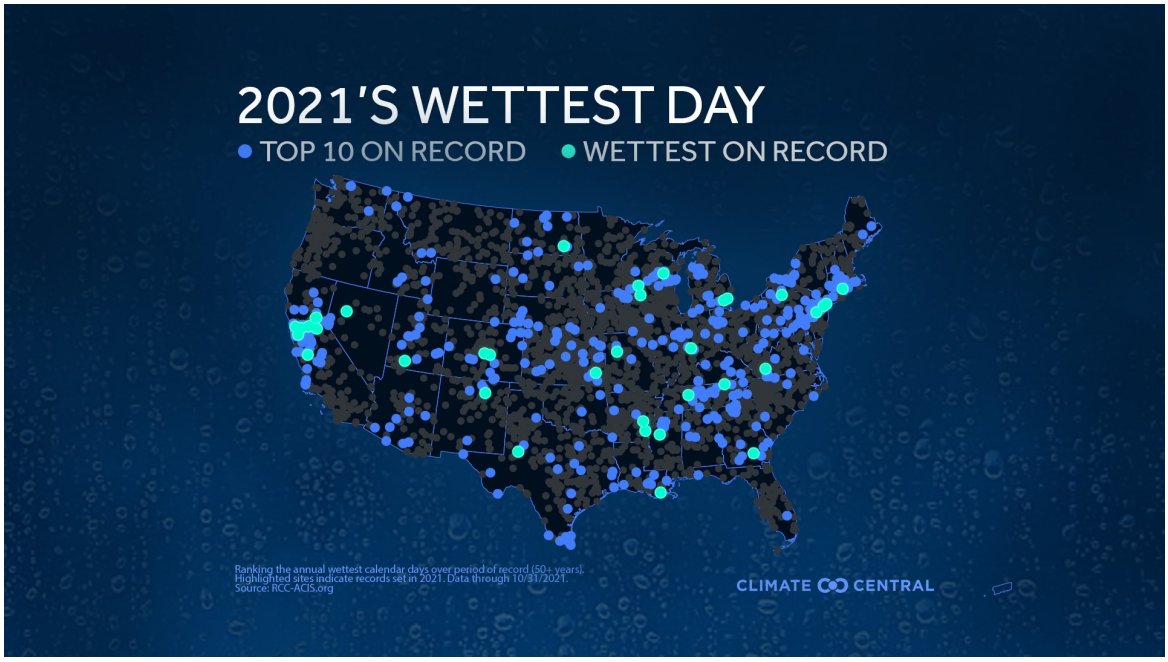
Part 2 of the report features examples and resources that can support local decision-makers, planners, and advocates align racial justice to urban adaptation centered on these five principles:

1. Focus on Root Causes
2. Institutionalize Representation
3. Community-Driven Planning
4. Equity-Centered Data Collection and Analysis, and
5. Cross-Sector Collaboration

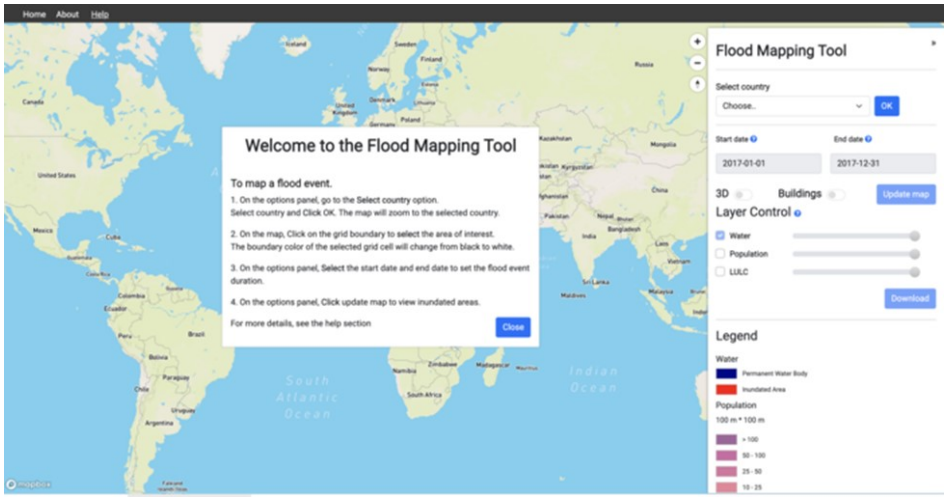
Part 3 highlights four evaluation strategies that can help support racial justice in urban flood adaptation, and includes a helpful checklist that cities and other municipalities can use to develop an urban flood mitigation and adaptation strategy that incorporates the strategies outlined in the report.

Heavy Rains Are Getting Heavier

Climate change is supercharging the water cycle, making the heaviest rains of each year heavier. Climate Central found that 72% (178) of 246 locations analyzed have seen an increase in the amount of rain falling on their annual wettest day since 1950. Locations along the Gulf Coast and Mid-Atlantic have experienced the greatest increase by volume in their heaviest rainfall events. Learn more.



World Flood Mapping Tool Unveiled



A new online tool that makers say quickly generates accurate street-level resolution maps of floods that have occurred worldwide since 1985 was released last month. The **World Flood Mapping Tool** should help all countries and is especially needed in the Global South, where flood risk maps are rare and often badly out of date, but population growth and urbanization are accelerating.

Created by United Nation University's Institute for Water, Environment and Health in Hamilton, Canada, with support from Google, MapBox, and other partners, the free tool requires only Internet access to obtain a flood map at 30-meter resolution. Users can adjust variables to help identify gaps in flood defenses and responses.

The World Flood Mapping Tool uses the Google Earth Engine combined with decades of Landsat data since 1985 — a vast catalog of geospatial data enabling planet-scale analysis capabilities.

Layers of Landsat information for a selected region and specified timeframe identify temporary and permanent water bodies while integrating site-specific elevation and land use data. This produces a detailed map of flood inundation in recent decades, with available overlays of population, buildings, and land use.

"An estimated 1.5 billion people — greater than the population of Europe — live at risk of exposure to intense flooding," says UNU-INWEH Director Vladimir Smakhtin. "We need to prepare now for more intense and more frequent floods due to climate change and hope this tool will help developing nations in particular to see and mitigate the risks more clearly."

Hamid Mehmood, a GIS and remote sensing specialist at UNU-INWEH who led the tool's development, says that a UNU-INWEH survey showed a majority of flood forecasting centers in flood-prone countries lack the ability to run complex flood forecasting models.

He adds that floods like those this year in Europe that killed more than 200 people and caused billions of dollars in damages are now up to nine times more likely because of climate change.

"As temperatures continue to rise the number of flood events will increase along with their severity," says Mehmood. "No place is immune. And yet remarkably few regions, even in wealthy countries, have useful, up-to-date flood maps because of the cost and difficulty of creating them."

The new tool will also reflect new floods soon after they occur to provide up-to-date maps to help assess overall flood impacts and plan for the future. An upcoming version for more commercial uses, such as by insurance firms, will offer even more precise building-level resolution. In addition, a free flood risk prediction tool for release next year will use artificial intelligence to generate current and future flood risk maps for three climate change scenarios at the city, district, and river basin levels.

Access the tool.

NEWS BRIEFS

News and resources for the floodplain management community

BRIC by BRIC: Maximizing FEMA's new pre-disaster mitigation funding
Twice as much funding, a greater focus on equity, and incentives for building codes. See what's different about BRIC 2021 and get tips for designing competitive projects for the $919M grant program. The deadline is Jan. 28, 2022.

Our Future, Our Floods
A new report paints a grim picture of flood risk across the US now and over the next 30 years. What can emergency management officials do to address the threat?

'We do need to back away from the coast,' climate scientist warns
The risks that coastal communities face include threats of "sunny day flooding" and storm surges that will be both more frequent and more extreme. And a higher prevalence of flooding not only displaces residents, but also incurs high economic costs to rebuild.

'Sea level rise is definitely a factor' in East Coast floods
A large swath of the East Coast is bracing for some of the worst flooding in almost 20 years, raising questions about the role of sea-level rise and concerns for both coastal residents and ongoing restoration efforts in the Chesapeake Bay.

Climate change forces small towns to make tough decisions – but small budgets mean few options
With sea level rise accelerating, a town in Nova Scotia hired an engineering firm to explore options for protecting itself. But the municipality rejected all of the suggestions, saying they're simply not affordable.

Reduce flooding from backed up sewers? There's an app for that
Stormwater sewers are being overwhelmed by more intense storms. Most of the solutions call for big pipes and expensive construction, but a group of researchers is developing monitoring technology to help cities use their current systems better. Even during heavy rain, there are parts of a stormwater system that aren't full. You just need to figure out where.

Heavy rains bring flooding and mudslides to the Pacific Northwest and Canada
A massive wind and rainstorm caused flooding and mudslides in the Pacific Northwest near the Canadian border, leading to the closure of an interstate highway, evacuations, and power outages.

Improving benefit-cost analyses for rural areas
Barriers to accessing federal funding – including requirements such as conducting a benefit-cost analysis – can prevent rural and low-income communities from building critical infrastructure and resilience projects. New models and BCA alternatives show that it is possible to quantify the benefits of reducing climate risks for all people.

Storm drain sensors show more frequent nuisance flooding
To learn more about "sunny day" flooding, its causes, and ways to better forecast when and where floods may overtake streets in coastal towns, researchers are placing sensors in storm drains located in flooding "hot spots" to track when waters are rising in a drain and when floodwater begins to spill onto a street.

FEMA selects Stantec team for national flood mapping, risk mitigation
Stantec has been selected to provide engineering and technical services for the National Flood Insurance Program under a five-year contract valued at up to $300 million. Projects will include regional flood hazard modeling, floodplain mapping, and flood management services with the mission of increasing risk awareness and inspiring communities to take mitigation actions to reduce the risk to life and property.

NEWS BRIEFS

News and resources for the floodplain management community

Senate confirms Michael Connor to lead Army Corps
By a vote of 92-5, the Senate confirmed Mike Connor to be the next Assistant Secretary of the Army for Civil Works, the top civilian post overseeing work by the Army Corps of Engineers. Connor, a member of the Taos Pueblo tribe, will take the post just as the Biden administration pivots the agency's focus to tackle climate change, flooding, and environmental justice and boost tribal consultation. Connor was part of the Interior Department under the Obama administration.

State News

GEORGIA
The Georgia Flood Literacy Project
The way flood terms are used could determine how a community will prepare, adapt, and recover when faced with a disaster. The Georgia Flood Literacy Project has developed a collection of resources to help professionals and the public speak the same language — from base flood elevation to velocity zone, and everything in between.

INDIANA
Indiana DNR Division of Water project to create and update Flood Insurance Rate Maps
The Indiana DNR Division of Water has updated its Flood Insurance Rate Maps to include more than 18,000 stream miles of "Zone A" quality studies, with Base Flood Elevations and Floodway included.

MAINE
Barely a cloud in the sky and Portland, Maine is flooding
In the past, Portland might see a king tide breach its streets only a handful of times. But as the world warms and sea levels continue to rise, it will happen with far greater regularity. Models indicate that within the near future, high tides will breach city streets as many as 100 times a year.

MARYLAND
Baltimore Urban Waters Flood Science and Policy Action Report
This action report looks at the gaps between flood science and regulatory frameworks and highlights key findings and recommendations across five issue areas: flood science and impacts, technical resources, government coordination, equity/social vulnerability, and outreach/education.

NEW JERSEY
Saturation Point: NJ puts affordable homes in flood-prone areas — and residents at risk
Climate change is forcing us to face an uncomfortable truth: We've developed affordable housing in places that we previously hadn't developed for a reason, like floodplains, and now we need to unwind that mistake.

Damp Jersey Shore town ponders a fix for 'sunny day' floods
An elite but often-underwater beach town at the Jersey Shore is looking for its own solutions to back bay flooding, deciding it can't wait for state and federal officials to agree on a fix.

NORTH CAROLINA
Advancing Use of Green Stormwater Infrastructure
The Raleigh City Council unanimously approved a plan to enhance the use of nature-based solutions to address flooding and water quality challenges. The city's plan requires low impact development techniques in city projects and planning, and establishes a staff position to educate the public and work with private developers to incorporate green stormwater features in projects.

NEWS BRIEFS

News and resources for the floodplain management community

SOUTH CAROLINA

FEMA looks at overhaul of old land use, relief funding options for flood-prone SC areas

"It's really about asking them to take a look at lands that we know have historically flooded or that may flood in the future and we just want to be careful about what capital investments are moving in these areas," said April O'Leary of Horry County Rising.

City of Conway tests out new flood mitigation strategies

The City of Conway is testing out new strategies that would help prevent flooding in the downtown area. The strategy uses permeable pavement, a porous solution that allows water to drain through it.

TENNESSEE

New group formed to help Tennessee with flood readiness

A group of Tennessee mayors, emergency managers, homeowners, and business leaders announced the launch of Flood Ready Tennessee, a coalition dedicated to finding common sense solutions to address the human and financial impacts of flooding across the state.

VIRGINIA

Flood mitigation referendum passes in Virginia Beach

Voters in Virginia Beach have approved one of the larger bonds in the U.S. to pay for infrastructure projects to guard against rising seas and intensifying hurricanes, suggesting that more Americans are finally willing to spend tax dollars to adapt to climate change.

WEST VIRGINIA

Justice Awards Community Block Grants To Flood Damaged Communities

Gov. Jim Justice awarded nearly $66 million in community block grant development grants to fund nine stormwater projects, two water treatment plants, two dams, one sanitary sewer line relocation, and four planning projects.

West Virginia Flood Tool

The West Virginia Flood Tool is an interactive web map application developed by the West Virginia GIS Technical Center (WVGISTC) with funding from the West Virginia Division of Homeland Security and Emergency Management (DHSEM), and the Federal Emergency Management Agency (FEMA). The tool provides quick and easy initial determination of flood risk, reduces time and cost to make initial determinations, determines if a property is within the Special Flood Hazard Area (SFHA), displays corresponding elevation (accurate to +/- 10 vertical feet), and links the property location to FEMA's Map Service Center where users can view and/or purchase official flood maps.

WISCONSIN

City of Kenosha to receive award for flood control efforts

The Wisconsin Association for Floodplain, Stormwater, & Coastal Management is awarding the City of Kenosha with its 2021 Local Award for Excellence for the city's efforts to mitigate major flooding issues by constructing stormwater basins in several older neighborhoods.

As Lake Michigan Shoreline Vanishes, Wisconsinites Fight Waves with Walls. (Spoiler Alert: The waves will win.)

Lakefront homeowners are scrambling to add seawalls or riprap, slopes of rock or concrete that block waves. But artificial barriers can accelerate erosion downstream, blocking sand from naturally replenishing beaches — sometimes sparking conflict. Eyeing such consequences, experts are calling on communities to find new ways to protect shorelines.

Welcome New Members

Alex Hill
Allen Shue, P.E.
Amy J. Swigart
Anthony Clark
Audrey A. Giesler
Bryan McIlwee
Carrie J. Evenson, Ph.D., P.E., CFM
Cassondra A. Tripard
Chasen B. Gill
Daniel Livingston
Daniel P. Symer
Daniella Llinas, CFM
David S. Ruzicka
Desmian Alexander
Dexter D. Fisher, P.E.
Eleanor G. Beckwith, E.I.T.
Ethan R. Barnette
Garland P. Pennison
Gary M. Poore
Grace Puppe
Hailey Kirlin
Ian J. Crittenden
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Matthew M. Phillips
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Travis C. McStraw
William S. Lord, Jr., P.E.
Willie J. Haulstead

ASFPM members come from a diverse cross-section of the floodplain management community. Together they represent all 10 FEMA regions, 50 states, U.S. territories, local, state, tribal and federal government, private industry, nonprofit and academia.

Not yet a member? Check out the benefits.

Do You Need to Renew Your ASFPM Membership?

Membership renewal season is upon us! By now you've already received notification that you can renew your membership for 2022 online through the member portal to ensure there's no interruption in member benefits.

When you renew, please be sure to also check that your contact information and email preferences are up-to-date so that you can continue receiving our emails with important association and committee information!

If you have any questions or comments, our membership engagement coordinator is only an email away. You can reach Cate Secora at memberhelp@floods.org.

ASFPM Editorial Guidelines

ASFPM accepts and welcomes articles from our members and partners. "The Insider" and "News & Views" have a style format, and if necessary, we reserve the right to edit submitted articles for space, grammar, punctuation, spelling, potential libel and clarity. If we make substantive changes, we will email the article back to you for your approval before using. We encourage you to include artwork with your article in the form of photos, illustrations, charts, and graphs. Please include a description of the art, along with the full name of who created the art. If the art is not yours originally, you must include expressed, written consent granting ASFPM permission to use the art in our publications.

Association of State Floodplain Managers

8301 Excelsior Dr., Madison, WI 53717
Phone: (608) 828-3000 Fax: (608) 828-6319 editor@floods.org